

Reconceiving Big Tech

Decentralizing the Industry to Align Incentives and Maximize Total Welfare *

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Contents

1	Introduction	1
2	Market Definition	1
2.1	Modularity and interoperability	2
2.2	Monetization	3
3	A Theory of Harm	4
3.1	Monetization can cause markets to tip	6
3.2	Vertical integration enables market power transfer	7
3.3	Vertical integration harms consumer sovereignty	8
4	Structural Intervention	9
4.1	Regulation with structural effects - marketization	10
4.2	Marketization in monetized markets	12
4.3	Mitigating the problems of structural intervention	13
5	The DMA and Marketization	14
5.1	The currently proposed DMA	15
5.2	Implementing marketization under the DMA	15
6	Conclusion	16

* A research paper originally written for *POL61303: Competition Law and Policy in the EU and the US*. Wordcount (excluding footnotes and references): 6148

1 Introduction

The digital age has brought huge benefits to society, triggering huge social welfare gains, massive wealth creation and lots of innovation. In principle, digital goods and services bring us ever closer to the model of perfect competition upon which market economies aspire to emulate.¹ Yet, as noted in the text of the recent Digital Markets Act² (hereinafter DMA), the digital sector has become controlled by a few large ‘gatekeepers’, which enjoy durable market power and create inefficient outcomes to the detriment of consumers.

In light of these developments, this contribution proposes a new way for scholars and regulators to look at digital markets. Namely, that product offerings from dominant firms should be analysed with a structural lens, to understand the function of their component parts in the wider digital ecosystem. This kind of theoretical treatment leads to a new understanding of zero-priced business models and a new explanation for economic concentration. It proposes a new market institution, *marketization*, which forces products at different layers of the market to be interoperable. This allows for the creation of regulatory remedies that isolate the ‘naturally’ monopolistic parts of a gatekeeper’s business from those parts which are simply monopolized through anti-competitive tying.

This paper is split into four parts. First, it formulates a new market definition for monetized online platforms, which revolves around an analysis of how individual products are bundled together in a vertically integrated manner by dominant firms. Second, it outlines the harms arising from vertical integration in digital markets. In particular, the *one monopoly profit* theorem is revisited, and shown to not apply in zero-priced markets. Third, it introduces marketization as a regulatory intervention, and explains how it can fix the systemic market failures outlined previously. Finally, the paper situates marketization in the context of the proposed DMA. It suggests that structurally oriented remedies would be best suited to fixing vertically integrated monetized markets, but considers how the DMA in its current form - oriented around behavioral remedies - could be applied nevertheless.

2 Market Definition

This section seeks to outline a structural framework around which digital markets can be examined. It defines two key concepts, modularity and interoperability, which can be used to guide an analysis of the contestability of digital markets. Then, it applies these concepts to monetized markets where consumers do not pay directly for their consumption of digital goods and services.

¹See the section entitled “Driving Down Transaction Costs” on p. 343 of David S Evans, Andrei Hagiu, and Richard Schmalensee. *Invisible engines: how software platforms drive innovation and transform industries*. The MIT Press, 2008.

²Proposal 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 (Dec. 15, 2020)

2.1 Modularity and interoperability

Modularity is a property of systems, defined by Schilling as “a continuum describing the degree to which a system’s components can be separated and recombined, and it refers both to the tightness of coupling between components and the degree to which the “rules” of the system architecture enable (or prohibit) the mixing and matching of components”.³ In the context of digital markets, modularity refers to whether individual products inside of a larger platform can be swapped out for other competing products. The modularity of markets can change over time due to shifts in business strategy or external pressures.⁴

Highly modular platforms are referred to as ‘open’, while platforms that are not very modular are described as ‘closed’. Open platforms are often characterized by applications which differ greatly from what the original creators may have envisioned, with most value being created ‘externally’ by third parties. On the other hand, closed platforms are typically vertically integrated, with value being created ‘internally’ by the same owning firm.⁵ By building closed ecosystems, firms deny consumers the ability to substitute the dominant firm’s products for those from a competing firm.⁶

Interoperability is a property of a single product or service, which describes how well it can work together with other products, even if they are from competing firms.⁷ Today’s digital infrastructure is highly connected, and interoperability is a key factor which can have both positive⁸ and negative⁹ effects on competition. While there are various different types of interoperability

³Melissa A Schilling. “Toward a general modular systems theory and its application to interfirm product modularity”. In: *Academy of management review* 25.2 (2000), pp. 312–334.

⁴Farrell and Weiser use IBM as an example, which at first developed fully proprietary and vertically integrated platforms for its personal computers before the industry switched to more open platforms. This transition from a closed platform to an open platform is known as ‘platformization’. Joseph Farrell and Philip J Weiser. “Modularity, vertical integration, and open access policies: Towards a convergence of antitrust and regulation in the internet age”. In: *Harv. JL & Tech.* 17 (2003), p. 85, p. 92.

⁵Geoffrey Parker, Georgios Petropoulos, and Marshall W Van Alstyne. “Digital Platforms and Antitrust”. In: *Available at SSRN* (2020), p. 3.

⁶For instance, Apple has a dominant position in the market for app stores in part because its closed platform prevents consumers from choosing app distribution methods other than its own App Store. Damien Geradin and Dimitrios Katsifis. “The Antitrust Case against the Apple App Store (Revisited)”. In: *Available at SSRN 3744192* (2020).

⁷This is an adaptation from Brown’s definition. Ian Brown. *Interoperability as a tool for competition regulation*. 2020. DOI: 10.31228/osf.io/fbvxd. URL: osf.io/preprints/lawarxiv/fbvxd, p. 4.

⁸Riley describes how competition can lower barriers to entry and reduce transaction costs. Chris Riley. “Unpacking interoperability in competition”. In: *Journal of Cyber Policy* (2020), pp. 94–106, p. 97.

⁹Riley also highlights examples of the negative effects of interoperability, including in the case of internet browsers, where web developers may ensure that their websites work for browsers with the most market share, but not for browsers with less market share, which can lead to a degraded experience on the latter, and entrench the market dominance of a powerful player. Riley, see n. 8, p. 101; Some forms of interoperability rely on standardization, for which there is a wealth of literature showing how the processes of standards formation can be co-opted to serve entrenched interests Riley, see n. 8, p. 98; Also see the CMA report, which describes the threat that standardization poses to innovation in Appendix W, p13 Competition and Markets Authority. *Online platforms and digital advertising market study*. <https://www.gov.uk/cma-cases/online-platforms-and-digital-advertising-market-study>. Accessed: 2020-08-04; Finally, Kerber lists many costs and benefits associated with different types of interoperability. Wolfgang Kerber and Heike Schweitzer. “Interoperability in the digital economy”. In: *J. Intell. Prop. Info. Tech. & Elec. Com. L.* 8 (2017), p. 39, p. 36;

defined in the literature, this paper uses the concepts of *horizontal* and *vertical* interoperability, as described by Kerber and Schweitzer.¹⁰

Horizontal interoperability is “*the interoperability of competing products, services or platforms*”.¹¹ An example would be the ability to cross-post between social networks or send emails from an account registered with one provider to an account registered with another. This kind of interoperability was recently endorsed by the UK Competition and Markets Authority in its report into online platforms and digital advertising, which recommended powers to mandate horizontal interoperability through standardization as a way to reduce the market power of dominant digital platforms.¹²

Vertical interoperability is “*the interoperability of a product, service or platform with complementary products and services*”.¹³ An example would be an operating system such as Microsoft Windows being able to run multiple internet browsers. A closely related term, “*delegability*” refers to the end consumer’s ability to choose which firms participate in the creation of goods and services that they eventually consume.¹⁴

2.2 Monetization

A key innovation often employed in digital ecosystems is the services-for-data¹⁵ business model, also known as ‘monetization’. This involves a firm using a customer’s interactions with a service offered for free to generate revenue on an adjacent market. Examples of monetization include Facebook showing adverts to consumers using its social networks, or the consumer stock trading app Robinhood selling real-time trading data to high-frequency trading firms.¹⁶

Monetization has been hugely beneficial to the digital economy. It has lowered the costs of online services for consumers, made them easier to access, and allowed for low-friction products without the hassle of payment. However, it also comes with its fair share of problems. Despite requiring no monetary payment, services are not offered for free,¹⁷ but instead require some other

¹⁰Kerber and Schweitzer, see n. 9, p. 4.

¹¹Ibid., p. 4.

¹²Competition and Markets Authority, see n. 9, p. 5.

¹³Kerber and Schweitzer, see n. 9, p. 4.

¹⁴See ‘Principle 2’ Electronic Frontier Foundation. *Our EU Policy Principles: Interoperability*. <https://www.eff.org/deeplinks/2020/06/our-eu-policy-principles-interoperability>. Accessed: 2020-08-04.

¹⁵Jean Tirole. “Competition and the Industrial Challenge for the Digital Age”. In: (2020).

¹⁶See <https://www.cnbc.com/2019/04/18/a-controversial-part-of-robinhoods-business-tripled-in-sales-thanks-to-high-frequency-trading-firms.html>

¹⁷This view is taken, among others, by FTC Commissioner Rohit Chopra at the Concurrences CRA conference, who said “*There services are not free, close the book on that.*” Concurrences. *Consumers’ “decision-making sovereignty”: challenging business models in the data economy (after the German Supreme Court in Facebook)*. <https://www.concurrences.com/en/conferences/consumers-decision-making-sovereignty-challenging-business-models-in-the-data-en>. Webinar from July 8th, 2020. Accessed: 2020-08-05; See generally also Nicholas Economides and Ioannis Lianos. “Antitrust and Restrictions on Privacy in the Digital Economy”. In: *Available at SSRN 3527818* (2020).

form of ‘payment’ such as consent to be monetized. This obscures the price model from both consumers and regulators.¹⁸ Consumers have no way to know the worth of their monetized activities and therefore can struggle to make informed consumption decisions,¹⁹ while regulators are less able to use established competition law tools such as the SSNIP and SSNDQ tests in their analysis.²⁰ Further, as a consequence of charging no cost, deadweight loss from monopolies on the consumer side of the market is obscured, leading conventional economic theory to predict that consumer surplus should increase monotonically with the quantity of the good or service provided.²¹

This paper advocates for a holistic and structurally oriented view of markets. It proposes that monetization should be considered as its own ‘product’ inside the wider digital ecosystem in which it is integrated. Since digital advertising is the most common form of monetization employed in digital markets, the remainder of the paper will focus on this case, though all monetized markets should exhibit the same characteristics. Suppose we have consumer C_p who uses product P free of charge, and the company producing P sells ads to advertiser C_m in order to make a profit and fund P . Conventional analysis would show that this is a multi-sided market, with P straddling both sides of the market in order to engage in monetization, as illustrated in Figure 1a.

This paper proposes to introduce a new conceptual market layer M which is specifically for monetization, separate from P .²² In this case, P would ‘charge’ C_p for access, but this charge would be ‘paid for’ by M on behalf of C_p . According to this view, M would facilitate the display of ads from C_m on the service provided by P . This is depicted in Figure 1b, and the actors involved are further described in Table 1. The complementary nature of P and M allows us to consider P to specify a per-consumer price for access to its services, while consumers do not have to actually pay anything in practice.

The key benefit of this kind of analysis is that we can see that P and M are vertically integrated (or tied) together in the status quo - there is no way by which C_p can consume P other than by also being subjected to marketization by M .

3 A Theory of Harm

This section examines how closed and vertically integrated platforms can have anti-competitive effects in a digital context, which could warrant attention from competition authorities. It restates the Chicago School argument for why vertical integration is not anti-competitive, before showing how the argument does not apply in the case of zero-priced, multi-sided markets.

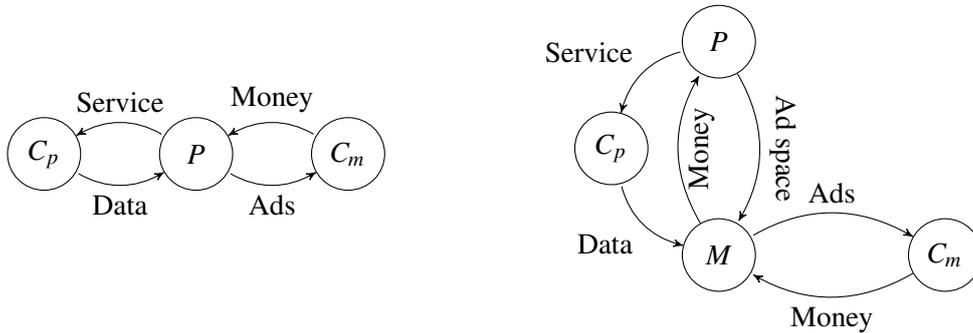
¹⁸See p. 1785 of Spencer Weber Waller. “Antitrust and social networking”. In: *NCL Rev.* 90 (2011), p. 1771.

¹⁹Competition and Markets Authority, see n. 9, p. 150.

²⁰Jacques Crémer, Yves-Alexandre de Montjoye, and Heike Schweitzer. “Competition policy for the digital era”. In: *Report for the European Commission* (2019), p. 45.

²¹Stratechery. *Facebook and the Cost of Monopoly*. <https://stratechery.com/2017/facebook-and-the-cost-of-monopoly/>. Accessed: 2020-08-06.

²²Note that M need not be separated from P in practice, but can be treated as a separate entity for the purposes of analysis.



- (a) A conventional view of a multi-sided market where consumers (C_p) pay nothing for access to services (P), which are monetized by some third party (C_m).
- (b) A structurally informed view of a multi-sided market where consumers (C_p) nominally pay nothing for access to a service (P), but where their usage of the service is monetized by a layer of the market (M) different from the one providing the service.

Figure 1: A conventional and platform oriented view of monetization.

Actor	Description	Example
C_p	The end consumer	A user of Facebook’s social network
P	The product used by C_p	Facebook’s social network
M	The product created as a byproduct of C_p ’s consumption	Facebook’s advertising network
C_m	The consumer of M	A firm paying to advertise through Facebook’s advertising network

Table 1: Actors on monetized markets.

The Chicago School’s view that vertical mergers are always procompetitive hinges on three arguments, as explained by Khan.²³ First, that “firms could not extract additional profits from extending a dominant position into a distinct market, because—assuming that a firm was already selling a combination of goods at its profit-maximizing price—increasing the price of one would result in a corresponding offset in the other”.²⁴ Second, “that an integrated firm would be able to foreclose rivals only to the degree that the firm had generated cost savings, outdoing less efficient competitors—an outcome that antitrust should encourage.” Third that “vertical mergers would invariably generate significant efficiencies”. Acknowledging existing critiques of these arguments,²⁵ this work proposes further reasons why the Chicagoan logic for the benignity of

²³Lina M Khan. “The separation of platforms and commerce”. In: *Columbia Law Review* 119.4 (2019), pp. 973–1098, p. 1021.

²⁴Also known as the *one monopoly profit* theory.

²⁵The assumptions of the Chicago School’s *one monopoly profit* theorem are narrow and easily invalidated, as explained by Elhauge. Einer Elhauge. “Tying, bundled discounts, and the death of the single monopoly profit

vertical integration does not apply to zero-priced digital markets.

3.1 Monetization can cause markets to tip

The Chicago School assumes that the consumer of a good is also the person paying for it. This is not the case for monetized markets, where the consumer (C_p) chooses which service to use, but a third-party (C_m) pays for the cost of consumption. Since they do not pay, C_p has no cost-minimizing incentives and is free to choose which service to use based on other factors such as quality and convenience.

This is catastrophic for the competitive process. Because consumers pay nothing, monetization breaks the market's function as a tool to determine the value of products by finding a compromise between the producer's desire to maximise profits, and the consumer's desire to use goods or services.²⁶ Since consumers are not constrained by price in a monetized market, they are no longer differentiated by their buying power. As such, they can all be expected to choose the best product in the market for P . While in a conventional market, we would expect to see a product of superior quality being priced higher than a substitutable product of inferior quality, in a zero-priced market, we can expect the former to simply capture the whole market.

In the absence of competition in the market, the integrated firm still faces competition for the market, i.e. the threat of market entry on the service side.²⁷ However, there are a number of factors that work to decrease the contestability of digital markets, of which Khan points out three;²⁸ network effects which can increase the value of a service and shield it from competition,²⁹ economies of scale resulting from the high upfront costs but low marginal costs of digital services, and competitive advantages arising from access to data.

If a firm is able to dominate a market on the merits of its genuinely superior products, then this should be endorsed by competition scholars and regulators alike. After all, one purpose of competition law is to ensure that firms producing the best products are rewarded, creating incentives to increase quality and lower prices for consumers. If the market is contestable, and the incumbent has gained a dominant position through competition on the merits, then the market has functioned correctly.³⁰

However, as Evans points out, we must distinguish between coordination independent markets in order to extract efficiency gains and attempts to engage in anticompetitive practice for the

theory". In: *Harv. L. Rev.* 123 (2009), p. 397.

²⁶François Bar and Christian Sandvig. "Rules from truth: Post-convergence policy for access". In: *28th Annual Telecommunications Policy Conference, Arlington, VA.* 2000, p. 4.

²⁷Note that some authors are skeptical of the equivalence of this substitution. Crémer et al. write that "*competition between ecosystems can be intense, but won't make up for the absence of competitive pressure inside a given product market*" Crémer, Montjoye, and Schweitzer, see n. 20, p. 34.

²⁸Khan, "The separation of platforms and commerce", see n. 23, p. 1074.

²⁹For example, Brown shows how network effects can also increase the costs of switching platforms Brown, see n. 7, p. 12.

³⁰Christopher Sagers. *Antitrust: examples & explanations*. Wolters Kluwer Law & Business, 2014, p. 186.

purposes of increasing market power.³¹ In the case where monetized markets have been vertically integrated, the logic described above suggests that market power may not have been achieved “*by virtue of superior skill, foresight and industry*”,³² but rather through the deliberate structuring of markets in order to gain market power.

3.2 Vertical integration enables market power transfer

The previous section described how, the zero-priced market for P is prone to tipping because consumers are motivated to always choose the best product in the market. This section argues that, when P and M are vertically integrated, the dominant position of P can be transferred to M . This is because P controls the supply for M . For example, firms offering digital advertising are dependent on having a supply of consumers to view ads. This means that another firm M' is unable to sell advertising targeted at C_p , because the monopoly position of P combined with its vertical integration with M causes M' to be starved of supply.³³ Though having the ‘best product win’ is legitimate from an antitrust perspective in the market for P , the vertical integration in this case allows for the extension of the monopoly from P into the separate market for M . This is known as vertical foreclosure,³⁴ and is depicted in Figure 2.

This nullifies the second argument of the Chicago School, that a firm can only foreclose rivals to the degree that it can generate cost savings. In this case, vertical integration means that a firm is able to foreclose rivals on the monetization market to the degree that it is able to gain dominance on the service side.³⁵

Accordingly, the integrated firm is able to use its monopoly in the product market to also gain a monopoly in the monetizing market. If we are to believe the Chicago School’s first argument above, the firm should not be able to increase its profits from the vertical integration of P of M . However, in the case of a two-sided market C_p and C_m are *different consumers* - for instance, C_p could be a user of a monetized social network and C_m could be a business advertising to C_p . This two-sided nature of the market allows the firm to choose the distribution of payment between C_p and C_m .³⁶ A rational firm will thus choose a price for C_p and for C_m which maximizes its profits. Using monetization, the integrated firm can gain a dominant position by pricing P at 0, and extend the monopoly into M with vertical integration in order to charge above-market prices

³¹David S Evans. “The antitrust economics of multi-sided platform markets”. In: *Yale J. on Reg.* 20 (2003), p. 325, p. 2.

³²Sagers, see n. 30, p. 186.

³³For example, consider P to be a social network with a monopoly, and M to be its integrated advertising network. It is impossible for another firm M' to challenge M ’s monopoly in the social network advertising market because M' has no way to show ads on P .

³⁴Patrick Rey and Jean Tirole. “A primer on foreclosure”. In: *Handbook of industrial organization* 3 (2007), pp. 2145–2220, pp. 0, 8.

³⁵Which explains how difficult to duplicate upstream inputs can lead to downstream anticompetitive harm in the case of vertical integration. Richard Whish and David Bailey. *Competition law*. Oxford University Press, USA, 2015, p. 839.

³⁶See generally Jean-Charles Rochet and Jean Tirole. “Two-sided markets: an overview”. In: *Institut d’Economie Industrielle working paper* (2004).

to C_m . This is especially lucrative where C_m values M highly, such as in the online advertising market.

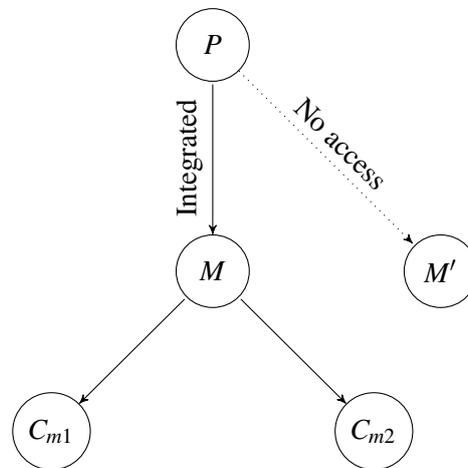


Figure 2: The closed platform consisting of P and M uses vertical integration to ensure that competition cannot take place for the M market. M' cannot compete with M for the business of C_{m1} and C_{m2} because P only supplies M . The only way to compete with P and M is to build a vertically integrated competitor which would operate in both markets.

3.3 Vertical integration harms consumer sovereignty

The above argument can be generalized using the terminology of interoperability and modularity. When building their products, firms operating in digital markets face a choice between implementing interoperability which allows for their use with complementary third-party products, or creating closed ecosystems which allow them to keep consumers exclusively using their own products.³⁷ The decision to build closed ‘ecosystems’ can be seen with Apple,³⁸ Facebook³⁹ and Google.⁴⁰ Thus, companies operating vertically integrated ecosystems are able to use technical means to extend market power into adjacent markets and ensure that consumers use exclusively their own products.

Vertical integration thus allows dominant firms to offer products only as part of a ‘total product ecosystem’.⁴¹ In such an ecosystem, consumers cannot swap out individual products for those

³⁷See p. 3 of Stanley M Besen and Joseph Farrell. “Choosing how to compete: Strategies and tactics in standardization”. In: *Journal of economic perspectives* 8.2 (1994), pp. 117–131.

³⁸Its App Store is the only way to distribute apps to iOS devices, which is free for consumers (C_p) but charges prices to app developers (C_m).

³⁹The only way to advertise on Facebook’s social network is through Facebook’s advertising network.

⁴⁰This case is similar to Facebook.

⁴¹“...a firm possessing proprietary control over an important component in a system can restrict market access by offering that component only as part of a total product system. If potential entrants to the industry must be able to

supplied by competing firms. This ultimately results in less choice for consumers, since as Schilling describes, they are less able to exercise “*discretion over the function and scale of the end product*” and are therefore unable to “*create end products that perform functions more closely suited to their idiosyncratic needs.*”⁴² In conventional markets, the overall direction of product development is set according to the aggregate sum of purchase decisions representing the preferences of consumers. This occurs through a process whereby consumers choosing one product over another serves as a demand signal, which benefits retailers of ‘good’ products, to the detriment of retailers of ‘worse’ products.⁴³ By tying products together into an a closed ecosystem, firms deny the ability of consumers to select a unique combination of products that would suit them specifically.⁴⁴

Vertically integrated ecosystems have the effect of insulating individual products from competition. This can result in a situation similar to a top-down command economy,⁴⁵ where executives in large conglomerates make product decisions for tied products, and consumers have only a limited power to refute them by switching to a competitor. For instance, a consumer may wish to use Facebook’s social network but would prefer to pay directly for the service rather than being monetized through advertising. Since Facebook’s (dominant) social network is vertically integrated with its advertising network, and there is no way to consume the former without the latter, the consumer is out of luck.⁴⁶

4 Structural Intervention

...in a digital age, where the very structure of a market can create problems for competition, that means we need the power to do more than investigate individual cases. We also need to be able to tackle structural problems, which our existing tools don’t allow us to deal with. And we need more effective ways to tackle concerns that

provide an entire system (rather than individual components), integrated systems can act as a significant barrier to entry”. See Schilling, see n. 3, p. 329.

⁴²See *ibid.*, p. 330.

⁴³The fact that consumers avoid buying inferior products constitutes a ‘stressor’ which indicates to producers of these inferior products that they should change course. The ability of consumers to choose products therefore constitutes valuable information which guides the development of products to match the needs of consumers. See generally Nassim Nicholas Taleb. *Antifragile: Things that gain from disorder*. Vol. 3. Random House Incorporated, 2012.

⁴⁴In contrast, a more modular ecosystem which allows vertical interoperability between different firms would better serve customer needs. This is explained by Christensen as follows: “*Modular architectures help companies respond to individual customer needs and introduce new products faster by upgrading individual subsystems without having to redesign everything. Under these conditions (and only under these conditions), outsourcing titans like Dell and Cisco Systems can prosper - because modular architectures helps them be fast, flexible and responsive*”. It is important to note that the ‘internal architectures’ of many or most tech companies are likely to be relatively modular, but consumers do not have control over which modular components are used within these systems. Clayton M Christensen. “The rules of innovation”. In: *Technology review* 105.5 (2002), pp. 33–36.

⁴⁵Richard E. Ericson. “Command Economy”. In: *The New Palgrave Dictionary of Economics*. London: Palgrave Macmillan UK, 2017, pp. 1–16.

⁴⁶Of course, if many consumers feel this way, then economic theory would predict that third-party firms would enter the market to take advantage of this latent demand. However, the high barriers to entry to many markets combined with the large competitive ‘moats’ of dominant firms makes this an unlikely eventuality in many contexts.

*affect many markets at once, rather than using a series of individual cases to fight what's really a systemic problem.*⁴⁷

Margrethe Vestager, Executive Vice-President of the European Commission for a Europe fit for the Digital Age

Structural remedies are intended to maintain or restore competitive structure inside a market, and are typically applied as an ex-ante rule in anticipation of problematic conduct. This is in contrast to behavioral remedies which are ongoing remedies designed to modify or constrain the current and future conduct of firms, often applied ex-post.⁴⁸

Structural regulation used to be a mainstay of competition law enforcement in the 70's, but with the advent of Chicago and Post-Chicago thinking, has been largely superseded by a less interventionist approach.⁴⁹

This section aims to show why the competitive harms generated by large-scale vertical and conglomerate integration in the digital sphere as outlined in Section 3 should be tackled by addressing the structural root causes of the failure. It outlines *marketization*, a novel remedy designed specifically for these situations.

4.1 Regulation with structural effects - marketization

The central argument of this contribution is that monetized markets can fail because dominant firms foreclose markets to competition through anti-competitive vertical integration or tying. For instance, advertising on Facebook's social network is only possible through its advertising network, and selling apps on Apple's iOS devices is only possible through its App Store. This vertical integration of separate products into allows firms to extend their dominant positions from one market into another, since it prevents competition from entering the tied market.

Current enforcement doctrine and many contemporary scholars favour regulatory approaches that are behavioral in nature. Proposals for behavioral remedies include mandated data sharing⁵⁰

⁴⁷From Commissioner Vestager's speech at the ASCOLA Competition Law Conference, 2020 European Commission. *Competition in a Digital Age: Changing Enforcement for Changing Times*. https://ec.europa.eu/commission/commissioners/2019-2024/vestager/announcements/competition-digital-age-changing-enforcement-changing-times_en. Accessed: 2020-07-30.

⁴⁸The ICN Merger Remedies guide gives an overview of the differences between structural and behavioral remedies in the context of mergers. ICN merger working group. *Merger Remedies Guide, 2016*, p. 8.

⁴⁹Khan, "The separation of platforms and commerce", see n. 23, pp. 1015–1024.

⁵⁰Competition and Markets Authority, see n. 9, 352, Appendix T; Also see recommended action 2. Jason Furman et al. "Unlocking digital competition: Report of the digital competition expert panel". In: *UK government publication, HM Treasury* (2019), p. 9; Also see generally, but also Section 4.3 which describes a possible ex-ante regime for data portability in order to lessen winner-take-all outcomes Simonetta Vezzoso. "Competition Policy in Transition: Exploring Data Portability's Roles". In: *Available at SSRN* (2020); See too, Gal and Rubinfeld describe how data standardization makes an enforced data sharing regime possible. Michal S Gal and Daniel L Rubinfeld. "Data standardization". In: *NYUL Rev.* 94 (2019), p. 737, pp. 757–759; And also, Crémer et al. who suggest that more research should be done on voluntary data sharing before mandatory data sharing regimes should be considered, but considers data access at length Crémer, Montjoye, and Schweitzer, see n. 20, p. 73; Finally, Martens et al. consider data sharing remedies under the essential facilities doctrine Bertin Martens et al. "Business-to-Business

or horizontal interoperability.⁵¹ In contrast, this contribution instead proposes a remedy which creates vertical interoperability between products. Firms with dominant positions in one market should be forced to interoperate with complementary products downstream. This creates a market for the complementary product, and is thus known as marketization. Such interventions would have structural effects that give smaller firms a chance - through competition on the merits - to participate in the markets that Big Tech firms have closed off for themselves.

There are two ways in which marketization can be implemented. Weak marketization involve imposing vertical interoperability requirements on firms, such as mandating that consumers should be able to choose which advertising network to use with their social network. Weak marketization is essentially behavioral regulation with structural effects. Strong marketization would force a large conglomerate to divest parts of its business in addition to the imposition of interoperability requirements.

A key advantage of strong marketization is that it has the potential to ensure that the profit maximizing incentives of individual firms are aligned with the behavior required to create competitive outcomes for the whole market.⁵² Such a regime has huge advantages compared to the status quo, because its self-policing nature reduces the workload of competition authorities.⁵³ This is especially important in the case of digital markets, where it is imperative to avoid a tight coupling of policy to technological implementations that are constantly changing,⁵⁴ as is the necessity for behavioral regulation.

Furthermore, regulation which splits out products into different firms has secondary benefits to consumers in terms of data protection and privacy. The act of separating out the individual business lines of conglomerates removes the incentives to share, process and retain data for ever new use-cases,⁵⁵ and competition at each layer of the market makes gatekeeper power harder to achieve. Following this logic, data would only be collected to the extent that it assists in the production of single goods or services for consumers.⁵⁶

data sharing: An economic and legal analysis”. In: (2020), pp. 35–48;

⁵¹The CMA report recommends that competition authorities have the power to mandate horizontal interoperability between competing social media firms. Competition and Markets Authority, see n. 9, p. 374; Also, see generally. Brown, see n. 7;

⁵²“...behavioural policies, unlike structural policies, do not eliminate the incentive of the regulated firm to restrict competition”. Frank P Maier-Rigaud. “Behavioural versus Structural Remedies in EU Competition Law”. In: *Maier-Rigaud, Frank P.(2016) Behavioural versus Structural Remedies in EU Competition Law* (2014), pp. 207–224; Which is a citation from OECD. *Recommendation of the Council on Structural Separation in Regulated Industries*. <http://www.oecd.org/dataoecd/24/49/25315195.pdf>. Accessed: 2020-08-07. 2001; Also see Khan, “The separation of platforms and commerce”, see n. 23, p. 1070;

⁵³ICN merger working group, see n. 48, p. 9; Also posited by Khan; “ *Seeking to prevent the industry structures that create these conflicts of interest may prove more effective than policing these conflicts*”. Lina M Khan. “Amazon’s antitrust paradox”. In: *Yale IJ* 126 (2016), p. 710, p. 793; Also in Khan, “The separation of platforms and commerce”, see n. 23, p. 980.

⁵⁴Bar and Sandvig, see n. 26, p. 4.

⁵⁵Rather, unnecessary data becomes a liability for firms rather than an asset, since they must store and maintain access to it, but due to structural separations, can only make use of data relevant to their business model.

⁵⁶For instance, it would make less sense for a social network to build a profile of what movies a consumer likes if monetization via targeted ads is delegated to a third-party firm.

The speed and timing of decisions about a market is important, since if a market is prone to tipping, it may have already done so by the time a ruling is made. Strong remedies offer two benefits in this regard. First, uncovering violations of structural remedies would typically require less technical expertise and legwork on behalf of competition authorities.⁵⁷ Second, by clearly delineating separate products from Big Tech conglomerates, the scope of competition investigations can be more easily reduced to individual business lines rather than whole ecosystems.⁵⁸ As such, strong marketization is likely to be quicker to enforce than behavioral alternatives such as data sharing,⁵⁹ and so more likely to correct anti-competitive behavior before markets tip. Even if a competition authority is able to create timely behavioral remedy, the fast moving nature of digital economies means that it may be useful for a disappointingly short period of time.

Finally, strong marketization has the power to set incentives for firms to create vertically interoperable products without competition authorities actively enforcing interoperability. This is because each firm has an incentive to maximise profits (which means maximising the number of potential customers) and increase efficiencies (which means decreasing transaction costs between layers of the market, and thus potentially standardization). This could let the ‘market decide’ on product standards without competition authorities having to centrally plan which firms do or do not need to create interoperable products, and how it should occur. Authorities would, of course, continue to enforce laws relating to discriminatory refusals to deal, which are currently bypassed through self-dealing by conglomerates.⁶⁰

4.2 Marketization in monetized markets

Marketization, whether strong or weak, would be especially effective in monetized business models. To continue with the terminology from Section 2.2, it would split integrated firms into a provider of the service consumers want to use (P), and the provider of monetization which would allow them to use it for free (M). This would amount to a deobfuscation of the cash flows of Big Tech; since it would force transactions to occur at each layer of the market. The service would charge for access and monetization firms would pay for consumers on their behalf (or consumers could pay directly in the event they did not wish to be monetized).⁶¹

For instance, consumer C_p could ‘pay’ a firm n dollars to use social network P . However, rather than paying directly, they could choose to be monetized by firm M which shows ads through P ,

⁵⁷ICN merger working group, see n. 48.

⁵⁸American Economic Liberties Project. *Understanding Amazon: Making the 21st-Century Gatekeeper Safe for Democracy*. <https://www.economicliberties.us/our-work/understanding-amazon-making-the-21st-century-gatekeeper-safe-for-democracy/>. Accessed: 2020-08-06, p. 3.

⁵⁹Crémer et. al go as far as to twice describe case-by-base analysis of firms in the context of regulation enforcing multi-homing, a solution for which they advocate, to be “*primordial*” Crémer, Montjoye, and Schweitzer, see n. 20, pp. 6, 58.

⁶⁰Vertical integration means that two separate platforms, such as Facebook’s ad network and its social network, are commonly seen as a single product, and thus escape the remit of such laws.

⁶¹This solves a long-standing problem where some consumers would rather not be monetized for various reasons such as privacy concerns or aversions to targeted advertising. James C Cooper. “Privacy and antitrust: Underpants gnomes, the first amendment, and subjectivity”. In: *Geo. Mason L. Rev.* 20 (2012), p. 1129, p. 1137.

and pays for C_p 's usage fee with the proceeds. While the it is hard to find out how much revenue a social network has made from individual consumers in the monetized status-quo, dis-integrating P from M makes it trivial.⁶²

Crucially, this prevents the market power of P from being transferred to M because the two are no-longer tied together. As such, M will be subject to competition in its market, which degrades its ability to charge monopoly profits to C_m . This is the case because rival firms can now solicit C_p to choose it's product over M . Reduced profits at M may ultimately translated into degraded profits for P too, which could make it more exposed to competitive threats and less able to maintain its own dominant position.

Further, marketization opens up the possibility of using the SSNIP and SSNDQ tests in order to determine market power. As previously mentioned, this is currently not possible in a zero-price context. The former can be used to see whether consumers switch from P if the price is increased,⁶³ and the latter can be used to see if consumers switch from M if the quality of the service is decreased.⁶⁴

4.3 Mitigating the problems of structural intervention

Despite their advantages, structural remedies such as marketization do not pave the way to a utopic world of perfect competition. Splitting products would likely add friction to consumer experiences, and divesting products entirely (the 'strong' case) is expensive and risky. The cost of intervention must therefore be weighed against the harms of vertical integration and the ability of integrated firms to exercise market power and engage in rent-seeking.

Whish describes how integrated firms can generate efficiencies in product specific, plant specific and firm specific ways,⁶⁵ but there are several reasons why digital conglomerates in particular may fail to generate significant efficiencies from any of these. Product specific efficiencies are generally tied to an individual product (such as knowledge about the advertising or search industries), though there could be overlapping expertise in domains such as machine learning. Plant specific efficiencies do not apply since compute power is already commodotised thanks to cloud computing. Finally, firm specific overheads are usually low for digital businesses, and scale linearly with the number of employees of the firm.⁶⁶

⁶²This has implications that are wider than competition law itself, for example, in the case of taxation and even online spam. A full discussion of these secondary effects (and the opportunities they bring) is out of the scope of this contribution.

⁶³This assumes that network effects and barriers to entry will be 'priced in' to the cost of the product by the profit maximising competitive firm. The SSNIP test could also be applied to M to see if C_m switches to rival firms if the cost of advertising is increased.

⁶⁴For example, consumers could be shown 5-10% more advertisements to see if they would choose another monetization provider. A similar argument can also be made for P .

⁶⁵Whish and Bailey, see n. 35, p. 833.

⁶⁶Parker, Petropoulos and Van Alstyne show how digital businesses have very few employees relative to their economic size. Parker, Petropoulos, and Van Alstyne, see n. 5, p. 4.

But even assuming that having separate firms has a net positive outcome, it could be the case that the act of separation incurs too high a cost to be feasible. The high cost of divestiture is an unavoidable truth, especially when Big Tech firms have grown to be so tightly integrated. Yet allowing firms to “scramble the eggs” by tightly integrating multiple markets, then shying away from structural intervention on the grounds that it is too costly to break them up merely invites firms to integrate ever closer, and into ever more markets until they have built a tightly integrated platform which would incur ruinous costs if it were to be split. Yet competition authorities are willing to impose large costs on Big Tech, the one-time cost of divestiture can be compared in magnitude to the record-breaking fines being levied against these firms for their anti-competitive conduct.⁶⁷

Finally, Tirole identifies two further problems with structural remedies,⁶⁸ identifying stable parts of the business that can be split out and retaining the benefits of network externalities.

The answer to the former lies in viewing the markets in terms their underlying structure, and analyzing their functional characteristics as explained in Section 2. There are many different stable businesses which operate on their own market layer that can be split out of Big Tech companies. For instance, Facebook could divest its advertising network and be forced to provide interoperability with alternative advertising networks. Similarly, Amazon could divest its AWS cloud business,⁶⁹ or allow consumers to buy e-books from third-party sellers on its Kindle devices. It is important to note that in doing this, consumers could continue to consume the same products as they do now. For example, they would be free to still use Facebook’s social network together with its advertising network, but would be also free to use it with a competing ad network instead.

The latter - retaining the benefits of network externalities - is done by virtue of only enforcing *vertical* separations. For example, rather than splitting Facebook’s social network into several smaller social networks, marketization could keep the social network itself the same, but split out its ad network.

5 The DMA and Marketization

This contribution has outlined how economic concentration in the digital sector stems in part from core structural issues related to vertical integration of monetized markets. It has proposed how marketization could tackle these issues directly, and thus be used to address the market power of dominant firms. It now examines how the new DMA proposal could be used to implement marketization, and how it might be improved to better achieve that end.

⁶⁷Google has been fined over 8.5bn euros in under three years by the European Commission. See https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1784, https://ec.europa.eu/cyprus/news/20180718_2_en and https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1770

⁶⁸Tirole, see n. 15, p. 6.

⁶⁹A divestment of AWS was recently proposed as a procompetitive move by ex-Amazon executive Tim Bray. Tim Bray. *A-Cloud PR/FAQ*. <https://www.tbray.org/ongoing/When/202x/2020/06/21/A-Cloud-PR-FAQ>. Accessed: 2020-08-08. 2020.

5.1 The currently proposed DMA

The DMA recognizes that the majority of harms to the competitive process stem from the practices of a small number of large firms. As such, it imposes new obligations only if firms meet certain criteria indicative of a dominant position, whereupon they are classed as *gatekeepers*.⁷⁰ These gatekeepers face extra obligations above and beyond those required of ordinary firms. Such an approach allows the DMA to provide clear guidelines for which practices are considered anti-competitive, and when prohibitions on them should apply.⁷¹ There is a degree of flexibility and negotiation built into the measures, which allows regulators to adapt the regulation where appropriate.⁷²

Following a long tradition of in the EU's approach to competition law enforcement,⁷³ the DMA generally favors behavioral over structural regulation. For instance, each of the obligations set out in Article 5 is behavioral in nature. Many of the provisions targets specific markets or practices in a relatively narrow manner. For example, Article 6(b), 6(c), 6(e) and 6(f) are all specific to the conduct of gatekeepers producing operating systems, Articles 5(g) and 6(g) are specific to the online advertising industry, and Article 6(i) is specific to search engines. Consequently, these provisions are aimed at preventing the abuse of a dominant position in fairly narrow contexts. With this approach, the DMA gains specificity but loses generalizability. This could be problematic when digital markets evolve in the future, and cause the DMA's targeted approach to lose its relevance.

This contribution has proposed a general theory for how vertical integration is harmful in monetized digital markets. As a structural problem, vertical integration can be fixed only by remedies with structural effects. It is not necessarily the case that drastic changes are required to the DMA in order to change the structure of markets. Rather, it is possible that some of the behavioral provisions set out in Article 5 and Article 6 could have 'structural effects' and used implement marketization.

5.2 Implementing marketization under the DMA

Marketization essentially aims to allow consumers a free choice of which product to use at each layer of the market. In order to achieve this within the framework provided by the proposed DMA, we must look for Articles that can be used to create interoperability obligations or force firms to unbundle their products.

⁷⁰See DMA, Article 3.

⁷¹Strong and clear guidelines give firms legal certainty as to what practices they can and cannot engage in, and simplify the assessment of cases. David Gerber. *Global competition: law, markets, and globalization*. Oxford University Press, 2010, p. 128.

⁷²For instance, Article 3 of the DMA allows the Commission flexibility in terms of which firms are designated as gatekeepers, and provisions in Article 6 are selectively applied after negotiation between the gatekeeper and the Commission.

⁷³Maier-Rigaud, see n. 52.

With this goal in mind, the most promising section of the DMA is Article 6(e), which states that gatekeepers must “*refrain from technically restricting the ability of end users to switch between and subscribe to different software applications and services to be accessed using the operating system of the gatekeeper, including as regards the choice of Internet access provider for end users*”. This clause could be used to force gatekeepers to disintegrate auxiliary products from their operating systems. For instance, the operating system of Amazon’s Kindle device is tied into Amazon’s online ebook store, and users cannot currently purchase books through the Kindle using any competing store. Application of Article 6(e) would marketize e-book distribution by allowing Kindle users to buy books from third-party stores.

Similarly, Article 6(c)⁷⁴ can be used to force the creators of mobile operating systems to permit users to install rival app stores. This could ‘open up’ Apple’s closed ecosystem (described in Section 2.1), and thus marketize app distribution, allowing app developers to distribute iOS apps without having to be subject to the terms and conditions imposed by Apple’s App Store.

Section 2.2 illustrated the theory for how such regulation could be applied in monetized digital markets, where monetization services (*M*) are often vertically integrated with successful online services (*P*). In its current form, the DMA provides no clear-cut way in which marketization could be implemented directly in monetized markets, partly due to its aforementioned lack of generalizability. While *P* is usually an online service such as social media or search, Article 6(e) specifically refers to operating systems and Article 6(c) relates to app stores. The most relevant part is perhaps Article 5(f), which prohibits gatekeepers from forcing consumers to sign-up with auxiliary services when they use the gatekeeper’s core services. Thus, applying Article 5(f) may depend on whether a market definition which clearly delineates between monetization services and user-facing product services such as outlined in Section 2.2 is accepted.

6 Conclusion

As markets evolve, it is vital that competition law reacts in kind so that the engine of competition which drives innovation and progress in our market economies may continue to operate. This paper has attempted to contribute to the development of competition law in order to achieve that aim in the context of a continuing digital revolution.

It showed how Chicago School doctrine is not applicable in the context of some digital markets, highlighting how zero-priced services break long-standing assumptions about relationships between market participants. It emphasized how vertical integration of different products can be so seamless as to be almost opaque to regulators, thus masking harms that originate from market structure. Finally, it suggested marketization as a potential solution to competition problems in monetized markets, and commented on how the proposed DMA could incorporate marketization as a remedy.

⁷⁴Which requires gatekeepers to “*allow the installation and effective use of third party software applications or software application stores using, or interoperating with, operating systems of that gatekeeper and allow these software applications or software application stores to be accessed by means other than the core platform services of that gatekeeper*”.

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