



Master's Thesis

Law and Technology LL.M.

Tilburg Institute for Law, Technology and Society

**Market Power Analysis in the Digital Era: The Case
of Digital Multi-Product Ecosystems**

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January 2022

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1. Introduction

1.1. Background

While examining the successful firms operating in the digital markets, we often encounter businesses having a wide range of products and services that interconnect with each other. For instance, when one of the most successful businesses of the 21st century, Google, is inspected closely, around its core business Google Search, we see Google News for news coverage, YouTube for video streaming, Google Chrome for web browser, Google Android for mobile operating systems, Google Maps for navigation services and etc.¹ Similarly, Amazon's products and services also consists of several products that are loosely related (in the eyes of consumers) to its e-commerce platform (core business), such as Twitch for live video streaming, Prime Video for video streaming, Amazon Music for music streaming, Amazon Web Services for cloud computing and etc.²

As it will also be defined in the following chapter, in the academic literature, those interconnected products and services offered by the same undertaking is described as “digital multi-product ecosystems”. There are multiple strategic reasons to form a digital multi-product ecosystem. Among others, the most obvious one could be, due to the critical role of data in digital markets, self-preferencing/strategic leveraging across markets deemed to be relatively easy when a company holds a great amount of data related to its users/customers. Besides, due to the multi-sided characteristics of the digital markets and the existence of an advertising market in most cases, aggregation of the data harvested through each product or service strengthens one's position in the eyes of advertisers. On the other hand, since most of the firms in the digital economy also compete for the “attention” of their users, most of the products aim to increase the screen time within the ecosystem, which could eventually be monetized through personalized ads or the offering of services. Therefore, it would be without surprise to see an increase in the number of digital ecosystems in the near future.

In fact, it is also estimated by McKinsey&Company in 2019 that in the following decade, “30% of the world's gross economic output will be from companies that operate a network of interconnected businesses, such as those run by Amazon, Alibaba, Google, and Facebook”.³ Therefore, it is of crucial importance for the competition authorities to have a proper understanding of the characteristics of digital ecosystems. Besides, whether there is a need for differentiated treatment when dealing with digital ecosystems, especially while measuring their market power, shall also be resolved for a more effective competition law enforcement in the digital era.

¹ Google, ‘Our Products’ (*Google*) <about.google/products> accessed January 4, 2022.

² John Dudovskiy, ‘Amazon Ecosystem: a brief overview’ (*Business Research Methodology*) <<https://research-methodology.net/amazon-ecosystem-a-brief-overview-2/>> accessed January 4, 2022.

³ Catherine Fong, Jess Huang, Kelsey Robinson and Kelly Ungerman, ‘Prime Day and the broad reach of Amazon's ecosystem’ (*McKinsey&Company*) <<https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/prime-day-and-the-broad-reach-of-amazons-ecosystem#>> accessed January 4, 2022.

For instance, in a usual competition law proceeding, authorities first tend to analyse the competition between products and services through defining markets and building their analysis upon them. To further exemplify, when dealing with an abusive practice under Article 102 of the TFEU or as per a merger analysis, authorities first tend to define a “relevant product market” to measure the degree of market power that the firm possesses. However, when dealing with a digital multi-product ecosystem, against the usual, the field of competition is between ecosystem of various complementary products.⁴ Besides, as will also be provided in the subsequent chapters, the sui generis characteristics of digital multi-product ecosystems could also challenge the current market power analysis tools and approaches of competition law. Among other consequences, this could lead to insubstantial market power analysis when dealing with digital multi-product ecosystems and therefore even risk the competition law analysis that will be built upon it.

That being said, the controversial determinations made by the EU Commission in its Google Android Decision while analysing Google’s digital multi-product ecosystem’s market power could support the view that, when dealing with such ecosystems, a differentiated treatment could be indeed necessary especially while measuring market power. Accordingly, as per the decision, the traditional market power analysis tools resulted in the conclusion that Apple’s iOS does not belong to the same product market as Google Android.⁵ However, the market reality is that when buying a mobile device, a consumer essentially chooses between Apple’s or Google’s mobile ecosystem. This is supported by the fact that, in 2020, more than 50% of the smartphone users used Apple branded devices (with iOS) and the rest used mobile devices with Google Android.⁶

That being said, the EU Commission is also aware of the need for change in ways to measure market power in digital markets and is therefore currently in the process of updating the Market Definition Notice dated 1997.⁷ In addition, as per the proposed Digital Markets Act, the definition of so-called “gatekeepers” also sets the pace for a broader market power assessment in digital markets since it refers to terms such as “strong economic position, significant impact on the internal market, strong intermediation position, durable position in the market (...)” without any reference to market definition, market share or dominant position.⁸

This policy approach towards differentiated market power analysis in the digital markets could also be observed from the national legislations of the certain EU Member States such as Germany’s introduction of the concept of “paramount cross-market significance for competition”⁹, Italy’s introduction of the concept of “companies of primary importance for

⁴ Michael G. Jacobides and Ioannis Lianos, ‘Ecosystems and competition law in theory and practice’ <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3772366> accessed January 4, 2022, p. 5.

⁵ *Google Android* (Case AT40099) Commission Decision C(2018) 4761 final, para. 238 ff.

⁶ Competition and Markets Authority, *Apple and Google duopoly limits competition and choice* (2021).

⁷ European Commission, *Competition: Commission consults stakeholders on the Market Definition Notice*

⁸ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on contestable and fair markets in the digital sector (Digital Markets Act) COM/2020/842 final.

⁹ Bundeskartellamt, *Amendment of the German Act against Restraints of Competition*

competition in several markets”¹⁰ and Greece’s introduction of the concept of “abuse of power in an ecosystem of structural importance for competition”¹¹. These recent initiations indicate that the traditional market power analysis methods might have to be complemented when dealing with digital ecosystems or, in a broader manner, firms operating in the digital markets.

1.2. Objective and Research Questions

There has been a lot of academic research concerning the behaviours of digital multi-product ecosystems that could harm competitive structure of markets. However, there exist limited number of contributions that primarily focuses on whether the current approaches of measuring market power are reliable while dealing with digital multi-product ecosystems.

Therefore, this thesis will answer the following main research question:

How can the current approaches while measuring market power be adapted to the needs of digital multi-product ecosystems?

In order to answer the main research question, the following sub-questions will be answered first:

- 1) *What is a digital multi-product ecosystem? Do they challenge current concepts and approaches of the competition law framework?*
- 2) *Is the current competition law framework regarding determining market power sufficient for capturing competitive dynamics of a market while dealing with a digital multi-product ecosystem?*
- 3) *What alternative approaches could be adopted while measuring the market power of a digital multi-product ecosystem in competition law proceedings?*

1.3. Preliminary Remarks and Limitations

As per this thesis, the characteristics of digital multi-product ecosystems and approaches related to the market power assessment of such ecosystems will be evaluated only from a legal perspective (mainly from a competition law perspective).

Besides, considering that the focus will be on the sufficiency of market power assessment tools and approaches, this thesis will not analyse digital multi-actor ecosystems and will focus solely on digital multi-product ecosystems, where the multi-market activity of ecosystem

¹⁰ Veronica Pinotti and Martino Sforza, ‘The Italian Competition Authority proposes far-reaching competition law changes to the Italian government’ (March 26, 2021) <The Italian Competition Authority proposes far-reaching competition law changes to the Italian government> accessed January 4, 2022.

¹¹ Orestis Omran, Daniel Colgan, Andreas Politis and Ioannis Asimakopoulos, ‘Special competition rules on digital ecosystems: Greece joins the club’ (September 7, 2021) <<https://www.dlapiper.com/cs/czech/insights/publications/2021/09/special-competition-rules-on-digital-ecosystems-greece-joins-the-club/>> accessed January 4, 2022.

orchestrators could challenge traditional market power analysis tools and approaches much more significantly compared to digital multi-actor ecosystems.

1.4. Methodology

This thesis will be primarily based on interdisciplinary research concerning the close relationship between competition law and economics (however, it should be stated once again that while answering the research questions, the main approach will be from a legal perspective) since it is primarily related to determination and assessment of market power (as being an economic concept) and its application in competition law proceedings when dealing with digital multi-product ecosystems. In addition, legal research will be conducted while evaluating the current legal framework (legislative framework and the case law) and the proposed legislative initiatives concerning the determination of market power in digital markets (in particular related to digital multi-product ecosystems). When developing alternative approaches, recent legislative initiatives and academic studies related to market power, market definition, multi-sided markets and digital multi-product ecosystems will be assessed.

1.5. Structure

Following the introduction chapter, this thesis will first be defining ecosystems. In the relevant chapter, a careful and comprehensive analysis regarding the competition-related characteristics of digital multi-product ecosystems will be delivered. In the subsequent chapter, the current legal framework concerning the determination of market power will be provided briefly. Following that, the sufficiency of the current legal framework regarding the determination of market power while dealing with digital multi-product ecosystems will be discussed. Additionally, the Google Android Decision of the EU Commission, where the Commission based its determinations on a “traditional” market power analysis while dealing with a digital multi-product ecosystem, will be analysed to support the findings concerning sufficiency. Finally, in the subsequent chapter, alternative approaches related to market power assessment that might be adopted while dealing with digital multi-product ecosystems will be presented through an analysis of the proposed legislative initiatives in the EU and academic studies related to market power, market definition, multi-sided markets and digital multi-product ecosystems.

2. Digital Multi-Product Ecosystems and Challenges Ahead

In this chapter, a definition and description of ecosystems will be provided. Following that, a special focus will be directed towards digital multi-product ecosystems. Accordingly, their competition-related characteristics and competition law related challenges that might be encountered in parallel with their characteristics will be analysed.

2.1. Defining Ecosystems

As per the Cambridge English Dictionary, an ecosystem is defined as “all the living things in an area and the way they affect each other and the environment”.¹² As it can be seen from this definition, an ecosystem basically refers to multiple entities and their interaction with each other along with their interaction with their setting. When this environmental definition of an ecosystem is referred to in the context of commerce, the Cambridge English Dictionary defines an ecosystem as “a group of businesses or business activities that affect each other and work well together”.¹³

In this regard, when the ecosystem definitions made by various authors working in the field of business strategy are examined, it is observed that their definition of an ecosystem is similar to the definitions made by the Cambridge English Dictionary but with a special focus on the “value creation” aspect as an outcome of integrated use of products and services. Accordingly, Adner defines ecosystems as “the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize”.¹⁴ In a similar vein, according to Kelly, “ecosystems are dynamic and co-evolving communities of diverse actors who create and capture new value through increasingly sophisticated models of both collaboration and competition”.¹⁵

Even though we have encountered business ecosystems for decades (in its article dated 1993, James Moore stated that the industrial transformation is fuelled by competition among business ecosystems, instead of competition between individual companies)¹⁶, due to the digital transformation and characteristics of digital markets that ease and encourage forming “digital ecosystems” at the same time, we run across business ecosystems more often in the digital economy. This is in line with the McKinsey&Company’s estimation that in the following decade almost one third of the world’s gross economic output will be from digital ecosystems.¹⁷

Similar to the definitions regarding business ecosystem, digital ecosystems also comprise of several business actors that create value through their interactions. Besides, from a competition law perspective, Jacobides, Cennamo and Gawer defines ecosystems similar to the definitions made by scholars working in the field of business strategy, as “groups of firms that must deal with either unique or supermodular complementarities that are non-generic, requiring the creation of a specific structure of relationships and alignment to create value”.¹⁸ On the other

¹² Cambridge Advanced Learner's Dictionary & Thesaurus, (Cambridge University Press) <<https://dictionary.cambridge.org/dictionary/english/ecosystem>> accessed January 4, 2022.

¹³ *ibid.*

¹⁴ Ron Adner, ‘Ecosystem as Structure: An Actionable Construct for Strategy’ 43 *Journal of Management* 39, p. 40.

¹⁵ Eamonn Kelly, ‘Introduction: Business ecosystems come of age’ (*Deloitte Insights*) <<https://www2.deloitte.com/us/en/insights/focus/business-trends/2015/business-ecosystems-come-of-age-business-trends.html>> accessed January 4, 2022.

¹⁶ James Moore, ‘Predators and Prey: A New Ecology of Competition’ 71 *Harvard Business Review* 75, p. 76.

¹⁷ Fong, Huang, Robinson and Ungerman, ‘Prime Day and the broad reach of Amazon’s ecosystem’.

¹⁸ Michael Jacobides, Carmelo Cennamo and Annabelle Gawer, ‘Towards a Theory of Ecosystems’ 39 *Strategic Management Journal*, p. 14.

hand, it is also observed that digital ecosystems mostly develop around multi-sided platforms.¹⁹ Therefore, while defining digital ecosystems from a competition law perspective, the differences between platforms and ecosystems and the relationship between them should also be identified.

According to Teece, platforms are combination of hardware and software that enable and allow providers of complements to add value and interact with each other and/or users and thus facilitate creation of ecosystems.²⁰ In a similar manner, Jacobides and Lianos states that platforms provide infrastructure for enabling the collaboration of different entities and therefore ease the creation of ecosystems.²¹

From this point of view, Jacobides and Lianos, subsegments ecosystems (especially digital ecosystems) into two²²:

- (i) Multi-product ecosystems, that consists of “complementary goods and services that form a bundle that can be consumed by the final customer” and
- (ii) Multi-actor ecosystems, that consists of “groups of independent actors that collaborate (multi-actor) through non-generic complementarities for the provision of a collectively produced product or service or bundle of products and services”.

Considering this, it could be stated that digital platforms could indeed classify as digital multi-actor ecosystems, in case they enable different groups of business actors to collaborate while producing an end-product to be offered to consumers. However, they could not be classified as multi-actor ecosystems without an analysis regarding the level of interaction between different business actors and the outcome that the interaction results in (the end-product that is offered) being made. On the contrary, according to Fletcher digital platforms create value by “allowing communities of actors to engage in some way via the platform” and thus digital platforms should inherently be considered as multi-actor ecosystems.²³

Conversely, it is considered that in the case for a platform to be deemed as a digital ecosystem, it shall also offer products or services as a bundle (interaction of different products and services) or through interactions of multiple business actors (interaction of different actors), that all together creates, captures and offers value through their interaction. For instance, Google or Apple’s mobile application stores could classify as a digital multi-actor ecosystem as application developers also contribute to the offering of products and services throughout

¹⁹ Marc Bourreau, ‘Some Economics of Digital Ecosystems’ Hearing on Competition Economics of Digital Ecosystems <[https://one.oecd.org/document/DAF/COMP/WD\(2020\)89/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2020)89/en/pdf)> accessed January 4, 2022, p. 3; Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 6.

²⁰ David Teece, ‘Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world’ 47 Research Policy 1367, p. 1375.

²¹ Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 9.

²² *ibid*, p.10; Amelia Fletcher, ‘Digital competition policy: Are ecosystems different?’ Hearing on Competition Economics of Digital Ecosystems <[https://one.oecd.org/document/DAF/COMP/WD\(2020\)96/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2020)96/en/pdf)> accessed January 4, 2022, p. 2.

²³ Fletcher, ‘Digital competition policy: Are ecosystems different?’, p. 2.

the digital platforms (application stores) Google and Apple provide. This assessment is also in line with Jacobides, Cennamo and Gawer's conclusions on ecosystems. According to the authors, the concept of ecosystem intends to capture "the link between a core product, its components, and its complementary products/services ("complements"), which jointly add value for customers".²⁴ Accordingly, in order for mutual value creation, some degree of interaction shall also happen between different business actors that result in a final product or service, other than the sole interactions of consumers or businesses with the platform. In the case of the latter, any multi-sided market or intermediary service should have also been considered as a multi-actor ecosystem which will wrongly broaden the definition immensely.

When analysing digital multi-product ecosystems, it is observed that while some players have created device-centric ecosystems whereas integration between their different products and services "generate consumption synergies" (such as Apple and Microsoft), others have developed ad-centric ecosystems whereas the main purpose is to appeal to a large audience and to sell this access to advertisers (such as Google and Facebook).²⁵ Both of those are mentioned in the European Commission's Competition Policy for the Digital Era Report as similar, considering that, in any way, digital ecosystem orchestrators "essentially compete for "access points" to consumers – where the access points themselves can differ".²⁶

In the light of these, even though it is still a highly debated term, it is considered that an ecosystem could be formed through participation of multiple business elements (either actors or products & services) with an ultimate goal of mutual value creation through their interaction. Therefore, considering above, a digital multi-product ecosystem could be defined as "digital complementary products and services that are offered by a single entity²⁷ of which deliver value through interactions" (such as the ones offered by Apple, Amazon, Alibaba, Google, Facebook or Microsoft).

2.2. Characteristics of Digital Multi-Product Ecosystems

Digital multi-product ecosystems might appear in highly debated and researched forms of digital platforms or digital conglomerates. Therefore, while evaluating characteristics of digital multi-product ecosystems, among others, previous research regarding digital platforms, multi-sided markets and digital conglomerates provides insightful guidance, in addition to the business strategy literature, where the definition of "business ecosystems" is first made.

²⁴ Jacobides, Cennamo and Gawer, 'Towards a Theory of Ecosystems', p. 4.

²⁵ Bourreau, 'Some Economics of Digital Ecosystems', p. 5.

²⁶ Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer and Directorate-General for Competition (European Commission), *Competition policy for the digital era* (2019), p. 48.

²⁷ Some authors also refer to such companies as digital conglomerates. Since the term conglomerate refers to multi-market activity in competition law, it is certain that a digital multi-product ecosystem owner could be referred to as such. But it is important to note that, in case the owner offers its portfolio through enabling interactions between its activities in separate markets, there exists a multi-product ecosystem. Please also see: Bourreau, 'Some Economics of Digital Ecosystems', p. 2.

As also stated above, when the structures of digital ecosystems are evaluated, it is observed that digital multi-product ecosystems are usually formed around multi-sided platforms that could also be considered as the core product within the ecosystem. According to Petit and Teece, this is due to the fact that digital ecosystems usually rely on the technological leadership of one or more firms that provide a platform service around which other parties align their investments and strategies.²⁸ Therefore, due to the common platform structure of digital ecosystems (or in other words as the core product within a digital multi-product ecosystem is usually a digital platform), mutual competition law-related characteristics of digital platforms such as:

“(i) strong network effects (the more people use a product, the more appealing this product becomes for other users),

(ii) strong economies of scale and scope (the cost of producing more or of expanding in other sectors decreases with company’s size),

(iii) marginal costs close to zero (the cost of servicing another consumer is close to zero),

(iv) high and increasing returns to the use of data (the more data you control, the better your product), and

(v) low distribution costs that allow for a global reach”²⁹

could also exist in the case of digital multi-product ecosystems.

Economies of Scale/Scope

Economies of scope is deemed to be particularly important in the case of digital multi-product ecosystems. This is due to the fact that operating simultaneously across multiple adjacent markets could increase overall service quality which could result to more consumers using the ecosystem.³⁰ Besides, since the nature of digital markets and digital platforms leads to strong supply-side synergies given the cost structure of digital platforms (high fixed costs and low marginal costs as the same infrastructure could be used across a range of different markets), operating in multiple markets could also decrease costs.³¹ In line with this, Bourreau also states that “economies of scope in product development reduce the costs for firms to expand into a multi-product entity and to create product ecosystems”.³² In a similar vein, it is stated in Digital

²⁸ Nicolas Petit and David J. Teece, ‘Taking Ecosystems Competition Seriously in the Digital Economy’ Hearing on Competition Economics of Digital Ecosystems <[https://one.oecd.org/document/DAF/COMP/WD\(2020\)90/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2020)90/en/pdf)> accessed January 4, 2022, p. 3.

²⁹ Luigi Zingales and Filippo Maria Lancieri, *Stigler Committee on Digital Platforms: Policy Brief* (2019), p. 7-8.

³⁰ Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel* (2019), p. 32.

³¹ Fletcher, ‘Digital competition policy: Are ecosystems different?’, p. 5.

³² Bourreau, ‘Some Economics of Digital Ecosystems’, p. 4.

Competition Expert Panel's Unlocking Digital Competition Report that "strong economies of scope are one reason why the same small number of large digital companies have successfully built ecosystems across several adjacent markets".³³ For instance, Google's offering of price comparison services (through Google Shopping) in addition to its general search services also contributes to its overall costs thanks to the revenue brought by such service without bearing any significant additional costs for offering it. However, it should also be stated that, according to Bourreau, ecosystems expand to other markets "if the two markets are "connected", meaning that data collected in one market facilitates quality improvement in the other market"³⁴. Therefore, it is considered that digital multi-product ecosystems further increase their offerings as part of a strategy which intends to contribute their overall market power and competitiveness.

Role of Data

Additionally, the role of data is of utmost importance, especially in the case of digital multi-product ecosystems. This is stated by Petit and Teece as being one of the foundations of digital ecosystems in addition to other characteristics (such as network effects or economies of scale/scope).³⁵ It is further stated that "(...) the rate and direction of Amazon, Google, Netflix and Facebook's diversification are given by the data collected as a by-product of user engagement with their platforms (including transactions/purchases)".³⁶ The main reasoning behind the special importance of data is due to its intangible nature which makes it re-usable indefinitely across different markets, whether to enter or expand in markets (supply side synergies) in the most fitting manner to answer consumer needs. Besides, it could also be stated that, in the case of digital multi-product ecosystems, as there exists a multi-sided market nature (an advertisement market) around the core product in most of the cases, firms are encouraged to further strengthen their data collection capabilities (amount and variety) through offering additional products and services. For instance, through offering video streaming services (YouTube) in addition to its general search services (core business), Google could further increase its data collection capabilities concerning its users, which could be monetized through selling targeted advertisements.

Economies of scope and possession of data might together lead to strengthening a digital multi-product ecosystems market power along with the overall quality of its services. This is stated in the Digital Era Report as³⁷:

"(...) a multiproduct platform or ecosystem, i.e., an acquirer that is simultaneously active in other markets, will typically build on the (frequently data-related) economies of scope that its core services offer and the consumption synergies that result for consumers. These complementary activities may reinforce

³³ Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, p. 32.

³⁴ Bourreau, 'Some Economics of Digital Ecosystems', p. 8.

³⁵ Petit and Teece, 'Taking Ecosystems Competition Seriously in the Digital Economy', p. 7-8.

³⁶ *ibid*, p. 7-8.

³⁷ Cr  mer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 121.

the quality of the service it offers as well as its dominant position in the core market”.

Network Externalities

When the demand side factors are evaluated, it is obvious that consumers may enjoy further benefits from their consumption of products or services offered as part of an ecosystem.³⁸ Therefore, this charming nature of ecosystems in the eyes of consumers like a one-stop-shop, supplemented with the characteristics of digital markets, enable all the products and services within the ecosystem also benefit from data-driven network effects. Besides, due to the multi-sidedness of the products and services, data-driven network effects both contribute to the market power of the ecosystem and, as also stated above, further encourages ecosystems to expand into new markets to further strengthen their offerings. Accordingly, this results to a loop where the ecosystem constantly expands to new markets (as stated above, these new markets to be entered by the ecosystem are also strategically identified) by using the already existing data and by doing so further strengthen the existing network externalities. Moreover, these characteristics of digital multi-product ecosystems might also lead to customer lock-in to the ecosystem. This is due to the relationship between economies of scope and consumption synergies whereas the former facilitates expansion into new markets and the latter allow to keep consumers into the ecosystem.³⁹

Ability/Incentive to Engage in Anti-Competitive Behaviour

As per the Unlocking Digital Competition Report, it is stated that combination of features such as economies of scale/scope, strong network effects, and restrictions to consumer switching/multi-homing could lead to significant market power.⁴⁰ In accordance with that, it could also be stated that due to their sui generis characteristics that result in significant level of market power, digital ecosystems also tend to threaten competition in digital markets even without any anti-competitive intention. Besides, due to the market tipping characteristics of digital markets, digital ecosystems might also have strong incentives to engage in anti-competitive behaviour, with a fear that the market could tilt against them.⁴¹

Besides, digital ecosystems also have a strong ability to engage in anti-competitive behaviour. For instance, since new entrants needs to offer an entire ecosystem to compete with existing players, digital ecosystems might raise barriers to entry and expansion through obstructing multi-homing or switching of consumers and therefore significantly impede effective competition to develop.⁴² Moreover, as it is seen from the previous examples, digital ecosystems also have a strong incentive and ability to “give themselves an advantage through

³⁸ Bourreau, ‘Some Economics of Digital Ecosystems’, p. 4.

³⁹ *ibid*, p. 5.

⁴⁰ Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, p. 37.

⁴¹ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 37.

⁴² Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, p. 31.

self-preferencing and obtain an unfair advantage through the holding of data and imitation of rivals' innovations"⁴³. The Google Shopping Case of the EU Commission could be a good example for this kind of behaviour.⁴⁴ Besides, an example of typical anti-competitive behaviour for a digital ecosystem is also illustrated in the Digital Era Report as "customers of the dominant ecosystem can be "leveraged" to the newly integrated service; customers of the target are integrated into the ecosystem; and due to the stronger network externalities, all customers are less likely to leave the ecosystem afterwards".⁴⁵ This way, digital ecosystems could also limit the potential for competition through disruptive innovation, be reluctant for innovation competition and therefore also harm innovation as well.⁴⁶ Facebook's (Instagram) copying of Snapchat's stories function could be an example for this kind of behaviour. In fact, by copying the innovative product that Snapchat offers and offering it as part of its digital multi-product ecosystem, Facebook was able to slow down Snapchat's growth by 82%.⁴⁷

On the other hand, their economic characteristics should not lead to the conclusion that there exists no competition between digital ecosystems. Even though it might be hard for digital players other than ecosystems to compete with them, according to the European Commission, there might be intense competition between ecosystems.⁴⁸ In a similar vein, according to Bourreau, due to the characteristics of digital ecosystems, "even though consumers may be locked in ex-post into an ecosystem, from an ex-ante perspective, the competition between ecosystems to attract consumers will be fierce".⁴⁹ This could be exemplified as the ex-ante competition between iOS devices (iPhone) and Google Android devices from the perspective of consumers, where the consumers indeed make a choice to enter into a mobile ecosystem.

To conclude, the economic characteristics of digital multi-product ecosystems such as the vital role of data, strong network effects, strong economies of scale and scope, low marginal costs and low distribution costs have certain similarities with digital markets and digital platforms. However, in the case of the former, strong economies of scope and lock-in effects comes into play as distinctive elements. When considering several issues such as (i) the already concentrated market structure of digital markets, (ii) characteristics of digital markets that favour the creation of digital multi-product ecosystems, (iii) the sui-generis features of digital multi-product ecosystems that could even worsen the already existing concentration levels, it could be concluded that a particular focus shall be given to them from a competition law perspective. However, in Fletcher's words, the main concern of the competition policy in the era of digital ecosystems shall be "disentangling benign rationales for the building of ecosystems from anticompetitive ones and adjudicating between them".⁵⁰

⁴³ *ibid*, p. 31.

⁴⁴ *Google Search (Shopping)* (Case AT39740) Commission Decision C(2017) 4444 final.

⁴⁵ Cr  mer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 122.

⁴⁶ Fletcher, 'Digital competition policy: Are ecosystems different?', p. 11.

⁴⁷ Josh Constine, 'Snapchat growth slowed 82% after Instagram Stories launched' (February 3, 2017) <<https://techcrunch.com/2017/02/02/slowchat/>> accessed January 4, 2022.

⁴⁸ Cr  mer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 34.

⁴⁹ Bourreau, 'Some Economics of Digital Ecosystems', p. 6.

⁵⁰ Fletcher, 'Digital competition policy: Are ecosystems different?', p. 11.

2.3. Competitive Constraints and Digital Multi-Product Ecosystems

Even though the competition law-related problems that digital ecosystems might pose could be evaluated through several different angles, defining the boundaries of competition and, in particular, measuring their market power is one of the fundamental issues since it directly affects the outcome of any competition law-related proceeding. In order to do so, the competitive constraints they are subject to shall be analysed first, in a fitting manner.

Therefore, also per the traditional competition law approach through market definition⁵¹, an analysis regarding their competitors (players that they compete with) shall be made first. According to Teece, in “platform-based ecosystems”, competition occurs (i) between platforms, (ii) between a platform and its partners and (iii) among business partners of platforms.⁵² In this regard, it is certain that competition “between a platform and its partners” and “among complementors” will primarily be related to multi-actor ecosystems where there exists such relationship.

In light of these, in the case of “platform-based” digital multi-product ecosystems (where the core product within the ecosystem could be considered as a platform), competition between one platform and another could be starting point for the market power analysis. However, it will be impossible to think of the core platform without other products that interconnect with it. This could be exemplified as only focusing on the competition between Google Android and iOS, without considering the hardware that uses such software (mobile devices that run Android and iPhone’s), since the value creation occurs through the interconnected offerings of products and services. Besides, it should also be considered that there also exists competition in the market of each product and service that forms part of the ecosystem. Thus, one could reach a conclusion that, while dealing with digital multi-product ecosystems there exists multiple levels of competition, (i) competition between ecosystems (this is referred to as “inter-ecosystem competition” by Jacobides and Lianos.⁵³), which could be considered as being a competition between core platforms (in case there exists a core-platform, for instance, the competition between Google’s and Apple’s mobile ecosystems could be regarded to be between Google Android and iOS), and (ii) competition between each of the products and services (for instance, the competition between Google Maps and Apple Maps within Google and Apple’s mobile ecosystems). In the case of the latter, an ecosystem might also face competition from “specialized firms (specialists)” (for instance, Yandex Maps).⁵⁴

In light of these, in the following chapter, the current legal framework concerning the determination of market power will be assessed to conclude whether it is capable of measuring the multi-level competition between a bundle of complementary products and services (for instance, competition between Google’s and Apple’s mobile digital multi-product ecosystems)

⁵¹ Louis Kaplow, ‘Why (Ever) Define Markets?’ 124 Harvard Law Review, p. 439.

⁵² Teece, ‘Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world’, p. 1376.

⁵³ Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 7.

⁵⁴ Bourreau, ‘Some Economics of Digital Ecosystems’, p. 7.

that we encounter while dealing with digital multi-product ecosystems. In addition, the Google Android Decision of the EU Commission will also be evaluated to further support the findings regarding sufficiency, since, in such case, the EU Commission based its determinations on a “traditional” market power analysis while dealing with a digital multi-product ecosystem.

3. Market Power, Digital Markets and Digital Multi-Product Ecosystems

In order to ensure competitive markets that lead to maximization of consumer welfare, among others, competition rules (i) forbid the formation of firms that will hold a great amount of market power through mergers and acquisitions and (ii) confer special responsibilities to firms with a great amount of market power to make a level playing field for their competitors and to abstain from exploitation of consumers. Thus, determination of the degree of market power a firm holds or will hold (following a merger or acquisition) is the starting point for most of the analysis and evaluations to be made by the competition authorities. This role of market power analysis makes it the most crucial part of the analysis especially in abuse of dominance cases and merger control.

In any event, competition rules (mainly concerning abuse of dominant position and merger control) tend to be applicable for firms that hold a certain level of market power, a “dominant position”. In parallel with the neoclassical definitions of market power, under the EU Law, the dominant position is defined as “a position of economic strength enjoyed by an undertaking, which enables it to prevent effective competition being maintained on a relevant market, by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of consumers”.⁵⁵

Accordingly, it could be stated that, in competition law proceedings, authorities tend to analyse whether the degree of market power of an undertaking holds could be considered as a “dominant position” within the competition law framework. Even though holding such a dominant position is not prohibited per se, abusing it via exploitative or discriminatory behaviours are. Besides, as also mentioned above, in case a dominance would like to be created through a merger or acquisition transaction, in certain cases that could be prohibited as well.⁵⁶ Therefore, it is considered that, in the competition law framework, the concept of market power and consequences of its possession is closely associated with a “dominant position” (in fact, these terms are used as synonyms in the competition law framework). In Këllezi’s words, “(...) market shares constitute an intervention threshold that may lead competition authorities to

⁵⁵ Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, para. 10; Case 27/76 *United Brands Company and United Brands Continental BV v Commission of the European Communities* [1978], para. 65; Case 85/76 *Hoffmann-La Roche & Co. AG v Commission of the European Communities* [1979], para. 38.

⁵⁶ Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation), Article 2.

neglect certain types of market power (...)” (for instance, the notion of “abuse of economic dependence” could be neglected by the intervention threshold).⁵⁷

However, in digital markets and especially with the rise of digital multi-product ecosystems, we see new types of power that challenge the current understanding of market power and therefore the tools to measure it, since “the power exercised by some digital platforms is not limited to control over markets or control over the price and quality of products and services offered to consumers”.⁵⁸ Besides, our current understanding of competition, which mainly refers to competition at the horizontal level, is indeed much more multi-level and complex in digital markets, and especially when dealing with digital multi-product ecosystems. Therefore, in some instances, “the intervention threshold” (existence of dominance) and the tools to find out whether it is exceeded could remain incapable.

As per this chapter, first, the current tools to measure whether a firm is in a dominant position (possesses a certain degree of market power) will be provided briefly. Following that, an analysis regarding whether the notion of “dominant position” and tools to identify it is sufficient to deal with anti-competitive behaviours in the digital markets and while dealing with digital multi-product ecosystems will be delivered. Afterwards, EU Commission’s Google Android Decision will be analysed from the perspective of market power analysis to support the findings.

3.1. Market Power Analysis Tools and The Sui Generis Characteristics of Digital Markets

According to the EU Commission, market power is defined as “the ability of firms to price above marginal cost and for this to be profitable”.⁵⁹ In a similar vein, OECD defines market power as “the ability of a firm (or group of firms) to raise and maintain price above the level that would prevail under competition”.⁶⁰ The expression of “raising prices” shall be assessed in a way that it also includes “other ways in which competition can be restricted, for example by limiting output or capacity, suppressing innovation, reducing the variety or quality of goods or services or depriving consumers of choice all of which are clearly inimical to consumer welfare”.⁶¹ This definition of market power is referred to as the neoclassical approach by some scholars.⁶²

⁵⁷ Pranvera Këllezi, ‘Abuse below the Threshold of Dominance? Market Power, Market Dominance, and Abuse of Economic Dependence’ in Mark-Oliver Mackenrodt, Beatriz Conde Gallego and Stefan Enchelmaier (eds), *Abuse of Dominant Position: New Interpretation, New Enforcement Mechanisms?* (Springer Berlin Heidelberg 2008) <https://doi.org/10.1007/978-3-540-69965-1_3> , p. 55.

⁵⁸ Christoph Busch, Inge Graef, Jeanette Hofmann and Annabelle Gawer, *Uncovering blindspots in the policy debate on platform power* (2021), p. 4, 15.

⁵⁹ European Commission and Directorate-General for Competition, *Glossary of terms used in EU competition policy : antitrust and control of concentrations* (Publications Office 2003), p. 31.

⁶⁰ Organisation for Economic Co-operation and Development and Centre for Co-operation with the European Economies in Transition, *Glossary of industrial organisation economics and competition law* (1993), p. 57.

⁶¹ Richard Whish and David Bailey, *Competition Law* (Tenth Edition edn, Oxford University Press 2021), p. 22.

⁶² Giorgio Monti, *EC Competition Law* (Cambridge University Press 2007), p. 125.

As per the current competition law framework, in order to find out its competitors and the level of market power a firm has, the “market” where the firm competes shall be defined first.⁶³ Definition of the market is used as an instrument to identify and define the boundaries of competition between firms.⁶⁴ Therefore, assessments regarding the market power of a firm are closely related to how the market is defined.⁶⁵ In any event, market definition is not an end in itself while measuring the degree of market power a firm possess but rather a useful analytical tool.⁶⁶ Following a market definition, the suppliers and consumers active on the market could be identified in order for a calculation regarding the total market size and market shares of each firm. Market share of a firm provides a useful first indication to analyse its market position.⁶⁷ While low market shares are generally considered as a good proxy for the absence of substantial market power, higher market shares are considered as an important preliminary indication of the existence of a dominant position in the competition law framework.⁶⁸

In addition to the market definition and market share analysis, since competition is a dynamic process, expansion of current competitors or new entries to the market shall also be considered while assessing the degree of market power a firm possesses, as a (potential) competitive constraint.⁶⁹ While considering this, the EU Commission evaluates whether expansion or new entry could be likely, timely and sufficient to be appraised as a competitive constraint.⁷⁰ Other than constraints imposed by actual and potential competitors, customers could also exert constraints on a firm. Customer’s size, its commercial significance for the firm, its ability to switch quickly to competing suppliers might counterbalance the market power of a firm, by deterring or defeating an attempt by the firm to profitably increase its prices.⁷¹

In any case, this approach while analysing the market power of a firm operating in traditional markets considered to produce rational analysis in the past, in traditional markets (even though there were also criticism on its efficiency in traditional markets). However, digital markets have a combined multitude of characteristics that differentiate them from traditional markets.⁷² That being said, digital markets could be characterized by strong direct and indirect network effects, economies of scale and scope due to the role of data as an input and extremely low marginal costs.⁷³ In addition, digital markets tend to consist of multi-sided platforms, whereas users pay no price for the products and services and firms monetize user interaction on the other side of the market, frequently through personalized advertisement. Thus, there are

⁶³ Whish and Bailey, *Competition Law*, p. 22.

⁶⁴ Commission Notice on the definition of relevant market for the purposes of Community competition law, para. 2.

⁶⁵ Monti, *EC Competition Law*, p. 131.

⁶⁶ Whish and Bailey, *Competition Law*, p. 184.

⁶⁷ Dominance Guidelines, para. 13.

⁶⁸ *ibid*, para. 14, 15.

⁶⁹ *ibid*, para. 16.

⁷⁰ *ibid*, para. 16.

⁷¹ *ibid*, para. 18.

⁷² Filippo Lancieri and Patricia Morita Sakowski, ‘Competition in Digital Markets: A Review of Expert Reports’ (Stanford) [Stanford University, Stanford Law School] 26 Stanford Journal of Law, Business & Finance 65, p. 74

⁷³ *ibid*, p. 74.

important interdependences among undertakings operating on both of the markets.⁷⁴ Due to the critical role of data, and in connection with network effects, entry barriers to the digital markets are deemed to be extremely high even though the marginal costs are extremely low.⁷⁵ Entry barriers could be further strengthened with high switching costs (non-monetary, but behavioural) and lock-in strategies of market players.⁷⁶

In addition to the abovementioned characteristics, along with companies' advantage in the collection of data, firms tend to create digital ecosystems with an aim to increase data collection capabilities, lock-in existing users and further strengthen entry barriers.⁷⁷ This is because, additional data collection is relatively easy for existing market players since new products and services are offered for free to the consumers and monetized on the other side of the market. Besides, strategies related to the creation of ecosystems lead to strong and persistent market power of a limited number of market players.⁷⁸ Therefore, it should be stated that there is a positive feedback loop in the digital markets that serve for the sake of existing players' market power.⁷⁹

Due to these characteristics, to be able to come up with a reliable market definition regarding the products and services within digital markets became a hurdle for competition authorities all around the world. In addition, some scholars stated that increased product complexity, rapid innovation and short demand lifetimes also made the market definition process even harder.⁸⁰ In that regard, as will be provided under Chapter 4, there are already some initiations both in the EU level (evaluation of the Market Definition Notice dated 1997) and Member States level (Germany, Greece and Italy's introduction of new set of rules to measure market power of firms operating in the digital markets) to keep pace with the digital era.

Accordingly, in the following section sufficiency of the current tools will be discussed from the perspective of digital multi-product ecosystems, while also considering the characteristics of digital markets.

3.2. Is the Current Tools of Market Power Analysis Sufficient to Measure Market Power of Digital Multi-Product Ecosystems?

First, it should be stated that even though the current tools and guidelines for market power analysis focuses largely on horizontal competition from established competitors (substitutability), vertical competition is mostly ignored although it is "an important constraint

⁷⁴ *ibid*, p. 80.

⁷⁵ *ibid*, p. 75

⁷⁶ Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, p. 37.

⁷⁷ Lancieri and Sakowski, 'Competition in Digital Markets: A Review of Expert Reports', p. 81.

⁷⁸ Digital Competition Expert Panel, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, p. 40.

⁷⁹ *ibid*, p. 33.

⁸⁰ Magali Eben and Viktoria H.S.E. Robertson, 'The Relevant Market Concept in Competition Law and Its Application to Digital Markets: A Comparative Analysis of the EU, US, and Brazil' *Journal of European Competition Law and Economics*, p. 11.

to the exploitative or exclusionary potential of economic power, in particular in the digital economy”.⁸¹ However, the concept of vertical competition is considered to be relevant in the case of digital multi-actor ecosystems and intra-ecosystem competition. Since this thesis only examines market power analysis while dealing with digital multi-product ecosystems, vertical competition considerations will not be examined under this chapter. Instead, this thesis will focus exclusively on the market power of digital multi-product ecosystems and the methods that could be used for determining the level of market power they have.

As it is provided under the second chapter, when considering the competition between digital multi-product ecosystems, “the “field” of competition is not the relevant product market, as is usually the case in competition law, but rather the ecosystem of various complementary products and associated complementor firms”⁸² and the value created through their interactions. Determining the field of competition is important because it could also provide the opportunity to measure the level of competition between digital ecosystems, which could be a strong indication for the existence of market power. That being said, to measure the market power of digital ecosystems, the nature of competition between them shall be understood first. Accordingly, while dealing with digital ecosystems, it is considered that the competition would be for more of the surplus value of the ecosystem, instead of it being for market share.⁸³ This is stated in the BRICS Report as “ecosystems sell holistic “outcomes”, such as access to safe mobility, rather than fragmented products, such as automotive, service plans and insurances”.⁸⁴ In that case, current tools to measure market power that primarily focuses on end-products to make an analysis shall fail to deliver its purpose since, as it will be exemplified through the Google Android Decision of the EU Commission in subsequent chapter, the current analysis model separates each product that contributes to the surplus value offered by a digital ecosystem and conducts a market power analysis on each element while failing to analyse their interactions and overall offerings to consumers.

As a consequence of the increasing role of “competition for value” in the digital markets, consumer demand is also transformed from being for “a product that serve a functionality” to “the functionality” itself. This is exemplified in the Digital Era Report as “demand for cars is turning into a broader demand for mobility”.⁸⁵ Therefore, in this example, a market definition could fail to analyse competition between electric cars and rental e-mopeds that serves the same functionality from the perspective of consumers. In this changing environment, digital multi-product ecosystems actually compete to offer the best value surplus while fulfilling the demanded functionality, in addition to their competition for “access points” to harvest data as the most crucial input for their business model as an ecosystem. This changing perception of competition is pointed out in a business strategy blog post as “(...) leaders must focus on

⁸¹ Ioannis Lianos and Bruno Smichowski Carballa, ‘Economic Power and New Business Models in Competition Law and Economics: Ontology and New Metrics’ <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3818943> accessed January 4, 2022, p. 8.

⁸² Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 4.

⁸³ *ibid*, p. 32.

⁸⁴ BRICS Competition Law and Policy Centre, *Digital Era Competition: A BRICS View* (2019), p. 181.

⁸⁵ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 47.

creating new values for the primary stakeholder (e.g. customer) as opposed to engaging in traditional competition – which only leads to making incremental changes in features and benefits”.⁸⁶ That is among the reasons for the ongoing discussion regarding “attention markets”.⁸⁷ However, it is certain that any attempt of market definition, including broad definitions such as attention markets, shall also fail to analyse market power because of its dependency on market shares and certain thresholds that indicate the existence of market power. Besides, the market definition/market share paradigm is not well suited to analyse “value creation” character of digital multi-product ecosystems since such analysis requires in-depth analysis of business models. Therefore, it is considered that the market definition/market share paradigm to measure market power shall fail since it is not developed to analyse the competition for “value offerings”.

Accordingly, as also provided above, Lianos suggests that the value capture and value creation strategies of ecosystems creates the need to recognize an additional field for competition as “the level of ecosystems”.⁸⁸ Lianos further states that, “the essence of this new insight on ecosystems comes from the realisation that competition analysis should engage with the ‘value capture’ strategies put in place by economic actors competing for strategic or architectural advantage”.⁸⁹ However, as the market definition/market share paradigm is constituted in the period where the competition between competitors mainly occurs regarding prices, it is considered that the perception of market power that it measures fails to evaluate notions such as value capture or value creation. In a parallel manner, as per the Report published by American Antitrust Institute, it is stated that:⁹⁰

- (i) “market definition hinges critically on properly identifying the demand for a product or service. And since demand is ultimately a function of consumer preferences, difficulty in establishing those preferences could render estimates of demand inaccurate”,
- (ii) “The foregoing concerns are important because demand is the ultimate arbiter of market power. The nature of demand bears directly on how consumers will respond to the exercise of market power by switching to competing providers of digital products and services” and

⁸⁶ Mendix, ‘Value Creation Wins Over Competition’ (*Mendix*) <<https://www.mendix.com/blog/value-creation-wins-over-competition/>> accessed January 4, 2022

⁸⁷ For further discussion on attention markets please see: Tim Wu, ‘Blind Spot: The Attention Economy and the Law’ *Law & Society: Public Law - Antitrust eJournal*.

⁸⁸ Ioannis Lianos, ‘Competition Law for the Digital Era: A Complex Systems’ Perspective’ *Antitrust: Antitrust Law & Policy eJournal*, p. 103.

⁸⁹ *ibid*, p. 161.

⁹⁰ Diana Moss, Greg Gundlach and Riley Krotz, ‘Market Power and Digital Business Ecosystems: Assessing the Impact of Economic and Business Complexity on Competition Analysis and Remedies’ <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3864481> accessed January 4, 2022, p. 16.

- (iii) “Inaccurate estimates of demand could therefore affect DBE market definitions, leading to overly broad, or overly narrow, relevant markets and misestimates of the anti-competitive effect of a merger or harmful conduct”.

These points raised as per the report are especially crucial in the case of digital ecosystems since the demand and consumer preferences regarding the value created by an ecosystem (as being the most critical parameter for consumer opt-in to a digital ecosystem) could not be assessed properly under the market definition/market share paradigm (for instance, demand for Apple Watch for an Apple user could not be properly assessed under a market definition of “market for smartwatches”), it shall eventually fail to measure the market power of a digital ecosystem.

Besides, as it is provided above, due to the minimal role of price competition and the increased role of “value competition”, market definition paradigm shall fail especially while measuring market power of digital ecosystems due to the systemic problems of it (also applicable to measuring market power through the paradigm in the traditional markets):⁹¹

- (i) “(...) method is valid only in the homogeneous goods market”,
- (ii) “once markets are redefined to include imperfect substitutes, as is standard practice, one needs a new mechanism for translating market shares into market power” and
- (iii) “under any plausible criterion for deeming one market definition to be better than another — the central question in any market definition analysis — the only way of applying the criterion presupposes that one has already formulated a best estimate of market power”.

Especially, the definition of the market as “the licensing of smart mobile OSs” in the Google Android Decision contains overtones of the last point made by Kaplow.

Furthermore, as also stated above, it is also put forward by Vickers that “(...) with the conventional market-share- based approach to the assessment of market power is that products are treated as either “in” or “out” of the relevant market”.⁹² According to Vickers, this approach leads to the conclusion that once a product is considered to be out of the market, it may be treated as having little or no competitive significance.⁹³ In line with that, Hovenkamp also supports this view by stating that market definition could only consider products inside or outside a market but does not provides an opportunity to analyse anything between.⁹⁴ This also resulted in the dubious conclusion of iOS and Android not being direct competitors in the Google Android Decision of the EU Commission. In addition to this, according to the Digital Era Report, in the digital economy, market boundaries might be vaguer compared to the

⁹¹ Kaplow, ‘Why (Ever) Define Markets?’, p. 515, 516.

⁹² John Vickers, ‘Market Power in Competition Cases’ 2 European Competition Journal 3, p. 8.

⁹³ *ibid*, p. 8.

⁹⁴ Herbert Hovenkamp, ‘Antitrust and Platform Monopoly’ [Yale Law Journal] 130 Yale Law Journal 1952, p.10

traditional markets.⁹⁵ Besides, the paradigms insufficiency especially in the platform markets (as set out above, digital ecosystems most often develop around core platforms) was also pointed by Hovenkamp. According to Hovenkamp, in case a there exists product-differentiation in a market, defining a market could not be concluded accurately.⁹⁶ Therefore, the market definition/market share paradigm could often fail to fulfil its purpose, especially while analysing market power of digital multi-product ecosystems.

In order to measure market power, a market definition in the level of ecosystems for a more creative approach, such as “market for mobile product ecosystems”, similar to the delineation of cluster markets⁹⁷ is also suggested to capture complex market structures.⁹⁸ In a similar manner, the Digital Era Report further elaborates that “from a consumer’s perspective, markets for specific products or services will persist” and therefore, suggests that ecosystem markets or, in case there exists customer lock-in to ecosystems, ecosystem-specific aftermarkets might have to be defined.⁹⁹ Regarding the ecosystem-level market definition, this results in a challenge deciding which products or services of the ecosystems to include and exclude within the market definition.¹⁰⁰ That is also the reason why a cluster market-like approach shall also fail in the case of digital multi-product ecosystems. For example, Google offers much more variety of products and services within its ecosystem compared to Apple’s, it adds new products and services constantly to its ecosystem and the value generated through the interactions of each element of the ecosystem evolves rapidly. In that case, it will be hard for a cluster market approach to succeed due to product differentiation and the rapidly changing structure of digital markets (constant expansion of digital ecosystems product offerings). In addition, regarding the aftermarkets approach, in accordance with the findings of the Support Study accompanying the Market Definition Notice Update process and according to Jacobides and Lianos, “only “simple ecosystems may be captured with an aftermarkets approach. Inasmuch as ecosystems impose limits to competition based on compatibility (which can be a form of non-generic complementarity) lock-in”, the aftermarkets approach may be informative as to the effects on the primary market and/or the aftermarket affected the same category of users”.¹⁰¹ Therefore, it will be particularly challenging for an aftermarkets or cluster market-like approach to deliver its purpose in the case of digital ecosystems. Also, as it is competition for value and access points to further strengthen the overall value offered to consumers in the case of digital ecosystems, current approaches of market definition/market share paradigm are

⁹⁵ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p.3.

⁹⁶ Hovenkamp, ‘Antitrust and Platform Monopoly’, p.10

⁹⁷ According to Hovenkamp, cluster market definitions (that were previously made in competition law proceedings) could be defined as “markets for noncompeting goods or services sold from a common plant or platform”. Please see: *ibid.*

⁹⁸ Viktoria H.S.E. Robertson, ‘Antitrust Market Definition for Digital Ecosystems’ Concurrences N° 2-2021 I On-Topic I Competition policy in the digital economy 3, p. 6.

⁹⁹ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 4.

¹⁰⁰ Directorate-General for Competition (European Commission), Grimaldi Studio Legale, LE Europe, Valdani Vicari & Associati, WIFO and Wik Consult, *Support Study Accompanying the Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law* (2021), p. 85

¹⁰¹ *ibid.*, p. 88; Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 13.

considered to be incapable and a special emphasis on data possession, further processing capabilities and business models are required.

There are also other reasons to abandon the market power analysis function of the market definition/market share paradigm while measuring the market power of digital multi-product ecosystems. First, it should be stated that, as set forth by Vickers, “the substitutability between one product and another or between one geographic location and another is a matter of degree, and it is artificial to force categorisation”.¹⁰² Furthermore, according to Hovenkamp, measuring market power through the market definition/market share paradigm is an indirect way to measure market power and using direct ways of measuring market power shall be more suitable “provided that the data for using them are available”.¹⁰³ It is further stated that in cases involving digital platforms, market definition/market share paradigm shall be unreliable and direct ways to market power measurement without a market definition already succeeded in merger cases.¹⁰⁴ Therefore, in light of above, considering the strong indicators regarding its failure to deliver results, it is considered that direct methods of measuring market power through comprehensive analysis of different features (such as business model, access to data, consumer biases etc.) could be more capable to bear fruit, considering the success in merger policy and availability of required data to conduct such an analysis in the digital era.

For instance, in the case of Apple’s modern age trust (digital multi-product ecosystem), among others, there exists several relevant product markets (some of the products were not included): markets for its operating systems (iOS, MacOS, watchOS), markets for its hardware (iPhone, Mac, Apple Watch), markets for its software and services (Facetime, iMessage, Safari, Apple Music, Apple News+ etc.). The traditional approach in case of a competition proceeding is to define markets for each, as was the case in the Google Android Decision. However, most of the users of Apple’s products and services actually opt-in for the integrated use functionalities and the value that creates just like the case for almost all ecosystems. Therefore, the “substitutability” analysis shall not be made for each of the markets, but for the ecosystem as a whole since “value creation” and “potential innovation for the ecosystem” are among the key competitive parameters that effect consumers behaviour in the defined markets instead of price. That being said, consumer biases and cognitive limitations along with the architecture of the ecosystem also plays a crucial role in consumer demand. For example, a Mac computer user might consider buying an Apple Watch instead of other smartwatches in the market because of its potential for value creation through integrated use within the ecosystem. Thus, a market definition for smartwatches and Apple’s market share fail to measure its actual market power especially because of the limited role of price competition.

Besides, as a more general problem also when analysing market power of digital ecosystems, most of the proxies that are used under the market definition/market share paradigm are “(...)

¹⁰² Vickers, ‘Market Power in Competition Cases’, p. 8.

¹⁰³ Hovenkamp, ‘Antitrust and Platform Monopoly’, p. 7.

¹⁰⁴ *ibid*, p. 7, 8.

static, and at best provide a “snapshot” description of relevant antitrust markets”.¹⁰⁵ Therefore, considering the role of data, its power to ease market entries and therefore the dynamic nature of digital ecosystems (by means of introducing new products and services as part of the ecosystem) “a snapshot” of a “market” shall lead to misleading determinations of market power.

In addition, it is considered that due to the complex nature of digital multi-product ecosystems and especially their varied and sophisticated business models, any “one-fits-for-all” approach to measure market power, such as the market definition/market share paradigm shall fail as well. This is also stated by Hovenkamp as, “cutting against broad statutory regulation is the fact that digital platforms are extremely diverse from one another”.¹⁰⁶ In line with that, the need to adapt a case-by-case analysis to assess market power is also stressed in the Digital Era Report.¹⁰⁷

Those being said, as will be provided in the subsequent chapters, according to the Support Study that was commissioned as an external evaluation to deepen the analysis regarding the Market Definition Notice Update Initiation, the inability of the market definition/market share paradigm to measure market power while dealing with digital ecosystems was also partly acknowledged.¹⁰⁸ This should also be considered as a strong argument to abandon the paradigm while measuring market power of digital multi-product ecosystems.

In conclusion, in the light of above, it is considered that the current tools to measure market power is not sufficient while dealing with digital multi-product ecosystems. To support this conclusion, in the following chapter, EU Commission’s Google Android Decision will be analysed from the perspective of market power analysis.

3.3. Google Android Decision of the EU Commission

3.3.1. Facts of the Decision

On July 18, 2018, the EU Commission fined Google €4.34 billion for abusing its dominant position through a single and continuous infringement consisting of four separate infringements:¹⁰⁹

- (a) the tying of the Google Search app with the Play Store;
- (b) the tying of Google Chrome with the Play Store and the Google Search app;

¹⁰⁵ Jorge Marcos Ramos, *Firm Dominance in EU Competition Law : The Competitive Process and the Origins of Market Power* (Alphen aan den Rijn : Wolters Kluwer 2020), p. 1.

¹⁰⁶ Hovenkamp, ‘Antitrust and Platform Monopoly’, p. 4.

¹⁰⁷ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 4.

¹⁰⁸ Directorate-General for Competition (European Commission), *Legale, Europe, Associati, WIFO and Consult, Support Study Accompanying the Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law*, p. 77-88.

¹⁰⁹ *Google Android*.

(c) the licensing of the Play Store and the Google Search app conditional on the anti-fragmentation obligations in the anti-fragmentation agreements; and

(d) the grant of revenue share payments to OEMs and MNOs on condition that they pre-installed no competing general search service on any device within an agreed portfolio.

As per the decision, the EU Commission defined four separate markets as (i) the market for licensing of smart mobile operating systems (“OS”), (ii) the market for Android app stores, (iii) the market for general search services, and (iv) the market for non-operating system specific mobile web browsers.¹¹⁰ It is determined that Google holds a dominant position in (i) the market for the licensing of smart mobile operating systems; (ii) the market for Android app stores; and (iii) each of the national markets for general search services in the EEA.¹¹¹

Among all the defined markets, a special focus regarding the “the market for licensing of smart mobile operating systems” and “the market for Android app stores” should be given, since the determinations made by the EU Commission regarding Google’s market power was related with the market definition. Through the way the EU Commission defined those markets, other market power measuring tools such as market share analysis became meaningless as the market definition left Google with several minor players in both of the markets.

The Market for Licensing of Smart Mobile Operating Systems

Through the market definition process, the EU Commission took the demand-side perspectives of OEMs and concluded its substitutability analysis accordingly. This is stated in the decision as “while respondents to the requests for information may have acknowledged the existence of a degree of competition between iOS and Google Android devices at the level of users of smart mobile devices, they did not indicate that licensable and non-licensable smart mobile OSs can be seen as substitutes from an OEM perspective” and “the other two documents (an internal email dated 6 May 2012 and an internal presentation dated October 2011) indicate only that there is a degree of competition between Android and iOS devices at the level of users. These documents do not indicate that licensable and non-licensable smart mobile OSs are part of the same relevant market from an OEM perspective”.¹¹² The analysis from a supply-side perspective remained limited to the determination that “neither Apple nor BlackBerry has licensed or announced its intention to license its smart mobile OS to any third party”.¹¹³ It should also be stated that the EU Commission did not carry out a SSNIP test while defining the market.

It is particular regarding the determination regarding “non-licensable smart mobile OSs do not belong to the same product market as all licensable smart mobile OSs”, the EU Commission stated that “non-licensable mobile OSs may exercise a degree of constraint on Google’s position

¹¹⁰ *ibid*, para. 217.

¹¹¹ *ibid*, para. 439.

¹¹² *ibid*, para. 249, 252.

¹¹³ *ibid*, para. 240.

in the worldwide (excluding China) market for licensable smart mobile OSs because of possible competition between iOS/BlackBerry devices and Google Android devices both at the level of users of smart mobile devices and of app developers” and “iOS exercises an insufficient indirect constraint on Google's dominant position in the worldwide (excluding China) market for licensable smart mobile OSs”.¹¹⁴

As per the market power analysis, the EU Commission concluded that (i) Google had enjoyed strong and stable market shares by volume, (ii) there has been no effective entry, (iii) there are barriers to entry and expansion and (iv) OEMs have insufficient countervailing bargaining power.¹¹⁵

Additionally, an in-depth analysis was made regarding the insufficient indirect constraint exercised to Google's market power by non-licensable smart mobile OSs. First it is concluded that “users obtain smart mobile OSs as part of a wider bundle with a smart mobile device and take into account a range of factors other than the smart mobile OS when purchasing such a device”.¹¹⁶ Following that, it is stated that the constraint exercised to Google's market power by iOS is insufficient and indirect due to the factors such as (i) significant price differences between Google Android and iOS devices, (ii) users of Google Android devices would face substantial costs when switching to iOS devices, (iii) users show a significant degree of loyalty to their existing smart mobile OS and (iv) app developers are unlikely to stop developing for Google Android and develop exclusively for iOS.¹¹⁷

The Market for Android App Stores

As per its analysis the EU Commission stated that (i) from a demand-side perspective, the app stores of Apple and BlackBerry have been specifically developed for iOS and BlackBerry OS and cannot run on Android” and (ii) from a supply-side perspective, “developers of app stores for non- licensable smart mobile OSs are unlikely to start developing app stores for Android due to their vertically integrated business model”.¹¹⁸

Similar to the analysis made regarding “the licensing of smart mobile OSs”, the EU Commission stated that even though they constitute a separate product market, “the Commission concludes that app stores for non-licensable smart mobile OSs exercise an insufficient indirect constraint on Google's dominant position in the market for Android app stores”.¹¹⁹

The EU Commission based its conclusion on Google's dominant position on factors such as (i) market shares of Google and competing Android app stores, (ii) the quantity and popularity of apps available on the Play Store, (iii) the automatic update functionalities of the Play Store,

¹¹⁴ *ibid*, para. 242, 243.

¹¹⁵ *ibid*, para. 450, 461,474.

¹¹⁶ *ibid*, para. 483.

¹¹⁷ *ibid*, para. 498-501.

¹¹⁸ *ibid*, para. 307, 308.

¹¹⁹ *ibid*, para. 322.

(iv) the fact that the only way for OEMs to obtain Google Play Services is to obtain the Play Store, (v) there are barriers to entry and expansion and (vi) OEMs have insufficient countervailing bargaining power.¹²⁰

In a similar manner, a detailed analysis regarding the insufficient constraint from app stores for non-licensable smart mobile OSs was also made. It is stated by the EU Commission that since (i) in order to switch to the app stores for non-licensable smart mobile OSs such as Apple and BlackBerry, users of the Play Store would need to purchase a new smart mobile device and (ii) users of the Play Store are unlikely to switch to Apple or BlackBerry smart mobile devices in the event of a small but significant, non-transitory increase in the price of the apps distributed on the Play Store, the constraint remains insufficient.¹²¹

3.3.2. Analysis of the Decision

There are two aspects of the market power analysis made by the EU Commission as per the Google Android Decision. First, in accordance with the above, our current tools within the EU Competition Law framework led to a highly controversial market power analysis while dealing with products and services within the digital markets. On the other hand, the market power analysis also unfolds the increasing need for an enhanced analysis capability while dealing with digital multi-product ecosystems. As per this chapter both of those aspects will be evaluated.

3.3.2.1. Reflections on the Market Power Analysis of the EU Commission

In parallel with the above, among the defined markets, only the definitions regarding “the market for licensing of smart mobile operating systems” and “the market for Android app stores” will be considered as per this analysis.

It is highly common that smartphone users frequently classify themselves as either Android or iOS person. There are plenty of tests throughout the internet to help users find out whether they will be happier with Android or iOS and whether they should switch among them. Therefore, even an average consumer could precipitate that the smartphone markets are dominated by the oligopoly of Google and Apple. It is highly likely for a market survey to support this perception.

In parallel with the obvious, as per the recent “Mobile Ecosystems Market Study” conducted by the United Kingdom’s Competition and Markets Authority (“CMA”), it is also determined by the CMA that “as a result of the strong positions that Apple and Google hold in many of the above core product categories, consumers are in practice faced with a binary choice between two mobile ecosystems – Apple’s or Google’s” and “these companies now hold an effective duopoly over mobile operating systems: in 2020, the Apple iOS share of mobile operating systems in the UK was 52% and the Google Android share was 48%”.¹²²

¹²⁰ *ibid*, para. 590.

¹²¹ *ibid*, para. 653, 654.

¹²² Competition and Markets Authority (CMA), *Mobile Ecosystems Market Study: Statement of Scope* (2021), p. 4, 20.

However, this market reality from the eyes of consumers was ignored by the EU Commission while analysing the market power of Google Android right from the beginning, through its market definitions. EU Commission's motive behind its market definition could be understood by answering a simple question: "(...) how can Google and Apple compete against each other if Android OEMs cannot switch to Apple? (...)".¹²³

As it is also stated above, "market definition is a tool to identify and define the boundaries of competition between firms".¹²⁴ In Akman's words, "real markets do not come defined (...)".¹²⁵ Through its definition of the relevant markets and, as also provided above, due to the fact that "conventional market-share- based approach to the assessment of market power is that products are treated as either "in" or "out" of the relevant market"¹²⁶, it is concluded by the EU Commission that there is no competition between Google and Apple since the OEM's could not switch to Apple's iOS, in other words, because they are not substitutable for OEM's. Accordingly, this could lead to an on point hypothetical question: "Would a merger between Apple's and Android's app stores be unproblematic?".¹²⁷ The following questions and their response should also be considered while responding: "Is Google's room for manoeuvre constrained due to the fact that consumers see Android and iOS to be competitors?" and "Is the existence of Apple limits Google's market power despite OEM's lack of choice for another mobile operating system?".¹²⁸

Besides, through the lenses of the EU Commission, in case Google decides to stop licensing the Android to OEM's (similar to Apple's strategy), it will find itself in a more competitive market.¹²⁹ Therefore, in case Google makes Android non-licensable like iOS, "an act that has no obvious effect on actual market power — and that could have a distinctly negative effect on consumers — could nevertheless significantly alter the outcome of competition proceedings on the Commission's theory".¹³⁰

Therefore, it is certain that EU Commission's market definition especially regarding mobile operating systems is far away from the economic reality and fails to define the boundaries of competition in this case. Besides, the determination regarding iOS and Apple exercising insufficient competitive constraint on Google's market power only relies on switching (switching from the end-users' perspective and the app developers' perspective).¹³¹ In other words, the analysis made by the EU Commission concluded that, despite the fact that they are

¹²³ Dirk Auer, 'Making Sense of the Google Android Decision' White Paper 2020 No. 1 ICLE Antitrust & Consumer Protection Research Program, p. 6.

¹²⁴ Market Definition Notice, para. 2.

¹²⁵ Pinar Akman, 'A Preliminary Assessment of the European Commission's Google Android Decision ' December 2018 Competition Policy International Antitrust Chronicle, p. 4.

¹²⁶ Vickers, 'Market Power in Competition Cases', p. 8.

¹²⁷ Pablo Ibanez Colomo, 'Comments on Android (II): follow-up questions on market definition (+ thanks for the comments!)' (*Chillin' Competition*) <<https://chillingcompetition.com/2019/10/21/comments-on-android-ii-follow-up-questions-on-market-definition-thanks-for-the-comments/>> accessed January 4, 2022.

¹²⁸ Auer, 'Making Sense of the Google Android Decision', p. 8.

¹²⁹ *ibid*, p. 9.

¹³⁰ *ibid*, p. 9.

¹³¹ Colomo, 'Comments on Android (II): follow-up questions on market definition (+ thanks for the comments!)'.

not operating in the same market, Apple could not even exercise enough competitive constraints on Google's market power that necessitate such a market definition.

3.3.2.2. Lack of Analysis Concerning the “Ecosystem” Nature

As per the CMA's “Mobile Ecosystems Market Study, a mobile ecosystem consists of mobile devices, mobile operating systems, mobile applications (both pre-installed and user-installed).¹³² In parallel with the ecosystem definition made in Chapter 2, the CMA stated that “these products and services are now able to work in combination with each other, in a way that strengthens the value and functionality of each, within what we refer to as mobile ecosystems”.¹³³

The sui generis structure of a mobile ecosystem is defined by Bostoen and Mândrescu as “(...) mobile ecosystems constitute a technological layer cake, where each layer is built on top of or at least interconnected with another layer”.¹³⁴ However, in its Google Android Decision, the EU Commission neglected the fundamental specifics of an ecosystem (joint value creation through interaction between different elements) and instead made its analysis through individually defining markets for each of the products. This approach of EU Commission is obvious as it is stated that “app stores and smart mobile OSs are separate products satisfying different user needs: a smart mobile OS is a system software that controls the basic functions of a smart mobile device and enables users to make use of new combinations of functions, while an app store is an online platform dedicated to enabling users to download, install and manage apps”.¹³⁵

Through dividing the elements that all together could be referred to as the biggest mobile ecosystem (which could also be classified as a digital multi-product ecosystem), both the value created through the interaction of different elements were left out of the analysis regarding market power and resulted in controversial market definitions along with a highly debated analysis on Google's market power. With the current approach of the EU Commission, Google could not compete with Apple without infringing competition rules, even though it is offering a business model that should be desired by competition authorities: an open ecosystem. This could be the mere evidence concerning the need for an ecosystem-specific market power analysis.

Besides, the reasoning behind this controversial conclusion of “iOS and Android not being direct competitors” is only due to their business models and monetization strategies. Through the agreements in which Google charges zero monetary price from device manufacturers, Google harvests enormous amounts of valuable data concerning users of Android devices through the placement of its applications in those devices. Google then monetizes the data harvested through selling personalized advertisements within its ecosystem. Google's strategy

¹³² Competition and Markets Authority (CMA), *Mobile Ecosystems Market Study: Statement of Scope*, p. 19, 20.

¹³³ *ibid*, p. 20.

¹³⁴ Friso Bostoen and Daniel Mândrescu, ‘Assessing abuse of dominance in the platform economy: a case study of app stores’ [Routledge] 16 *European Competition Journal* 431, p. 7.

¹³⁵ *Google Android*, para. 299.

with Android is also stated in the decision as “Google’s strategy is to ensure that “Google Android is installed on as many smart mobile devices as possible as a way to ensure market penetration for its services and the collection of data used for the purposes of search advertising”.¹³⁶ In opposite, Apple’s strategy regarding its mobile ecosystem is to maximize revenue overall through its vertical integration and thus sell products (devices), software and services that lead to increased customer lock-in, instead of focusing on individual sales of each element. Even though they are pursuing different monetization strategies, overall, in the eyes of consumers, a consumer is either an Android person or an iOS person.

In any case, with our current tools in the EU Competition Law framework and especially through market definition process, even though “the success of the ecosystem undeniably depends on the respective success of each of its constitutive elements (i.e., OS, mobile devices, app store and apps)”, it is inevitable to conclude that “each of these elements operates in separate yet related markets”, similar with the conclusion of the EU Commission.¹³⁷

As explained above, due to the characteristics of digital markets that lead to the creation of digital ecosystems, competition authorities throughout the world will be dealing with digital multi-product ecosystems more often. It should also be stated that even though the method of doing so (through the market definition paradigm) is highly controversial, the conclusion of the EU Commission regarding the existence of Google’s market power is not considered to be problematic. However, it should bear in mind that the insufficiency of the methodology (market definition paradigm) could also lead to controversial conclusions regarding the existence of market power in future cases concerning digital multi-product ecosystems, which could also lead to errors in the competition analysis. Therefore, in the following chapter, the alternative approach that could be adopted while measuring the market power of a digital multi-product ecosystem will be provided.

4. Measuring the Market Power of Digital Multi-Product Ecosystems

Through this chapter, first, the recent regulatory actions in the EU concerning the measurement of market power in the digital era will be provided. Following that, in light of the findings in the previous chapters and also considering the recent regulatory actions in the EU, an alternative approach to measure the market power of digital multi-product ecosystems will be delivered.

4.1. Regulatory Actions in the EU

4.1.1. The Market Definition Notice Update

On June 26, 2020, the EU Commission published a public consultation on the Market Definition Notice dated 1997 to decide whether it remains fit for application in the digital

¹³⁶ *ibid*, para. 509.

¹³⁷ Bostoen and Mândrescu, ‘Assessing abuse of dominance in the platform economy: a case study of app stores’, p. 7.

markets or requires updating.¹³⁸ However, considering the scope of this thesis, as per this heading, only the evaluations concerning digital ecosystems will be assessed.

In conclusion of the public consultation, the EU Commission reached the conclusion that the evaluation results suggest:¹³⁹

- (i) “(...) while the principles of market definition remain unchanged (as outlined earlier in this section) their application in digital contexts can lead to additional complexities that may not be fully addressed in the Notice” and
- (ii) “(...) while the Notice’s objectives remain highly relevant, the Notice is effective in reaching its objectives in many, but not all respects”.

Through the evaluation report published, it could be seen that application of the notice to measure market power of digital ecosystems remains one of the key areas that it currently fails to achieve its goals.¹⁴⁰

Throughout the consultation process, the EU Commission commissioned an external evaluation support study to deepen its analysis. Among others, the support study also covered the impact of digitalisation on market definition, and in particular, how digital ecosystems impact market definition.

In accordance with the above, the support study states that since the focus of market definition is on substitutability and market shares, it does not account well to deal with ecosystem competition.¹⁴¹ Hence, the study suggests that the relevant market definition in the context of digital ecosystems must take into account different factors such as (i) “the characteristics of the ecosystem’s business model, especially with regard to their open or closed nature” and (ii) “the level of interoperability between components of different ecosystems” since those characteristics have implications for market definition.¹⁴²

As per the first point, the study advocates that:¹⁴³

- (i) in a fully closed ecosystem, “the ‘product’ over which market power might be exercised is the combination of ‘core system’ and ‘complements’” and thus “the market may therefore need to be defined at the level of the ‘ecosystems’” and

¹³⁸ Commission, *Competition: Commission consults stakeholders on the Market Definition Notice*.

¹³⁹ European Commission, *Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law of 9 December 1997* (2021), p. 67, 68.

¹⁴⁰ *ibid.*, p. 31, 50, 53, 68, 78.

¹⁴¹ Directorate-General for Competition (European Commission), Legale, Europe, Associati, WIFO and Consult, *Support Study Accompanying the Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law*, p. 79, 80.

¹⁴² *ibid.*, p. 80.

¹⁴³ *ibid.*, p. 81, 82.

- (ii) in a fully open and interoperable system, “there are two separate levels at which competition can operate – at the level of the supply of complements and at the level of the system owner” and thus “it may therefore be adequate to define separate markets – one where complementary products’ suppliers compete, and one where the system owner competes with owners of alternative systems”.

In the intermediate case where “ (...) the ecosystem is open in relation to complementors developing and selling their products within the ecosystem, but there is limited or no interoperability between complementary products of different ecosystems”, the study suggests that “(...) competition among complementary products’ suppliers may be unable to counteract the effects of market power at the level of the ecosystem owner” and thus “a single market, at the ecosystem level, would better allow an analysis of the competitive effects in question”.¹⁴⁴ When it comes to its second point to be considered, namely the interoperability, it is stated that in case companies offer products or services that are not interoperable with other ecosystems, “an ecosystem aftermarkets approach may be appropriate”.¹⁴⁵

Therefore, while stating that the current market definition approach deemed incapable while dealing with digital ecosystems, the Market Definition Notice Update initiation (and especially in conclusion of the support study conducted) resulted in the conclusion that current tools of market definition are still applicable in the case of digital ecosystems to measure their market power but a with certain considerations and methodology especially concerning their business model and architecture. Even though the reasons to abandon market definition/market share paradigm is provided above under Section 3.2. in detail, one could still argue that the observations made in the evaluation process regarding the significance of conducting an in-depth analysis of business models and architectures while defining a market are crucial while developing an alternative approach, while also considering the market characterisation function of the market definition paradigm.

4.1.2. The Digital Markets Act Proposal

Through its objective “to ensure a contestable and fair digital sector in general and core platform services in particular, with a view to promoting innovation, high quality of digital products and services, fair and competitive prices, as well as a high quality and choice for end-users in the digital sector”, on December 15, 2020, the EU Commission announced its regulation proposal concerning digital markets, the so-called “Digital Markets Act” as one of the centrepieces of the European digital strategy.¹⁴⁶

The explanatory memorandum and the reasoning of the proposal set forth the trend of establishing digital ecosystems and the negative effects of those for competition in the digital markets. In addition, the proposal also includes several provisions that forbid “most likely to

¹⁴⁴ *ibid*, p. 81, 82.

¹⁴⁵ *ibid*, p. 84.

¹⁴⁶ DMA Proposal, p. 33.

occur” anti-competitive behaviours while dealing with digital multi-product ecosystems such as self-preferencing.

While being drafted to complement existing EU competition rules, the DMA Proposal also provide insights from the EU regulatory perspective towards the notion of market power in the digital age through the newly introduced concept of “gatekeepers”, which departs from the EU competition law and its market power notion of “dominance”. Falling short of the notion of dominance in the digital markets are explicitly stated in the reasoning of the DMA Proposal while clarifying DMA’s relationship with Article 101 and 102 TFEU.¹⁴⁷

“Whereas Articles 101 and 102 TFEU remain applicable to the conduct of gatekeepers, their scope is limited to certain instances of market power (e.g., dominance on specific markets) and of anti-competitive behaviour (...). Moreover, existing Union law does not address, or does not address effectively, the identified challenges to the well-functioning of the internal market posed by the conduct of gatekeepers, which are not necessarily dominant in competition-law terms”.

As per the DMA Proposal, gatekeepers are defined as “providers of core platform services” that:¹⁴⁸

- (i) “(...) has a significant impact on the internal market”,
- (ii) “(...) operates a core platform service which serves as an important gateway for business users to reach end-users” and
- (iii) “(...) enjoys an entrenched and durable position in its operations or it is foreseeable that it will enjoy such a position in the near future”.

Even though it also set forth several qualitative and quantitative criteria, it could be seen from the definition of “gatekeepers” that, we have been introduced to a new perspective of market power through terms like “impact”, “gateway to reach users”, “entranced and durable position in operations”. Besides it is also stated per Article 3 (6) that the EU Commission shall identify gatekeepers even they fail to meet the qualitative and quantitative criteria’s by taking into account elements like, among others, entry barriers derived from network effects and data-driven advantage, scale and scope effects, user lock-in and other structural market characteristics.¹⁴⁹ As per the relevant article, it could be also concluded that the regulatory perspective of the EU points out measuring market power in the digital age could not be done through one-fits it all approaches such as the traditional ways of measuring by market definition/market share paradigm. Even though the role of DMA will be limited to complementing the competition rules, it is considered that the notion of “gatekeepers” as per the DMA Proposal is a clear indication that, while making a determination regarding the

¹⁴⁷ *ibid*, p. 15.

¹⁴⁸ *ibid*, Article 2-3.

¹⁴⁹ *ibid*, Article 3.

existence of market power in the digital age, we should conduct a much more comprehensive analysis of market power case-by-case, without limiting the analysis through defining markets for products and services first.

That being said, as per Germany's Monopolkommission's "Recommendations for an effective and efficient Digital Markets Act Report", similar determinations were made regarding the changing ways to measure market power in the digital age through the perspective introduced by the DMA Proposal. It is stated as per the Report that "a gatekeeper position does not necessarily require a large market share, but only a high degree of control over access to a relevant group of users and hence becomes relevant not only in the monopoly case, but already in the oligopoly case".¹⁵⁰ In addition, as per the same report, it is stated that "platform services within an ecosystem may take up a gatekeeper position of this type" and "(...) that may also constitute a gatekeeper platform service (within the ecosystem) in individual cases (e.g., Apple AppStore/Google PlayStore; Apple iOS/Google Android)".¹⁵¹ In this regard, Germany's Monopolkommission suggested that an ecosystem criterion shall be added to the DMA Proposal as one of the conditions to be cumulatively met in order to be considered as a gatekeeper, which ultimately recommends limiting the applicability of the DMA especially with digital ecosystems.¹⁵² It should also be noted that, a similar suggestion towards including an ecosystem criterion to the gatekeeper definition was also proposed as per the joint position paper published by Dutch, French, and German governments.¹⁵³

In conclusion, the DMA Proposal is of crucial importance (i) as it provides insights from EU regulatory perspective towards what market power means in the digital age considering the changing notion of "power" and (ii) since it is especially considered by the Dutch, French and German governments that it provides an alternative method to measure market power while dealing with digital ecosystems.

4.1.3. EU Member States

a) Germany

As per the new amendments made to its competition rules, effective from January 2021, Germany introduced the concept of "paramount cross-market significance for competition". In the press release made by the German Competition Authority (Bundeskartellamt), it is stated that "a key element of the amendment is the modernisation of abuse control".¹⁵⁴ The introduced notion of "paramount cross-market significance for competition" supports the view that the amendments are also aimed at digital ecosystems, where competition occurs across markets through joint value creation.

¹⁵⁰ Monopolkommission, *Recommendations for an Effective and Efficient Digital Markets Act* (2021), p. 17.

¹⁵¹ *ibid*, p. 18, 19.

¹⁵² *ibid*, p. 19, 20.

¹⁵³ France, Germany and The Netherlands, *Strengthening the Digital Markets Act and Its Enforcement*, p. 1.

¹⁵⁴ Bundeskartellamt, *Amendment of the German Act against Restraints of Competition*.

In this regard, Section 19A of the German Competition Law (concerning the determination of “paramount cross-market significance for competition”) following the amendments is as follows:

“(1) The Bundeskartellamt may issue a decision declaring that an undertaking which is active to a significant extent on markets within the meaning of Section 18(3a) is of paramount significance for competition across markets. In determining the paramount significance of an undertaking for competition across markets, account shall be taken in particular of:

- 1. its dominant position on one or several market(s),*
- 2. its financial strength or its access to other resources,*
- 3. its vertical integration and its activities on otherwise related markets,*
- 4. its access to data relevant for competition,*
- 5. the relevance of its activities for third party access to supply and sales markets and its related influence on the business activities of third parties. (...)”*

Accordingly, as per the introduction of the “paramount cross-market significance for competition” concept, the Bundeskartellamt could take preventive (ex-ante) measures towards the possible anti-competitive behaviours of digital ecosystems without a dependency for dominant position determination based on the market definition process in all of the markets that the digital ecosystem operates in. This is also stated in the Policy Brief published by the Monopolkommission in January 2020 (concerning the draft version of the amendments).¹⁵⁵

Similar to the DMA Proposal, the amendments provide valuable insights towards what market power means in the digital age and especially when multi-market activity is present (like the case with digital multi-product ecosystems) while also providing the criteria’s while determining its existence. Besides, the relationship between the existing competition rules is also preserved with the reference to “dominant position on one or several market(s)”. This relationship is further clarified in the Policy Brief. Accordingly, the Policy Brief stresses that the amendments (the Section §19a where the concept of “paramount cross-market significance for competition” is introduced) complements the existing competition rules towards determination of market power while also considering the changing notion of “economic power” and its application in certain markets (without being limited to digital markets).¹⁵⁶

¹⁵⁵ Monopolkommission, *Policy Brief* (January 2020, 2020).

¹⁵⁶ *ibid.*

b) Greece¹⁵⁷

Greece is among the EU Member States that had new amendments to its competition rules for consistent enforcement in the digital markets. Besides, the amendments also introduce special rules towards anti-competitive behaviours in ecosystems: abuse of power in an ecosystem of structural importance for the competition is prohibited.

Accordingly, “ecosystem” is defined as:

“either (1) as a network of interlinked and to a large extent interdependent economic activity of different undertakings that target the same group of users, or (2) as a platform that connects economic activities of different undertakings that target the same group of users”

While a determination concerning the “structural importance for competition” is being made, in parallel with the amendments made in German Competition Law and also in some extent the DMA Proposal, the analysis shall differ from the dominance analysis and instead should focus on the following:

“a) the economic strength or the market share or inflows of the ecosystem relative to one or more sectors of the Greek economy;

b) the access of the ecosystem to important resources, such as business users that rely on the ecosystem to reach the end-users and sensitive data related to the competition;

c) the importance of the ecosystem for third-party access to the Greek supply and sales market;

d) the entire business model of the ecosystem when performing its assessment; and

e) the sufficiently substantiated objective justifications put forward by the parties in relation to the relevant practices.”

In addition, as per the amendments, it is also stated that “there is no structural importance for competition when there are at least four independent ecosystems in the market that constitute a viable alternative for the users”.

Even though the regulatory trend towards amending the competition rules to fit their purpose in their application in digital markets seems to produce parallel outcomes such as introducing new metrics to measure market power other than the traditional method of dominance (and its dependency on the market definition/market share paradigm), it could be said that the amendments introduced by Greece are the most comprehensive regulatory action that openly aims the current issues while dealing with digital ecosystems, as of now. Besides, just like the

¹⁵⁷ Due to the limited number of sources, this section is written through the following publication: Omran, Colgan, Politis and Asimakopoulou, ‘Special competition rules on digital ecosystems: Greece joins the club’.

approaches of the DMA Proposal and the German Competition Law amendments, the introduced rules complement existing competition rules while measuring market power of a firm engaging in multi-market activity (in this case it is explicitly aimed at ecosystems) while also taking into account the notion of “economic power” without limiting it with the borders of the market definition/market share paradigm, rather than replacing the competition rules completely. Therefore, the amendments introduced by Greece are of crucial importance while developing an alternative approach in the following chapter.

c) Italy¹⁵⁸

Italy is also among the EU Member States that will have certain amendments in its competition rules. In this regard, on 23 March 2021, the Italian Competition Authority sent its proposals for changes to the Italian competition law to the Italian government.

Among others, the proposal includes a provision similar to the concepts introduced by the DMA Proposal as gatekeeper, Germany as paramount cross-market significance for competition and Greece as structural importance for competition. Accordingly, the Authority proposes to entrust the Authority to “qualify (by decision) certain digital players as “companies of primary importance for competition in several markets””.

While a determination regarding “companies of primary importance for competition in several markets” is being made, “such companies would be identified amongst the digital platforms, which are considered playing a crucial role for competition in the digital economy, due to their strategic position and their resources” Following such determination, “as a preventive measure, the ICA would be able to prohibit certain types of conduct by these companies unless objectively justified” such as “self-preferencing of a group's own services or impeding third companies from entering the market by processing data relevant for competition”.

It is seen that the Italian Competition Authority’s proposal for amending the competition rules is really similar to the amended German Competition Law especially concerning the “companies of primary importance for competition in several markets”. Therefore, rather than being specific to a certain type of multi-market activity like the Greece’s amendments (ecosystems), the Italian approach also aims to provide an alternative way to measure market power while dealing with multi-market activity just like the Germany’s approach.

4.2. The Proposed Approach While Measuring Market Power of a Digital Multi-Product Ecosystem

In light of the evaluations provided above, it is considered that a differentiated market power assessment when dealing with digital multi-product ecosystems through a regulatory action is

¹⁵⁸ Due to the limited number of sources, this section is written through the following publication: Pinotti and Sforza, ‘The Italian Competition Authority proposes far-reaching competition law changes to the Italian government’.

a necessity.¹⁵⁹ The best method to do so is believed to be drafting a market power assessment notice that only concerns digital multi-product ecosystems, similar to the Market Definition Notice dated 1997. This is because, even though it is not discussed as per this thesis, it is deemed that the competition-related problems that digital multi-product ecosystems pose could be addressed by the existing competition rules, in case a notice that drafted especially towards market power analysis regarding such ecosystems complement the existing rules on market power analysis. On the other hand, the existence of such a notice would not damage the applicability of other rules that also complements competition rules such as the ex-ante framework provided by the DMA Proposal, as also stated in the joint position paper published by Dutch, French, and German governments.¹⁶⁰ Besides, considering the particular need for international cooperation and consistency while designating the competition policy while dealing with digital ecosystems, adapting a notice in the EU level like the Market Definition Notice dated 1997 will also be of crucial importance.

In addition, the approach of the member states towards differentiated market power analysis while dealing with digital ecosystems also supports this assessment. For instance, even though the exact wording of “ecosystem” was not included, the German approach of determining “paramount cross-market significance for competition” and Italy’s approach of determining “companies of primary importance for competition in several markets” absolutely covers digital ecosystems. Even better, it is seen that a definition of “ecosystem” was made per Greece’s amendments.

Besides, Jacobides and Lianos also supports such an approach: “(...) it is best to recognize ecosystems as a distinct, unique focus of regulatory action, and consider whether they impede competition or restrict innovation”.¹⁶¹

Therefore, under this chapter, the specifications of the proposed approach will be provided while also considering the notions introduced by the recent regulatory actions in the EU (that were provided above).

4.2.1. First step: Definition of a Digital Multi-Product Ecosystem

Due to their sui-generis structure and disruptive nature to the existing competition law framework, and particularly on the analysis of market power, the definition of digital ecosystems shall be made carefully.

As it is also provided in the second chapter, it is considered that the definition of a digital multi-product ecosystem that especially covers their multi-market existence and value creation nature

¹⁵⁹ It should be also noted that due to the scope of this thesis, the proposed regulatory action is considered to be limited with digital multi-product ecosystems. However, digital multi-actor ecosystems shall also be included in such a regulatory action.

¹⁶⁰ France, Germany and Netherlands, *Strengthening the Digital Markets Act and Its Enforcement*, p. 1.

¹⁶¹ Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 29.

(as being their most important characteristics) shall be: “digital complementary products and services that are offered by a single entity of which deliver value through their interactions”.

4.2.2. Second Step: Determination of the Existence of Market Power through Pre-Determined Criteria’s

As also provided in detail above, the market definition/market share paradigm fails to fulfil its purpose its aim of measuring market power while dealing with digital multi-product ecosystems. Thus, it is certain that a more flexible approach that also takes distinct market characteristics into account is required for such analysis.¹⁶² In order to do so, considering the altering nature of the notion of “power” in the digital era, “developing a multi-dimensional perspective of power that could be relevant in competition law (and competition oriented sector-specific regulation)”¹⁶³ is considered to be of crucial importance. As also stated above, this approach could also be observed in the recent regulatory initiatives.

In parallel, it is stated Smichowski that:¹⁶⁴

“Without aiming to present an exhaustive list, various concepts have been put forward as a trigger for regulatory/competition law intervention, such as “strategic market status”, “conglomerate market power and “intermediation power”, “structuring digital platforms”, or “gatekeepers”. These may complete, or even substitute, the archetypical concept of market or monopoly power in competition law, which is determined in the context of a specific relevant market. (...) The multiplication of new concepts of power signals the creativity and flexibility of the competition law enterprise as it seeks to take into account new economic realities. (...) This brings into light that traditional conceptions of power and related indicators are insufficient to capture all the dimensions of economic power that are more prominent in these new business architectures that characterise modern digital and non-digital ecosystems. The concept of ecosystem reflects the emergence of business environments marked by modularity in production, co-evolution, and decisional complexity, where innovation must be coordinated across different hierarchies, markets, and industries”

In that regard, while agreeing with this policy approach, it is considered that the proposed model shall focus on the existence of market power through analysing various issues that could confer “power” to an ecosystem (while taking into consideration of the sui generis characteristics of ecosystems), instead of primarily focusing on the competition in the market (and for instance, market shares). Accordingly, the proposed approach focuses on the determination of market power on an individual (and case-by-case) basis instead of primarily focusing on competition between other market players (but also taking it into consideration)

¹⁶² Robertson, ‘Antitrust Market Definition for Digital Ecosystems’, p. 5.

¹⁶³ Lianos and Carballa, ‘Economic Power and New Business Models in Competition Law and Economics: Ontology and New Metrics’, p. 9.

¹⁶⁴ *ibid*, p. 6, 7.

while making a determination regarding the existence of market power. When considering criteria's to be applied while conducting analysis, the approach of the DMA Proposal and the EU Member States (Germany, Greece and Italy) will also be of crucial importance.

Accordingly, in the proposed approach, following the determination of a digital multi-product ecosystem through the definition provided above, in case the following tailor-made criteria's that aims to assess different aspects of "power" cumulatively results to such a conclusion, the ecosystem could be considered as a "digital multi-product ecosystem that possesses market power":

a) Market Position of the Core Platform

As it is provided above, in almost all the cases, it is seen that digital multi-product ecosystems are usually formed around multi-sided platforms that could be considered as the core product within the ecosystem due to the reasons such as economies of scale and scope, the role of data, consumption synergies and network effects. In case of the existence of market power regarding the core platform, the digital ecosystem could further exercise this market power in the other markets that it operates through different products. This could be referred to as "stickiness" or "extension of" market power. In other words, an assessment of market position regarding the core product is crucial since it is the essence of the whole digital multi-product ecosystem's market power. In a similar vein, as provided above, the regulatory initiative of Germany also states that an undertakings dominant position on one or several market(s) shall be taken into consideration while an analysis of "paramount significance for competition across markets" is made. Besides, the Greece initiative also supports this conclusion as it also includes a criterion as "the economic strength or the market share or inflows of the ecosystem relative to one or more sectors of the Greek economy".

The proposed approach to consider the market position of the core platform is also partially supported by the determination made in the support study regarding the approach of Germany. The rationale behind that is stated as "while 'large digital players may not have significant market shares in all affected markets, they may nevertheless have a significant influence on these markets due to their key position for competition and their conglomerate structures (also referred to as gatekeepers)".¹⁶⁵

On the other hand, while making a determination regarding the market position of the core platform (or the entire ecosystem), it could still be possible to make use of the market definition/market share paradigm since its limits "(...) mainly relate to its market power function".¹⁶⁶ In accordance with Robertson, it is considered that the paradigm offers an important conceptual tool with its market characterisation function.¹⁶⁷ While doing so, the

¹⁶⁵ Directorate-General for Competition (European Commission), Legale, Europe, Associati, WIFO and Consult, *Support Study Accompanying the Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law*, p. 83.

¹⁶⁶ Robertson, 'Antitrust Market Definition for Digital Ecosystems', p. 8.

¹⁶⁷ *ibid*, p. 8.

determinations made as per the External Support Study conducted throughout the Market Definition Notice Update could provide useful guidance.¹⁶⁸

Besides, the introduction of “paramount cross-market significance for competition” as per Germany’s regulatory actions, the introduction of “companies of primary importance for competition in several markets” as per Italy’s regulatory actions and definition of ecosystems in Greece’s regulatory actions also supports this approach. It could also be seen that while also benefitting from the market share paradigms market characterisation function, Member States also avert from using its market power analysis function while conducting a market power analysis.

b) Being an Important Gateway for Business Users to Reach End-Users

It is provided in the Digital Era Report that, “(...) even in an apparently fragmented marketplace, there can be market power. This kind of market power is linked to the concept of “unavoidable trading partner” and has sometimes been called “intermediation power” in the area of platforms”.¹⁶⁹ This is also particularly the case for digital multi-product ecosystems. Through the integrated offering of products and services, digital multi-product ecosystems might be an important gateway for reaching certain categories of end-users for businesses. Therefore, this notion of economic dependence should also be considered on a separate basis throughout the determination concerning existence of market power.

This is also considered to be of crucial importance as per the DMA Proposal since, to be qualified as a gatekeeper, the undertaking shall “(...) operate a core platform service which serves as an important gateway for business users to reach end-users”. Besides, Germany and Greece’s initiatives also supports the proposed approach as they also include criteria such as “the relevance of its activities for third party access to supply and sales markets and its related influence on the business activities of third parties” and “the access of the ecosystem to important resources, such as business users that rely on the ecosystem to reach the end-users and sensitive data related to the competition”, respectively.

c) Possession of Competitively Strategic Data and Further Data Collection Capabilities

As also previously stated, the role of data is of utmost importance especially for digital multi-product ecosystems. The main reasoning behind its crucial importance is due to its intangible nature which makes it re-usable indefinitely across different markets, whether to enter or expand in markets. Besides, it could also be stated that, in the case of digital ecosystems, the role of data also has a booster effect on supply side synergies. Accordingly, it is also provided in the Digital Era Report that “if data that is not available to market entrants provides a strong competitive advantage, its possession may lead to market dominance. Therefore, any discussion of market power should analyse, case by case, the access to data available to the

¹⁶⁸ Please see Section 4.1.1.

¹⁶⁹ Crémer, Montjoye, Schweitzer and Commission), *Competition policy for the digital era*, p. 4.

presumed dominant firm but not to competitors, and the sustainability of any such differential access to data”.¹⁷⁰

It is further stated in the BRICS Report that:¹⁷¹

- (i) “(...) it is increasingly acknowledged that controlling data is key in the ability of firms to gain and hold market power. Access to and instant control of vast amounts of data creates competitive advantages for firms. The firm having the best and most timely access and control over the largest and best datasets should be able to utilize this to learn about the market and customers, personalize products and gain a leading market position” and
- (ii) “(...) future product markets will face a paradigm shift when data is included in the value chain. The vast amounts of collected data will influence the way the products are designed and developed, increase product quality, which in turn should generate best-matched products to buyers’ expectations, as revealed by the data”.

Therefore, it could be concluded that data enables a digital multi-product ecosystem to offer better products and services and it also grants a competitive advantage to further expansion of the ecosystem through new offerings. Thus, due to the nature of competition between digital ecosystems as being competition for “access points” to harvest data and since it is the most crucial input for their business model as an ecosystem, both the possession of competitively strategic data and further data collection capabilities shall be considered while an analysis regarding market power being made.

This approach is also supported by Germany and Greece in their regulatory initiatives as they also include criteria such as “(...) access to data relevant for competition,” and “the access of the ecosystem to important resources, (...) and sensitive data related to the competition”, respectively, while measuring market power.

d) Business Model and Architecture

It is suggested by Jacobides and Lianos that:¹⁷²

“To assess whether ecosystem orchestrators have the incentives and ability to abuse their position, we must consider their business models (...). More specifically, we need to examine monetization—i.e., the ways in which revenues or growth are generated. That is, we suggest that we should “follow the money”, mapping what drives profits in the ecosystem, and what might lead to dominance”.

¹⁷⁰ *ibid*, p. 4.

¹⁷¹ BRICS Competition Law and Policy Centre, *Digital Era Competition: A BRICS View*, p. 553, 554.

¹⁷² Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 29.

In a parallel manner, it is also set forth by Jacobides and Lianos in their article which proposes the model of “ecosystem failures” that:¹⁷³

“Regulation has to evolve with the times, and we need to reassess what power in today’s ecosystems consists of, what distortions it can potentially create, and how it can be dealt with. (...) In particular, we need to consider ecosystem governance and the business models that each ecosystem implies—monetization in particular. (...) Architectural analysis helps identify potential areas of abuse—not only of final customers, but also of complementors. We can then compare the impact of action on competition and innovation with that of inaction. Given the proclivity of ecosystems for tipping and network effects, such a reconsideration of the mechanics of regulatory intervention is essential. (...) To illustrate, dominant ecosystem actors can potentially leverage their relationship with the final customer, unilaterally restricting access, choice, innovation, or even privacy. (...) The motives and the ability to exercise such power depends, in turn, on the business model and the architecture and governance of the ecosystem”.

In accordance with the above considerations of Jacobides and Lianos, it is also considered to be crucial to also assess business models and architecture of digital multi-product ecosystems (for instance, lack of interoperability and consumer-lock in strategies) in order to analyse whether its architecture facilitates it to behave in such a way that could be considered as utilization of market power. This could also steer market players to develop pro-competitive architectural models to escape from regulatory scrutiny, like the privacy by design/default concept introduced by the General Data Protection Regulation.

Besides, analysing the business model is especially crucial as being the most critical (and probably the only) viable element to capture the value creation function of digital ecosystems and since while dealing with digital ecosystems, “(...) competition would not be for market share, but for more of the surplus value of the ecosystem”.¹⁷⁴ In a parallel manner, it is stated by Jacobides, Cennamo and Gawer that design (or architecture) of an ecosystem is a crucial aspect that drives customer value and therefore becoming more important day by day.¹⁷⁵ This is due to the fact that “a good business model explains how and why customers, suppliers, and complementors interact with the company through the digital interface”.¹⁷⁶

Therefore, considering the business model and architecture of an ecosystem with the help of business strategy literature and business model components¹⁷⁷ (such as value proposition, revenue model and cost model) it will be possible to have meaningful conclusions of the

¹⁷³ Michael Jacobides and Ioannis Lianos, ‘Rethinking Competition: From Market Failures to Ecosystem Failures’ <<https://promarket.org/2021/04/12/competition-market-failure-digital-platforms-ecosystem-regulation/>> accessed January 4, 2022

¹⁷⁴ Jacobides and Lianos, ‘Ecosystems and competition law in theory and practice’, p. 32.

¹⁷⁵ Jacobides, Cennamo and Gawer, ‘Towards a Theory of Ecosystems’, p. 15.

¹⁷⁶ David Teece and Greg Linden, ‘Business models, value capture, and the digital enterprise’ 6 Journal of Organization Design 1, p. 2.

¹⁷⁷ *ibid*, p. 5.

competitive dynamics and, more importantly, inferences regarding the consumer demand, even though it could lay a great amount of burden to competition authorities.

In addition, this approach is also supported by Greece's approach as it also suggests that "the entire business model of the ecosystem" shall be considered when performing an assessment regarding its market power.

e) Consumer Biases

While an analysis regarding market power is being made, consumer biases and cognitive limitations (especially towards multi homing and the role of network effects) on consumer choice shall be made with valuable insights from behavioural economics. This shall be a criterion for the existence of market power since it is possible to manipulate consumer biases to steer consumer demand on products and services. In a parallel manner, the UK's Competition and Markets Authority's recent report on online platforms also concluded that platforms' choice architecture may exacerbate natural consumer biases.¹⁷⁸ Therefore, it is a vital criterion while an analysis regarding market power is being made.

f) Durability

In order to fulfil its aim of offering value through the integrated use of each of its components, in the determination of the existence of market power, the durability of market power shall also be considered. This is also formulated under the definition of gatekeeper in the DMA Proposal as "(...) enjoys an entrenched and durable position in its operations or it is foreseeable that it will enjoy such a position in the near future".¹⁷⁹

4.2.3. Third Step: Assessment of the Conduct as a Supportive Indicator of Market Power

When dealing with digital multi-product ecosystems and while a determination regarding the existence of market power is being made, focusing on the particular anti-competitive conduct to analyse whether it results from market power could also be crucial. Thus, along with the criteria's set above, a special focus shall be on whether the conduct stems from the existence of market power (or, in other words, whether such conduct could be still possible without the existence of market power). This further strengthens the case-by-case analysis and will be a much more accurate policy approach considering that, in accordance with the above, any "one-fits-for-all" approach to market power shall fail in the case of digital markets.

The level of market power needed for each anti-competitive conduct may vary depending on the nature of the conduct and this may be problematic in the short term because of the lack of legal foreseeability. However, with the development of case law it is considered that legal foreseeability will be ensured in the long run. However, this criterion shall only be taken into consideration as a final step, after the determination of market power is being made according

¹⁷⁸ Competition and Markets Authority, *Online Platforms and Digital Advertising Market Study Final Report* (2020), p. 387.

¹⁷⁹ DMA Proposal, Article 2-3.

to the criteria's set above, rather than being a "must-met" criterion to determine the existence of market power in all of the cases. In other words, the proposed third step shall only be a supportive argument regarding the existence of market power, instead of being the sole indicator of it.

5. Conclusion

The sufficiency of the current approaches of competition law in the digital era has been subject to a considerable amount of academic research. In this regard, role of digital ecosystems and the nature of their anti-competitive behaviours were also evaluated thoroughly, thanks to many proceedings against companies that could be considered as digital ecosystems. However, since the proceedings against such companies resulted in determinations concerning the existence of market power without any reasonable doubt (in accordance with the common ground), the sufficiency of current tools to measure market power while dealing with digital ecosystems was considerably neglected in the academic literature. Therefore, as per this thesis, after a comprehensive characterization of digital multi-product ecosystems and their competition-related specifications, an analysis regarding the sufficiency of the current tools and approaches of competition law while analysing their market power were made.

First, it is considered that an ecosystem could be formed through the participation of multiple business elements (either actors or products & services) with an ultimate goal of mutual value creation through their interaction. Accordingly, while also benefitting from the business strategy literature, a digital multi-product ecosystem is defined as "digital complementary products and services that are offered by a single entity of which deliver value through interactions".

Subsequently, considering several issues such as (i) the already concentrated market structure of digital markets, (ii) characteristics of digital markets that favour the creation of digital multi-product ecosystems, (iii) the sui-generis features of digital multi-product ecosystems that could even worsen the already existing concentration levels, it is concluded that a particular interest shall be given to digital multi-product ecosystems from a competition law perspective as they challenge current concepts and approaches of the competition law framework.

Following that, current tools and approaches of competition law regarding the determination of market power is analysed and their sufficiency and applicability were discussed considering the sui generis characteristics of digital multi-product ecosystems. In that regard, due to the altering notion of power, the increasing role of "competition for value" and multi-market activity along with the limited and indirect market power analysis capability of the current tools due to the changing notion of competition in digital markets, it is concluded that current tools to measure market power are not sufficient while dealing with digital multi-product ecosystems. Additionally, those findings were also supported by the evaluations made concerning the determinations and conclusions of the EU Commission in its recent Google Android Decision. On the other hand, it should also be noted that, even though the conclusion concerning market power as per the decision is not deemed to be controversial (existence of Google's market power in several markets), the way to reach such a conclusion on the existence

of market power reveals the insufficiency of the market definition/market share paradigm while dealing with digital multi-product ecosystems, which could pose problems in the future proceedings.

Following the determination of insufficiency, to propose an alternative approach, proposed regulatory actions in the EU was examined. In that regard, considering the findings of the Market Definition Notice Update initiation of the EU Commission, in addition with the previous findings, it is concluded that the DMA Proposal and the initiations of EU Member States regarding market power measurement tools could provide guidance as they introduce a different and much more fitting approach towards market power analysis when dealing with digital ecosystems. Hence, it is considered that a differentiated market power assessment when dealing with digital multi-product ecosystems through a regulatory action is a necessity. While doing that, the best method to do so is believed to be drafting a market power assessment notice that only concerns digital multi-product ecosystems, similar to the Market Definition Notice dated 1997.

It is considered that a proposed regulatory model shall focus on the existence of market power instead of the amount of it, through essentially focusing on the competition in the market while also taking into consideration of the sui generis characteristics of digital ecosystems. Accordingly, the proposed approach focuses on the determination of market power on an individual (and case-by-case) basis instead of primarily focusing on competition between other market players (but also taking it into consideration) while making a determination regarding the existence of market power.

In that regard, as a first step, a definition of a digital multi-product ecosystem that carefully considers its multi-market existence and value creation nature (as being their most important characteristics) shall be made. Following that, as a second step, considering the changing notion of power and the need for a multi-dimensional perspective towards market power, it is suggested that, in case (i) market position of the core platform, (ii) being an important gateway for business users to reach end-users, (iii) possession of competitively strategic data and further data collection capabilities, (iv) business model and architecture, (v) consumer biases and (vi) durability are cumulatively resulting to such a conclusion, a digital multi-product ecosystem could be considered as having market power. In addition, as the last step of the proposed approach, it is suggested that while making an analysis regarding the existence of market power, a special focus shall be on the possibility of anti-competitive conduct and especially on whether the conduct stems from the existence of market power (or in other words, whether such conduct could be still possible without the existence of market power). As that further strengthens the case-by case analysis, it is considered to be an accurate approach to evaluate such a notion while considering that any “one-fits-for-all” approach to market power shall fail in the case of digital markets.

The proposed approach differs from the existing analysis methodology of market power by limiting the role of the market definition paradigm to its market characterisation feature and also providing the basis to focus different aspects of “power” by benefitting from various disciplines while conducting an analysis. Besides, with the proposed approach, being the most

important characteristic of a digital multi-product ecosystem, the notion of “value competition” could also be measured by competition authorities through having a particular focus on business models/architectures and consumer biases.

It is considered that the proposed approach well-suits the characteristics of digital markets and digital multi-product ecosystems. However, it should be stated that further work shall be done in the context of international cooperation on the adaptation of an alternative approach towards market power analysis in the digital age. Besides, further research on the legal foreseeability issues that could be occurring in case of the adaption of such a comprehensive and multi-dimensional market power analysis tool shall also be made.

Even though the analysis made as per this thesis were limited to digital multi-product ecosystems, the findings clearly indicate the insufficiency of current market power analysis tools and the need for alternative and multi-dimensional tools to measure market power in the digital age.

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