

Potential risks and unintended effects of the new EU Digital Markets Act

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Summary

The Digital Markets Act (DMA) is the new flagship European regulation aimed at increasing contestability in digital markets. In the current context on which there is a renewed political will to favor the emergence of European tech champions and secure European economic sovereignty, the DMA may help to establish a more even level-playing field for up-and-coming European businesses.

Our analysis suggests that we should carefully consider potential unintended consequences in four key areas that may hinder its ability to promote the strengthening of emerging innovative platforms.

1. Preventing gatekeepers from restricting access to their platforms, including regulating competition or screening for quality, might paradoxically lead to lower levels of innovation through two mechanisms:
 - If all platforms are required to have the same approach to gatekeeping, it may lead to greater standardization and potentially result in a “winner-take-all” scenario, where the largest platform dominates the market and smaller platforms struggle to differentiate themselves and survive. This could ultimately reduce competition among gatekeepers affected by the DMA for core platform services.
 - In innovation platform ecosystems that provide the core technology for others to build upon and create complementary products, adding more producers to such ecosystems can have a negative effect on innovation, and that competition can reduce incentives for companies to produce high-quality products.
2. The DMA requires platforms to share with third-party business users all data generated through their activity on the platform, trying to ensure that data is portable to other platforms.
 - However, the process of creating new data through novel interactions can be expensive and requires significant investments.
 - Data also need to be transformed and combined with other data to be valuable. As a result, a requirement that forces gatekeepers to make their data available to competitors may reduce their incentives to generate new and valuable data, as it will be harder for them to gain a competitive advantage through data creation. This could have the unintended effect of diluting gatekeepers’ incentives for data creation.

3. Prohibiting gatekeepers from giving their own products or services a better ranking or position on their platform than those of third parties, as the DMA does, might fail to take into account that those platform owners may also introduce their own products or services in order to steer innovation efforts towards certain areas or differentiate their ecosystem in strategic ways. This can lead to increased value for customers and overall innovation within a platform's ecosystem.
 - In cases where gatekeepers are facing strong competition from other gatekeepers, the benefits of cross-platform competition may outweigh the potential harm of reduced within-platform competition. These tradeoffs should be considered when implementing the DMA.
4. The DMA requires platforms to allow users to choose whether or not to let their data to be processed and to offer a less personalized alternative.
 - The implementation of this policy has the potential to significantly disrupt the targeted advertising market, potentially leading to a shift in revenue from some companies to others. Small and medium-sized enterprises (SMEs) that rely on targeted advertising to reach a global audience and differentiate themselves from larger platforms could be negatively impacted, potentially resulting in the further consolidation of the dominant positions of established platforms rather than increased competition and market contestability.

Introduction

The 1st of November of 2022 the EU Digital Markets Act (DMA) has officially entered into force. This ambitious new European regulation targets only big platforms (according to some specified size numerical thresholds) operating some specific core platform services, referred to as “gatekeepers”², subjecting them to a binding (and self-applicable) list of dos and don’ts. The EU competition authority will first identify who are, currently, these gatekeepers, then allow them a period to adjust to this new set of rules, requiring them to fully comply with the DMA by the 6th of March of 2024 at the latest.

At the high level, the DMA has two explicit objectives. First, it aims to facilitate *market contestability*, that is, improving the possibilities of other firms to contest markets and challenge gatekeepers’ positions in the provision of their core platform services. Second, the DMA targets gatekeeper unfair practices to promote *fair competition* between the gatekeeper and its business users. For instance, gatekeepers cannot treat preferentially (“self-preferencing”) their own products when in competition with those of (third-party) business users. The DMA stresses that gatekeeper power originating from lack of contestability is associated with a lack of fairness (towards platform business users) that, unless properly tamed in, leads to “the detriment of prices, quality, fair competition, choice and innovation in the digital sector”³.

Although the attainment of both market contestability and fairness can be considered sound regulatory principles, the DMA’s approach of a binding, self-executing list of provisions does not account for different types of platform markets (see Cennamo 2021 for an extensive discussion of platform market types) and the existing tradeoffs derived from conflicting objectives might be conducive to potential unintended negative effects. **The DMA may risk ossifying rather than increasing competition for platform core services, and thus, it may reduce incentives for innovation.**

The arguments presented here are speculative at this stage, missing any data-point on the effects of the law (due to its infancy) that could support or refute these conjectures. Our reasoning is based on the findings from the existing body of academic research on platform competition and ecosystem management, which point out important tradeoffs and reveal the conditions under which held assumptions about network effects (e.g., that value increases with the size of the network) must be revisited. More explicitly, in this note **we present several situations in which the DMA provisions promoting fair competition might conflict with innovation incentives** (by the gatekeeper and third-party business users), highlighting the possible unintended negative consequences of the DMA on the value creation properties of digital platform ecosystems.

2 According to the article 3(2) of the DMA a provider of core platform services will be designated as gatekeeper if three quantitative thresholds are met:

- 1) The undertaking has either an annual turnover above EUR 7.5 billion in each of the last three financial years or market capitalization or equivalent fair market value above EUR 75 billion in the last financial year and it provides the same Core Platform Service in at least three Member States of the European Union.
- 2) The Core platform service provider has at least 45 million monthly active end users and at least 10,000 active business users located or established in the EU.
- 3) Threshold (2) above has been met in each of the last three financial years.

3 Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act, DMA), page 2.

1.

The DMA constraints the ability of gatekeepers to restrict access (provision).

This “open platform” policy may reduce cross-platform competition based upon ecosystem differentiation and degrade ecosystem actors’ incentives to innovate and offer high-quality products to users (unintended effect).

The DMA is explicitly concerned about gatekeepers excluding or possibly discriminating against business users at their will. In particular, the DMA states that restrictions that “limit the ability of developers of software applications to use alternative distribution channels and the ability of end users to choose between different software applications from different distribution channels and should be prohibited as unfair and liable to weaken the contestability of core platform services”⁴. The DMA concedes as exception to the rule the case in which these restrictions are put in place by the gatekeeper to preserve the security and integrity of users and systems. Other than that, the DMA *de jure* prohibits gatekeepers to exercise any active governance control (e.g., screening for quality; regulating competition intensity; reducing free-riding behavior, etc.) over its ecosystem. This could have two possible unintended negative consequences in the case of platforms competing based on the strength of their innovation ecosystems: it can reduce one important source of cross-platform competition (differentiated innovation ecosystem) and degrade the incentives of ecosystem actors to contribute high-quality innovations.

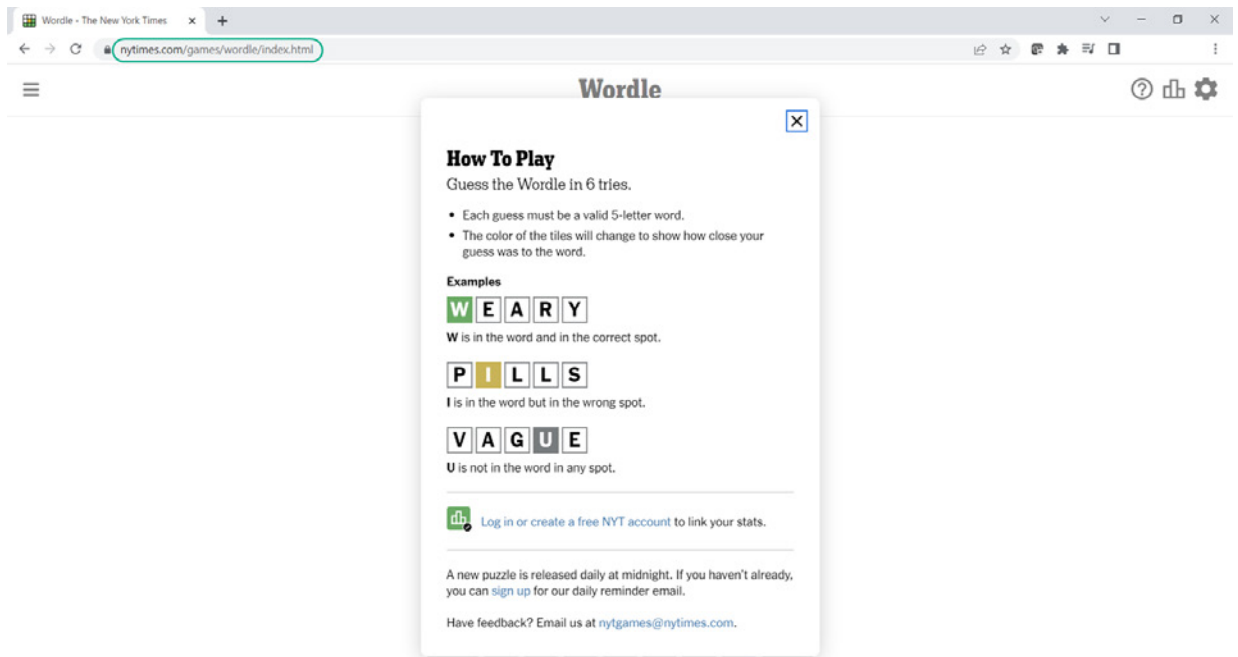
Consider the case for cross-platform competition. Even in the cases platforms face competition on their core platform services they can still act as “competitive bottlenecks” (Armstrong 2007), exercising local monopoly power over their ecosystems. However, gatekeeping restrictions to/within the ecosystem shall not constitute abuse of such monopolistic power, in and by themselves. In some cases, they reveal the different organizational approaches and value propositions for their ecosystems; shortly, gatekeeping governance is an important source of strategic differentiation of the platform ecosystem (e.g., Cennamo and Santaló 2013). Some platforms may emphasize a broad, large variety of complementary offerings that can match the different customer preferences as main value propositions to its end users, while others may cater to the specific needs of a sub-set of end users and offer a more curated customer experience through a selective menu set of complementary offerings. Curtailing this organizational lever for all digital platforms unconditionally can in fact reduce cross-platform competition on the merit of differently organized ecosystems (and different value propositions), leading to greater standardization across platform ecosystems. This may reduce rather than increase market contestability for core platform services. With competing ecosystems reducing their distinctive differentiation elements, winner-take-all type of competition is likely to instantiate: the largest platform will dominate the market, reducing the ability of smaller platforms to coexist in the market (absent now the possibility to offer differentiated ecosystem-based services).

Innovation and its quality may also degrade within a platform ecosystem. Mainstream economics literature has already highlighted that the relationship between competition and innovation in a market is not linear, and far from being unidirectional. Schumpeter (1942) stressed how firms with market power may have stronger incentives to innovate than firms competing in a more crowded market space. Aghion, Bloom, Blundell, Griffith and Howitt (2005) have theoretically argued and empirically found that the relationship between competition and innovation follows an inverted U-form such that past a threshold, higher levels of competition may lead to lower incentives for a firm to innovate. Applying these insights to the context of platform ecosystems would suggest that under some conditions a gatekeeping policy that restricts competition within a given ecosystem may lead to better societal outcomes through higher innovation incentives. There is academic evidence in fact showing that this is the case for “innovation platform” ecosystems, that is, platforms that are primarily facilitating the creation of complementary innovations by providing the core technological architecture for other firms to build upon to create complements that extend the core platform functionality to final users (Cennamo 2021). Boudreau (2012) in the context of apps in handheld computer platforms finds evidence that the effect of adding producers on innovation incentives was negative. Cennamo and Santaló (2019) show how the negative effect of competition on the incentives to produce high-quality videogames by third-party developers is particularly acute at later stages of the platform life cycle. Miric and Jeppesen (2020) show how intense competition coming from copy-cat products lead to less innovation. Consistent with these findings, Zhang, Li and Ton (2020) document how competitive threats diminish the incentives for the producers of complementary products to share knowledge among themselves. In a formal model, Panico and Cennamo (2022) show that this negative effect on ecosystem innovation and quality depends on the nature and intensity of network effects: with network effects weakening with platform network size (which is the case for most of mature platform ecosystems), more competition among complementors will reduce their incentives to invest in higher complement quality and result in worse (less innovative) complements on average.

Overall, this body of empirical evidence suggests that, for this type of platform ecosystems, in these conditions, restricting within ecosystem competition through restricting access to core platform services can in fact be pro-competitive and pro-innovative, creating greater value for consumers by inducing third party business users to develop better complementary products (apps, games, etc.). Consider the example of Wordle, a very popular app game that became viral in early 2022 (see Figure 1). As a result of this success, it very quickly attracted several knockoffs that were basically copy-paste of the original game with names that were variations of the original name. Apple reacted swiftly and removed the Wordle clones from the App Store. Apple only allowed those “Wordle” apps that were in the App Store prior to the launch of the original Wordle website. Evidently, Apple can only exercise this policing over clone complements in the ecosystem thanks to its control over the Appstore, which is the exclusive way for developers to gain access to the ecosystem, and for users to download apps for the iPhone. This active gatekeeping will be soon demoted and made illegal under the DMA, making it harder for Apple to screen for quality and select out of its ecosystem copy-cat and other apps freeriding on the innovation investments of high-quality developers⁵.

5 We concede that higher competition in the app marketplace driven by a flood of Wordle copycats downloaded from third party app stores may benefit Wordle users in the short term. However, this comes with the cost of lowering innovation incentives for developers to invest in the future in high-quality apps. Any developer may anticipate a greater free-riding regime, in which it will be more difficult to appropriate the returns to their innovation if free competition from copycats is not curtailed. Because of ex-post lower ability to capture returns from innovation, their ex-ante incentives to invest in high-quality innovations will decrease.

Figure 1.



2.
The DMA imposes on gatekeepers
to share with third-party business users
all data generated through their activity
in the platform (provision).

If data become trading commodities, gatekeepers' incentives
for data creation may dilute (unintended effect).

The DMA prescribes that any business user “should be granted effective and immediate access to the data they provided or that was generated through their activity on the relevant core platform services of the gatekeeper”⁶. With this, the DMA aims to ensure that all platform data are easily portable to other platforms. The DMA argues explicitly that this easy data portability should act as an incentive for gatekeepers and business users to innovate. On one hand, data portability increases market contestability, driving up (in principle) incentives to innovate. However, as we have pointed out in Cennamo, Krestchmer, Constantinides, Alaimo and Santaló (2022), the DMA considerably abstracts away from the problem of data creation and

its associated innovation costs and incentives.

Although data have almost zero costs of reproduction, producing new data out of novel interactions requires significant investments. Even after they have been produced, raw data do not automatically provide value. The data need to be transformed via aggregation and combination with other data via the use of models, tools, and organizational resources (Cennamo, Krestchmer, Constantinides, Alaimo and Santaló 2022). Therefore, a regulatory requirement that forces gatekeepers to make the data being created available to competitors may have the unintended effect of reducing gatekeeper's incentives to generate novel and valuable data, since it will be harder to make a business case that investing in data creation may provide any sort of competitive advantage.

Again, an example may be useful to illustrate this issue. For different reasons the authors engaged in personal conversations with management of a platform leader in the food delivery industry in Spain that connects consumers with restaurants. It was brought to the attention of the authors a project to extract more information from current restaurant bills. At the present stage, the platform software was able to extract and automatically store information about the location of the ordering customer, the time of the order as well the total size of the ticket. However, one can naturally presume that data on the type of food being ordered, the nature of each dish, could also be valuable since distinct type of food may require different time of preparation and cooking. This information was not currently available in a format that could be used to plan for a more efficient delivery. Contrary to layman expectations, the extraction and use of this data from extant restaurant bill was far from being straightforward. The platform was undergoing a project of several months of duration with a budget for an undisclosed amount of several million euros. Under the DMA, if that given platform were classified as gatekeeper, the platform may be required to give access to this information to restaurants that are multi-homing to a competing food delivery platform. Note that if this is the case, then the incentives of the focal platform to start such a project may substantially diminish.

3.

The DMA may intensify within-platform competition at the expense of constraining cross-platform competition (unintended effect).

The DMA severely restricts gatekeepers when they are competing in their own platform against third parties in the market for a complementary product. The DMA is concerned with building a level playing field in each digital platform ecosystem such to guarantee fairness in the gatekeeper-business user relationship. The example cited in the DMA is a situation in which a gatekeeper provides its own online intermediation services through an online search engine. The DMA explicitly forbids self-preferential conduct in which gatekeepers

“can reserve a better position, in terms of ranking, and related indexing and crawling, for their own offering than that of the products or services of third parties also operating on that core platform service”⁷.

The presumption is that allowing third parties to compete on a more equal foot with gatekeepers will restore not only fair competition, but also increase incentives for business users to innovate within the platform ecosystem. Some evidence points to this possibility. Wen and Zhu (2018) show how in the mobile app ecosystem, following the rise of Google’s entry threat, affected developers indeed reduced their innovation effort. However, gatekeepers may introduce their own complements not just to extract greater rent from the ecosystem, but also to steer third-party innovation efforts towards other domains (Foerderer et al. 2018) or to differentiate their ecosystem in areas that the platform firm considers strategic. As a result, when considering the overall effect at the ecosystem level, value for customers may increase. Zhu & Li (2018) find that Amazon entry in third-party sellers’ product categories increases total product demand in the affected product category and reduces substantially consumer shipping costs. This suggests substantial consumer benefits driven by the innovation capability of the integrated gatekeeper to offer better/cheaper service to the final customer. They also show that Amazon entry strategy is largely driven by those product categories that offer greater opportunities of efficiency gains in delivery.

This innovation-enhancing aspect of self-preference strategies may be especially salient in those cases in which the gatekeeper is facing strong competition from another gatekeeper (stronger across platform competition). In those cases, it can perfectly be the case that from a society standpoint, the benefits of stronger cross-platform competition compensate for the possible harm of reduced within platform competition. This aspect of possible tradeoffs between equally worth pursuing objectives (such as enhancing cross- and within- platform competition) shall enter the analysis and find application when implementing the DMA.

4.

The DMA strengthened privacy comes at the cost of reducing competition in the advertising and more generally all across the board (unintended effect)

The DMA mandates that “gatekeepers should enable end users to freely choose to opt-in to such data processing and sign-in practices by offering a less personalized but equivalent alternative, and without making the use of the core platform service or certain functionalities thereof conditional upon the end user’s consent”⁸.

To appreciate the possible distortive effects of this measure, particularly for the online advertising market, consider the case of a similar in spirit, albeit private policy measure, introduced by Apple, the App Tracking Transparency (ATT) put into effect in September 2020. With ATT, users have to provide explicitly their consent to being tracked when using any given app (note: Apple’s own apps are excluded from the ATT policy). At first, only 21% consumers opted in although this number has since gone up and stabilized around 40%⁹. As pointed out in Cennamo and Santaló (2022) this has disrupted the results of all companies that relied on targeted advertising to reach consumer audiences¹⁰.

However, this is not just a transfer of revenue from some big tech companies to others. There is emerging evidence being reported in the business press¹¹ that the ATT has strongly disrupted the distribution market of a wide variety of small and medium companies (SMEs) that use the efficient targeted advertising allowed by consumer tracking to cheaply reach worldwide audiences. SMEs that want to use e-commerce to sell their offerings have two broad options. First, they can simply opt for the Amazon platform to reach a worldwide audience. Second, SMEs, could try to establish direct contact with their customers by employing standardized e-commerce tools provided by companies like Shopify. Opting for this second option helps SMEs to avoid the commoditization generated by the Amazon search algorithm. The cons are that SMEs face the challenge of building an audience for their product offerings. Companies using the direct-to-consumer option have often built this audience resorting to the (relatively cheap) targeted advertisement service provided by Meta’s Facebook platform (Cennamo and Santaló, 2022).

⁸ DMA page 9.

⁹ Kłosowski, T. (2022, March 31). Looking Back on a Year of Apple’s Privacy Labels and Tracking. NY Times, Wirecutter, <https://www.nytimes.com/wirecutter/blog/apple-privacy-labels-tracking/>

¹⁰ Amazon’s advertising services grew 32% YoY to \$9.7 billion. (2022, Feb 4). Exchange4media, <https://www.exchange4media.com/digital-news/amazon-reports-94-per-cent-hike-in-revenue-at-1374-billion-118253.html>

¹¹ See e.g., Cennamo and Santaló (2022) for details.

As a result, by disrupting the advertising world, ATT may have accidentally benefitted Amazon at the expense of SMEs that now have seen severely impaired their direct-to-consumer strategy as way to bypass Amazon platform. Shopify's has disclosed in 2022 first quarter losses of \$1 billion while Snap with a similar reliance on advertising suffered in October 2022 a drop of 25 percent in its stock market price after missing analyst expectations¹².

Given the similarity between the DMA consent requirements with the Apple ATT, it does not look like too much of a stretch to assume that the DMA implementation may have similar distortive effects in the targeted advertising markets benefitting some gatekeepers while castigating others. The risk is that in between, the real casualties will be the SMEs (and their direct-to-consumer model). Apps/webpages that have a larger user base can indeed better monitor consumer behavior and offer targeted advertising with a higher ROI than apps with a smaller user base. Overall, this may reinforce the competitive advantage of big players (with direct access to consumer's data) at the expense of smaller ones. Note hence that the unintended effect of the DMA may be to consolidate the dominant position of big established platforms instead of making digital markets more contestable.

12 Hatmaker, T. (2022, Oct 20). Snap stock down 25% as the social network struggles. Techcrunch. <https://techcrunch.com/2022/10/20/snap-q3-earnings/>

Conclusions

In this note we have identified four specific situations in which the DMA may have the unintended effect to restrict rather than increase competition levels and possibly reduce innovation incentives and overall societal welfare. These are 1) situations in which active gatekeeping may be needed to preserve third party incentives to innovate; 2) situations in which it is important to preserve incentives for new data creation; 3) situations in which cross-platform competition (competition across gatekeepers) is vibrant and driven by ecosystem differentiation; 4) distortions to a vibrant advertising market through data silos. Given that the DMA has yet to start its implementation phase, regulators and policy makers should be aware of these potential negative consequences and balance them to get the most positive results out of the new regulatory framework. This requires taking also a broader view of what digital platforms are; not just multisided markets but organizational structures (ecosystems) coordinating complementary economic activity across disparate actors.

Considering the potential negative implications of the situations identified above, we offer few, stylized recommendations for the implementation criteria of the DMA's provisions.

1. **Emphasis should move away from protecting complementors to protecting the competitive process.** In the cases in which “open access” to the platform ecosystem comes at tradeoff with promoting differentiation-based competition between platform ecosystems, the latter objective should be pursued. Gatekeepers, for instance, might be granted exemptions from some of the obligations conditional on detailing how (and providing data-based evidence) the obligation would undermine their ability to differentiate their ecosystem and compete with other gatekeepers.
2. **Retain gatekeeper's incentives to invest in data creation while enforcing data sharing obligations.** Turning data into a tradeable commodity that gatekeepers are forced to share may create more harms than the anticipated gains: if a price needs to be attached to the sharing of data, a market for data may create even more economic dependence of complementors on the gatekeeper's data services (and possibly also create distortive competitive effects between small, resource-constrained and large complementors). If data must be shared for free, common goods-like problems may arise, with negative effects on the incentives to invest in data creation and quality in the first place, as discussed above. Balancing the different interests at stake is thus needed. We think that the *in-situ* access to data solution proposed by Parker and Van Alstyne¹³ might be a good starting point to preserve both the value of the data and gatekeepers' incentives. To the extent that data sharing through in situ access is ecosystem specific, gatekeepers can (partly and indirectly) benefit from it through additional and/or better complements being created by business users for end users within the ecosystem.

13 See, Parker, G. and Van Alstyne, M., “Innovation, Openness, and Platform Control”. *Management Science*, Vol. 64, No 7, 2018; and Cabral, L., Haucap, J., Parker, G., Petropoulos, G., Valletti, T., and Van Alstyne, M., *The EU Digital Markets Act*, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-29788-8, doi:10.2760/139337, JRC122910.

3. **Self-preferencing (promoting own and select group of complements) should not be banned for innovation platform ecosystems and *when* there is competition between platform ecosystems:** its pro-competitive (between gatekeepers, and between small vs. reputed complementors) and pro-innovative effects can create larger benefits for users and complementors than the potential anti-competitive harm. The DMA, for instance, in its (yet to be drafted) implementation criteria document, may single out these cases, and provide exemptions to the obligation conditional to possibly monitoring requirements to keep track of and quantify these potential gains.
4. **Allow targeted advertising while protecting user choice.** Targeted advertising needs not necessarily cause harm to users, and can also be pro-competitive to the extent it allows small businesses to sidestep platform marketplaces and build their own direct-to-consumers business as discussed above. Users would be harmed when the targeting respond to self-serving economic interests' logics rather than effective matching between user preferences/interests and advertiser's product attributes, and by the consequential induced choice towards a product that is not necessarily in the interests of the user. This is a problem more of the so called "dark patterns" (and the consequential misuse of individual's user data) than of targeting advertisement per se; an issue that personal consent to the user's data will not eliminate. We would thus recommend implementing the DMA trying not to disrupt targeted advertising. The platform should provide alternative choices and enough information along with the default option such that consumers know with precision the exact consequences from targeted advertisement and can thus make a smart choice. This may limit the negative effects of dark patterns to end users while preserving the benefits of targeted advertising to business users.

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References

- Aghion, P., Bloom, N., Blundell, R., Griffith, R., and Howitt, P. 2005. Competition and Innovation: an Inverted-U Relationship. *The Quarterly Journal of Economics* 120 (2): 701-728.
- Armstrong, M. 2007., "Two-sided markets: economic theory and policy implications", in Choi, J.P. (Ed.), *Recent Developments in Antitrust: Theory and Evidence*, MIT Press, Cambridge, MA, pp. 39-59.
- Boudreau KJ. 2012. Let a thousand flowers bloom? An early look at large numbers of software app developers and patterns of innovation. *Organization Science*, 23(5):1409–1427.
- Cennamo, C., Kretschmer, T., Constantinides, P., Alaimo, C. and Santaló, J. 2022. Digital Platforms Regulation: An Innovation-Centric View of the EU's Digital Markets Act. *Journal of European Competition Law & Practice*, Ipac043.
- Cennamo, C., and Santaló, J. 2022. Value in digital platforms: the choice of tradeoffs in the digital markets act. *Competition Policy International* November 2022.
- Cennamo, C. and Santaló, J. 2019. Generativity Tension and Value Creation in Platform Ecosystems. *Organization Science* 30(3):617-641.
- Cennamo, C. and Santaló, J. 2013. Platform competition: Strategic tradeoffs in platform markets. *Strategic Management Journal*, vol. 34: 1331-1350.
- Cennamo, C. 2021. Competing in digital markets: A platform-based perspective. *Academy of Management Perspectives*, vol. 35: 265-291.
- Cennamo, C. and Panico, C. 2022. User preferences and strategic interactions in platform ecosystems. *Strategic Management Journal*, vol. 43: 507–529.
- Miric M., Jeppesen L. B. 2020. Does piracy lead to product abandonment or stimulate new product development? Evidence from mobile platform-based developer firms. *Strategic Management Journal*, 41(12): 2155-2184.
- Schumpeter, J. 1942. *Capitalism, Socialism and Democracy*, George Allen & Unwin.
- Wen, W., Zhu, F. 2019. Threat of platform-owner entry and complementor responses: Evidence from the mobile app market. *Strat Management Journal* 40: 1336– 1367.
- Zhang, Y, Li, J, Tong, TW. 2020. Platform governance matters: How platform gatekeeping affects knowledge sharing among complementors. *Strategic Management Journal*. 43: 599– 626.
- Zhu, F., & Liu, Q. 2018. Competing with complementors: An empirical look at Amazon.com. *Strategic Management Journal*, 39(10): 2618–2642

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