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THE FUTURE OF DIGITAL PLATFORM DESIGN - THE CASE OF THE EU PLATFORM REGULATION DISCOURSE

Research Paper

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Abstract

Digital platform research focuses on the mechanisms in digital platform ecosystems and the dynamics between platform owners, complementors, and end-users. Recent studies are beginning to look beyond the boundaries of narrow platform ecosystems. The development of the European Union's Digital Markets Act (DMA) is a revelatory case to study this wider perspective. Hundreds of actors participated in discourses on the regulation, which aims to regulate so-called gatekeeper platforms that are allegedly powerful, unfair to platform users, and incontestable for competitors. By means of a critical discourse analysis, we coded 1720 contributions on the proposed and adopted DMA between June 2020 and July 2022. We identify 72 positions and 14 narratives along five discourses. Our study creates a better understanding of a wider perspective of platform ecosystem structure that goes beyond the triangle of platform owner, complementors, and end users.

Keywords: Digital Platform Ecosystems, Openness, Value, Power, Policy, Discourse Analysis.

1 Introduction

Digital platform ecosystems are a major subject of Information System (IS) research. The majority of studies focus on understanding platform ecosystems' mechanisms and dynamics between the platform owner, complementors, and end-users (de Reuver et al., 2018). For example, researchers study openness, governance, boundary resources, value co-creation, value capturing, and power in platform ecosystems (Ghazawneh and Henfridsson, 2013; Hurni et al., 2022; Ondrus et al., 2015; Schrieck et al., 2021). Recently, researchers are beginning to look beyond the boundaries of narrow platform ecosystems by considering platform ecosystems' embeddedness in more complex reciprocal relationships with other platform ecosystems, companies, and organizations (Márton, 2022; Schrieck et al., 2022b; Wang, 2021). This development suggests a wider perspective of platform ecosystem structure that goes beyond the triangle of platform owner, complementors, and end users on a single platform.

Digital platform regulation is a revelatory case to study this wider perspective of ecosystems and its dynamics (Yin, 2009). The Digital Markets Act (DMA) is an eagerly desired as well as controversial regulation of so-called gatekeeper platforms that will have a far-reaching impact on the design and dynamics of platform ecosystems in the European Union (Heimbürg and Wiesche, 2023; Regulation (EU) 2022/1925). The DMA goes beyond existing ex post competition policy by introducing quite specific ex ante rules for large gatekeeping platforms. By virtue of its novel approach, ambitious goals, and broad scope, all kinds of actors, even remotely concerned with platform ecosystems, have been actively participating in interdisciplinary public discourses on the DMA. Because all participants hope to benefit indirectly or directly from the DMA or are afraid to suffer under the DMA (Stolton, 2022), the discourses are characterized by strong positions and dynamic interaction. Furthermore, the large

number and heterogeneity of participants and the wide scope of the regulation cause numerous diverse positions and arguments. Finally, the public discourses are documented. Thus, the public discourses on the DMA offer a lens to understand the narratives in the discourses, positions of actors, their interactions, and dependencies in wider platform ecosystems through their positions in the discourses (Cukier et al., 2009; Wall et al., 2015). The revelatory case provides an opportunity to observe the positions of different actors on the openness, structure, mechanisms, value, and power of platform ecosystems.

More precisely, we seek to answer the question: *Which structures and dynamics exist in wider digital platform ecosystems?*

We conduct a critical discourse analysis to understand the positions and arguments around platform power, openness, boundary resources, and value when regulating digital platform ecosystems. We present the actors involved in the discourses and their positions towards the DMA. Contrasting our findings against the current state of research, we contribute to research by suggesting new dimensions for understanding digital platform ecosystems. The dimensions concern openness in ecologies of platform ecosystems, vertical arrangements of platforms, and walled gardens. In addition, they concern the need to theorize value and use of boundary resources as tools provided by third parties. Furthermore, the dimensions challenge balancing value creation and capture mainly based on the size of the network and highlight the gap in understanding power dynamics between ecosystems.

2 Theoretical Background

In the following, we present the current state of research on key strains of research on digital platform ecosystems. This enables us to contrast the current state of research with what we derive from the DMA discourses on the position of actors, their interactions, and interdependencies in platform ecosystems.

Digital platforms facilitate connections between supply-side participants (complementors) and demand-side participants (end-users) via digital technology. The responsibility of managing, organizing, and improving the platform falls on the platform owner or provider (Eisenmann et al., 2009). Complementors contribute all kinds of offerings to the platform. End-users may demand the offerings. As a result, the platform owner, complementors, and end-users may interact in a digital platform ecosystem (Heimburg and Wiesche, 2022).

Information Systems, management, and engineering research emphasize several aspects of digital platform design and mechanisms. Key strains of research include platform openness, boundary resources, value-creation and -capture, and power in platform ecosystems. These focus on designing value exchange between the platform owner, complementors, and end-user on a technical, organizational, or economic level (Easley et al., 2018; Huber et al., 2017; Wareham et al., 2014).

In these interactions, extensive explanatory models for the openness of individual platform ecosystems exist. Literature on platform openness identifies platform openness at the complementor, provider, technological, and end-user level (Hein et al., 2020; Karhu et al., 2018; Ondrus et al., 2015). This paper focuses on complementor and provider openness. On the one hand, openness creates opportunities and freedoms for complementors to participate in a platform ecosystem and to contribute offerings, which may increase generativity in the ecosystem (Benlian et al., 2015). On the other hand, it reduces a platform owner's ability to influence the trajectory of the platform, which may lead to security issues, fragmentation, and competitive threats (Karhu et al., 2018; Ondrus et al., 2015). A central conclusion of platform openness research is that ecosystems should not be too open and not too closed (Wareham et al., 2014). A phenomenon that exhibits that some platform owners (e.g., Apple with its App Store) aim to minimize openness while allowing selected external contributions is framed as "walled gardens" (Bergvall-Kåreborn and Howcroft, 2014). Meanwhile, research only begins developing models explaining openness in nested, wider platform ecosystem ecologies (Márton, 2022; Wang, 2021).

Furthermore, Information Systems research explores boundary resources in digital platforms intensively. Platform owners use boundary resources (e.g., application programming interfaces) to cultivate their ecosystem. Specifically, boundary resources transfer capability to complementors while

maintaining platform control (Ghazawneh and Henfridsson, 2013; Schrieck et al., 2022a). Thus, boundary resources can increase the value-co creation of complementors and the value the platform owner offers to its ecosystem participants (Tan et al., 2020). Platform owners control the design and development of most boundary resources. Yet, third parties may influence the process or even offer specific boundary resources themselves if the platform owner allows this (Eaton et al., 2015).

To create a flourishing platform ecosystem, platform owners must simultaneously enable co-creation of value in the platform ecosystem and capture a sufficient share of the co-created value (Schrieck et al., 2021; Tiwana et al., 2010). For platform owners, striking a balance between value-co-creation and value capture in ecosystems over the course of the platform ecosystem evolution is challenging. Literature suggests that new platforms should first strive to increase network effects and complementor value co-creation before starting to capture value once achieving a large and vibrant platform ecosystem (Parker et al., 2016; Tan et al., 2016). Value co-creation of complementors partly depends on the availability of alternatives for complementors (Rietveld and Schilling, 2021). Therefore, platform owners aim to retain complementors on their platform through single-homing, a strategy to enable higher contribution to network effects and greater differentiation from competing platforms (Barua and Mukherjee, 2021; Landsman and Stremersch, 2011).

Finally, IS research studies the distribution of power in platform ecosystems (Eaton et al., 2015; Hurni et al., 2022). The distribution of power and relative power advantage of platform owners is a result of the features of platform ecosystems, platform owner strategy, complementor strategy, market characteristics, and policymaking (Aguiar and Waldfogel, 2021; Cutolo and Kenney, 2021; Hurni et al., 2022). Platform owners use their relative power to influence platform ecosystem participants (Perrons, 2009), to govern complementors through the design and change of boundary resources (Eaton et al., 2015), or to wield coercive power in favor of the ecosystem (Hurni et al., 2022).

3 Method

To understand the structure and dynamics in wider platform ecosystems, we conduct an exploratory study of a much-debated topic of digital platform ecosystems: regulation. More precisely, we study the discourses around the introduction of a digital platform regulation, the European Union's Digital Market Act (DMA). We define the DMA discourses as the major topics in the public expression of opinion on the (proposed) regulation. As the constituent parts of the discourses, we regard all public positions with which renowned stakeholders aimed to influence the design of the DMA.

By analyzing the discourses on the proposed and adopted regulation, we have a revelatory case to understand the position of actors, their interactions, and dependencies in platform ecosystems (Yin, 2009). We are, therefore, able to understand participants in wider platform ecosystems and their position toward openness, boundary resources, value creation and capture, and power in platform ecosystems.

Methods in the field of discourse analysis allow understanding of the content, hegemonies, and effects of discursive interactions (Gleasure et al., 2019; Wall et al., 2015). We base our method on strains of critical discourse analysis (CDA) that allows studying discourses shaped by institutional actors (press, corporations, lobby, politics, etc.) (Cukier et al., 2009). Critical discourse analysis views the use of language and social actions that shape communication as a social practice constrained by hegemonic powers. CDA attempts to identify hegemonies and hegemonic narratives reproduced in texts (Wall et al., 2015). Thus, CDA offers an ideal means to assess the ideological positions and narratives reproduced in policymaking discourses. It allows us to study diverse contributions to DMA discourses in detail and not just whether actors propose or oppose the regulation. In fact, some similar participants (Figure 2) have varying positions in DMA discourses. For example, not all major platforms generally oppose the DMA, but rather blame their peers for deficiencies. While the method is focused on linguistics and rhetoric in other disciplines, in the IS domain, discourse analyses are mainly focused on the content and arguments of the discourses (Cukier et al., 2009; Gleasure et al., 2019; Miranda et al., 2016). Operationalizing CDA can be summarized in four steps: gathering relevant data, analyzing the data through coding, interpreting the observations, and explaining the findings (Cukier et al., 2009).

3.1 Platform Regulation

Around the globe, governments and competition authorities have started regulating digital platform ecosystems. The DMA is a particularly relevant regulation because it introduces far-reaching rules for several platforms in an influential economic area. It is likely to become a global role model similar to the European Union’s General Data Protection Regulation (GDPR) (Bradford, 2020; Smithurst, 2021).

The DMA aims to ensure “contestable and fair markets in the digital sector across the [European] Union where gatekeepers are present” (Regulation (EU) 2022/1925, Article 1). Like the GDPR, the DMA provides predefined (ex-ante), clear, and uniform rules. These apply only to “gatekeepers”, which are undertakings that achieve an annual turnover above 7.5 billion Euro in the European Union (EU) and offer at least one “core platform service” (e.g., operating system, social network) used by >45 million end-users monthly and >10,000 complementors yearly in the EU (Regulation (EU) 2022/1925). Overall, the rules impact how “gatekeepers” handle and process data, define conditions of use, and make their platform and services accessible (Regulation (EU) 2022/1925). The DMA follows a mainly rule-based regulatory approach to counter lengthy litigations and negotiations that would follow the application of ex-post policy or less precise principle-based regulatory approaches.

3.2 Data gathering

In this step, we are identifying and assembling relevant materials of the public discourse. We use existing real-life data, as we want to understand the discourses objectively. The appropriate time horizon is vital in longitudinal research (Street and Ward, 2012). We set the frame with the start of official legislative work in the DMA in June 2020 until the EU legislative bodies passed the regulation in July 2022. Figure 1 highlights the timeline and key events in the DMA discourse.

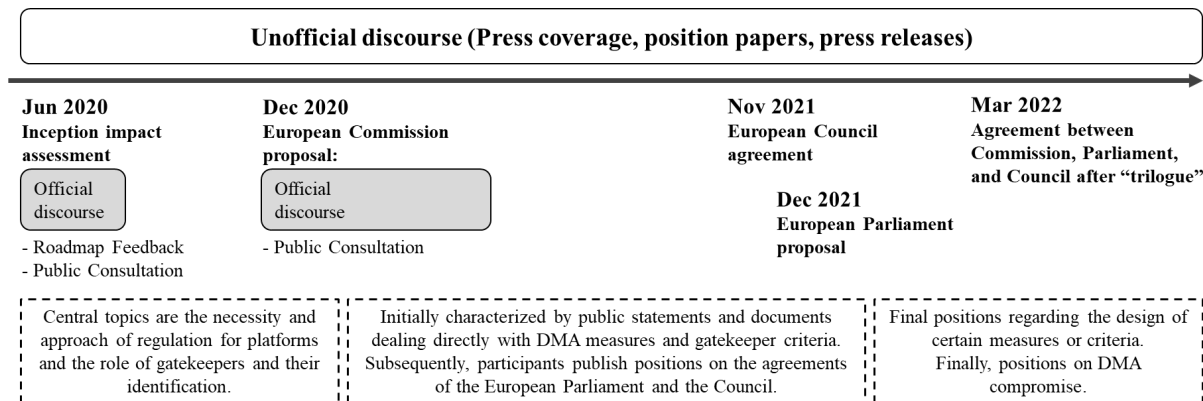


Figure 1 Timeline and key events in the DMA discourse

We identified the contributions to discourses in various places (Table 1). The discourse participants contributed to the official forums and public consultations for policy discourses provided by the European Commission. Also, the participants contributed to unofficial places of the discourse. The majority of the unofficial places are newspaper articles we identified by searching with the query “Digital Markets Act” on Dow Jones Factiva, Nexis Uni, Politico, and Euractiv¹. First, this allowed us to discover statements of participants that the newspapers reproduce and interviews with participants. Second, including the press coverage also allowed us to analyze the contributions of political participants in the discourses. Third, it allowed us to retrieve further unofficial contributions through a backward search of the identified newspaper articles, as the articles refer to position papers, press releases, and other statements. Fourth, using multiple data sources ensures the corroboration of the evidence (Cukier et al., 2009).

¹ We also searched "Digital Services Act" for the period up to December 2020, as the DMA was only spun off as of then.

| | Place | Details | Time | # of documents |
|------------|--|---|---------------------|----------------|
| official | DSA package (ex-ante regulatory instrument of very large online platforms acting as gatekeepers) | Roadmap feedback on Inception impact assessment | Jun 2020 | 30 |
| | | Public consultation | Jun-Sep 2020 | 22 |
| | Single Market (new complementary tool to strengthen competition enforcement) | Roadmap feedback on Inception impact assessment | Jun 2020 | 16 |
| | | Public consultation | Jun-Sep 2020 | 16 |
| | DMA Proposal for a regulation | Feedback on European Commission adoption | Dec 2020 – May 2021 | 20 |
| unofficial | Press coverage (particularly in specialized press) | Politico | Jun 2020 | 617 |
| | | Reuters | | 155 |
| | | Financial Times (FT) | | 98 |
| | | Euractiv | July 2022 | 97 |
| | | Others | | 335 |
| | position papers, press releases, and other statements | | 314 | |
| | Total | | | 1720 |

Table 1 Places of contributions to discourses

3.3 Data analysis

For the data analysis, we borrowed techniques from grounded theory methodology, including open coding, selective coding, axial coding, and memoing (Glaser and Strauss, 1967; Wiesche et al., 2017). We started the data analysis by obtaining a foundational understanding of the discourses on the DMA. To this end, we applied open coding to identify discourses, narratives, positions, and actors. We started the coding process with newspaper articles and progressed to coding contributions of participants with decreasing heterogeneity until we coded contributions of GAMMA² companies that are the main target of the DMA. After reading the 1720 documents and searching for relevant discourses, narratives, positions, and actors, we totaled 1084 codes for 4839 citations.

Following this foundational understanding, we conducted a more conceptual analysis. We used axial coding to consolidate the codes. We identified 72 positions on the DMA, 14 narratives the position concerns, supports, or opposes, and the five discourses each narrative can be grouped into. A narrative is a subjective representation of reality or expression of an opinion with which discourse participants intend to justify the status quo or a desired change (Forchtner, 2021). For example, we consolidated the codes “Service bundling ban for social media” and “Break up app stores” to the narrative “Regulation must open Big Tech platforms’ walled-gardens (e.g., with interoperability)”. We used memoing for making notes, summarizing the major positions in the discourse, and writing interpretations of how participants take part in the discourses. Concerning participants, we combined the participants from a single organization before analyzing discourses, narratives, and positions. This allows for examining narratives and positions at an institutional level.

4 Results

4.1 Participants in the DMA Discourses

The main participants in Digital Markets Act discourses form clusters that partly overlap. One cluster consists of *very large platforms* such as Google and Amazon. Another cluster contains *small platforms*

² Abbreviation for Google, Apple, Meta, Microsoft, and Amazon

and ecosystem participants such as Yelp, GetYourGuide, or Epic. Both clusters overlap. The overlapping medium-sized platforms constitute another cluster. Medium-sized platforms fear being in the scope of the DMA and therefore criticize the thresholds or scope of the proposed DMA.

From our critical stance, it is important to compare the clusters of key participants with the dynamic positions of actors in the discourse. We find that the position on the map does not predetermine the positions in the discourse. This allows us to take a more nuanced perspective on the discourse positions. Moreover, the areas of overlap allow us to understand more about the positions of actors on the boundary between likely gatekeepers and pure profiteers of the DMA.

Further clusters contain associations, non-governmental organizations (NGOs), and think tanks that can partly be assigned to one of the former three clusters. For example, CCIA is an association lobbying for large information and communications technology companies like Google, Meta, and Apple. DigitalEurope is a lobby association that counts both very large platforms and medium-sized platforms as members. Allied For Startups is a lobby association representing small platforms and ecosystem participants. Moreover, associations, NGOs, and think tanks not closely related to the other clusters participate in the discourse. Examples include BEUC, CERRE, and News Media Europe (NME).

Also, the press participates indirectly in the discourses as correspondents. Finally, participants from European and international politics participate.

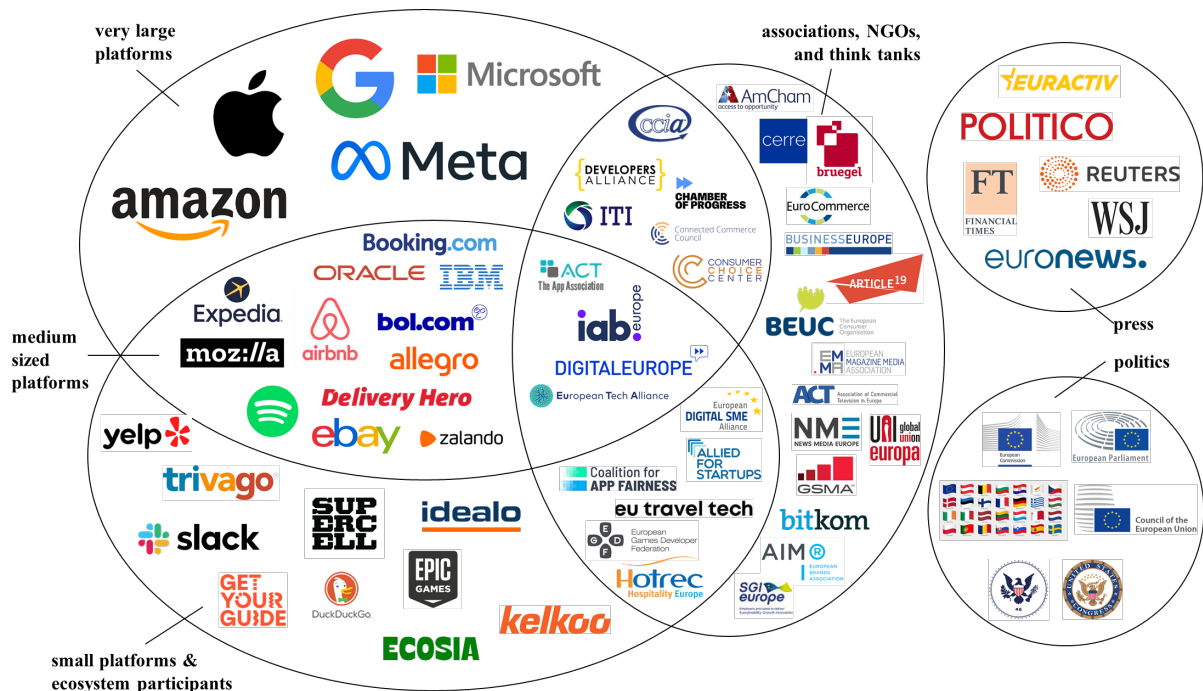


Figure 2 Clusters of key participants in the DMA discourse

4.2 Discourses, narratives, and positions concerning the DMA

Our coding and code refining procedures reveal five discourses on digital platform ecosystem regulation that include 14 narratives in total. Each narrative synthesizes various opinions on a facet of the DMA.

Two discourses concern fundamental topics (Table 2), while three discourses concern the precise design of the regulation (Table 3). In the dimension of fundamental topics, we reveal six narratives distributed across the two discourses. Table 2 illustrates the distribution. Following the table, we present the discourses in more detail.

| Narrative | Illustrative positions (+ support narrative, o neutral, - oppose) | Illustrative sources ³ |
|--|--|-----------------------------------|
| Discourse: General necessity and approach of a new regulation | | |
| Big Tech platforms are not contestable | + eBay & Idealo (FT): Gatekeepers suppress fair competition | 2020 D5, D81 |
| | + DuckDuckGo & NME (Politico): Switching barriers stifle competition | 2021 D901, D142 |
| | - Meta & Google: Vivid competition despite Big Tech (e.g., TikTok) | 2020 D8, D23 |
| | - Booking (Politico) & Airbnb (FT): Travel is a competitive industry | 2020 D153, D86 |
| Big Tech disadvantage complementors | + HOTREC (Politico): Increasing dominance of online travel platforms | 2020 D153 |
| | + Coalition for App Fairness: Dependent on gatekeeper tools & services | 2022 D45 |
| | - Amazon & Apple: Tools & services help complementors start & grow | 2020 D1, D3 |
| Ex-ante regulatory approach is needed | + Microsoft: taking aim ex-ante is timely and needed | 2021 D11 |
| | + French Gov (Politico): Early intervention to prevent long-term damage | 2020 D180 |
| | - Irish Government (Euractiv): Against an ex-ante regulation | 2020 D18 |
| | - Google: Consequences risky, outdated quickly, trade-offs unknown | 2020 D23, D11 |
| (Revenue) thresholds for gatekeepers should be high | + Microsoft: Only the biggest few control access of others to the market | 2020 D22 |
| | + Booking/Spotify & Allegro (Politico): We are not gatekeeping | 2020 D821, D827 |
| | o Politico: Zalando suggests taking into account “total consumer time” | 2021 D837 |
| | - Google: Rules distorts competition, are complex, and punish growth | 2020 D23 |
| | - MEP Schirdewan (Politico): DMA should cover all digital monopolies | 2020 D200 |
| Discourse: Role of Big Tech platforms | | |
| Big Tech platforms create value for SMEs | + Meta & Google: SMEs can run affordable marketing campaigns | 2020 D8 |
| | + CCIA: Breaking Big Tech’s tools will make SMEs less competitive | 2021 D45 |
| | - European Digital SME Alliance: Campaigns of gatekeepers misleading and dependence on dominant platforms risky. | 2021 D91 |
| Big Tech platforms create value for end-users | + Google & Meta: Free services save consumers time & deliver benefits | 2020 D11, D10 |
| | + Apple: We deliver privacy, security, choice, innovation & competition | 2020 D4 |
| | - BEUC (FT): Gatekeepers misuse positions in favor of narrow interests | 2022 D56 |
| | - ETA & Spotify (FT): Gatekeepers impede innovation and choice | 2020 D82, D80 |

Table 2 Narratives and illustrative positions on fundamental topics identified in the DMA discourse

In the discourse on the **general necessity and approach of a new regulation** for “gatekeeping” digital platforms, we identify six major narratives. The first narrative in the discourse is that *Big Tech platforms are not contestable*. eBay and Idealo support the narrative with their position that gatekeepers suppress fair competition with other platforms. The search engine DuckDuckGo also supports the narrative by criticizing switching barriers that stifle competition. Google and Meta oppose the narrative with their position that TikTok or Zoom prove that Big tech platforms operate in a dynamic and innovative environment under pressure from new entrants. Also opposing the narrative, contributions to the discourse by Airbnb and Booking refer to the competition of large platforms with other platforms.

A second narrative in the discourse is that *Big Tech platforms disadvantage complementors*. HOTREC, the umbrella association of hotels in Europe, argues that the dominance of online travel platforms harms hotels. The Coalition for App Fairness, with members like Epic and Spotify, supports the narrative with its position that app developers heavily depend on the tools and services of Big Tech platforms. Amazon and Apple counter the narrative by referring to investments that support their complementors.

³ Refers to the document provided by discourse participant. The first author can provide content upon request.

“We [...] invest heavily in tools, services and programs to support the thousands of legitimate European small and medium-sized businesses selling to customers around the world through our stores.” - Amazon

The third narrative in the discourse is that an *Ex-ante regulatory approach is needed*. The narrative is backed by a position of Microsoft, which states that only ex-ante rules efficiently prevent practices of gatekeepers that impede contestability or exploit complementors. Representatives of the French government highlight the need to stay one step ahead of the platforms.

“The rules should allow early interventions, because gatekeepers often cause very critical and very quickly materialized damage to businesses.”

Against the narrative, Google argues that the ex-ante policies' consequences are risky, rules may be outdated quickly, and the trade-offs are unknown. Google cites the example of the UK government viewing the printed Yellow Pages as a powerful player in the market until 2013, long after the company had lost its competitive edge (GAMMA 2020 D23). Also, the government of Ireland, the European home of many large platforms, opposed the narrative in 2020.

The fourth narrative in the discourse is that the *(Revenue) thresholds for gatekeepers should be high*. Microsoft supports the narrative with the position that only a few bottleneck platforms actually control the access of others to the market. Support for the narrative also comes from smaller European platforms such as Booking, Spotify, and Allegro, which advocate that they are not gatekeepers. Beyond revenue, Booking and Spotify also position themselves as supporters of the narrative by calling for the definition of monthly active users to be limited to customers rather than visitors. There are heterogeneous positions against the narrative. For example, Google argues that applying regulations to only certain firms in a given sector could distort competition, is complex to administer, and reduces companies' incentives to grow beyond a certain size. Member of The Left European Parliament group Martin Schirdewan also opposes the narrative to limit the DMA's scope to the largest platforms with his demand to “cover all digital monopolies” (Press 2022 D200).

In the discourse on the **role of Big Tech platforms**, we identify two major narratives. The first narrative in the discourse is that *Big Tech platforms create value for SMEs (small and medium-sized enterprises)*. Meta and Google support the narrative with the position that SMEs can run affordable marketing campaigns. The CCIA's find that breaking tools provided by Big Tech platforms will make SMEs less competitive. Opposing this narrative, the European Digital SME Alliance accuses Amazon and Meta of running campaigns that portray big tech platforms as the only reason and way for SMEs to succeed.

The second narrative in the discourse is that *Big Tech platforms create value for end-users*. The position of Google and Meta that free services save consumers time and generate further benefits drives the narrative. Apple supports the narrative with a position that mentions a whole range of factors.

“We [set] the industry standard for privacy protection and digital security. Apple has delivered choice, competition and innovation for European consumers.”

The European Consumer Organisation BEUC opposes the narrative with its position that gatekeeping platforms actually misuse their powerful positions in favor of narrow interests, for example, by excluding competitors rather than serving the interests of consumers. The European Tech Alliance and Spotify oppose the narrative with the position that the anti-competitive behavior of gatekeepers hinders innovation.

“There is now a global consensus that large gatekeeper platforms are leveraging their power in ways that slow innovation and hurt consumers, and that regulation is needed to avoid harm.” - Spotify

In the dimension of the precise design of the regulation, we reveal eight narratives distributed across the three discourses. Table 3 illustrates the distribution. Following, we present the discourses in more detail.

| Narrative | Illustrative positions (+ support narrative, o neutral, - oppose) | Illustrative sources |
|---|--|----------------------|
| Discourse: DMA’s impact on competition and choice | | |
| Regulation must open Big Tech platforms’ walled-gardens (e.g., with interoperability) | + Article19 (Euractiv): Horizontal interoperability increases choice | 2022 D14 |
| | + Dutch Gov (Politico): Vertical closeness = less choice of services | 2022 D237 |
| | + News Media Europe: Privacy justifications just used to cement walls | 2021 D142 |
| | - Amazon (Reuters): Alexa speakers are open for rival voice interfaces | 2021 D344 |
| | - Google: We already allow users to export their data | 2021 D8 |
| Regulation must resolve Big Tech platforms’ nestedness | + UNI (Euractiv): Nestedness causes unfair cross-subsidization | 2020 D17 |
| | + German Gov (Euractiv): Good decision on Meta’s data combination | 2020 D7 |
| | o FT: Leak of Google campaign against unbundling proponent Breton | 2020 D106 |
| | - Microsoft: Data sharing between platform services increases quality | 2021 D9 |
| Gatekeepers’ market entry in adjacent markets must be restricted | + Trivago (Politico): Leveraging data and user access must be restricted | 2021 D917 |
| | o ITI: While it should be monitored, it can be pro-competitive | 2020 D102 |
| | - Google: Deters pro-competitive market entry (e.g., Google Photos) | 2020 D23 |
| | - CCIA: “Leveraging” often leads to better outcomes for users | 2020 D23 |
| Horizontal interoperability harms innovation and security | + CERRE: Required standardization limits innovation potential | 2022 D68 |
| | + CERRE: May be harmful as it reduces propensity to multi-home | 2022 D68 |
| | o Politico: Platforms state interoperability for group chats infeasible | 2022 D201 |
| | - European Digital SME Alliance: Can allow small providers to thrive | 2021 D93 |
| Sharing data with rivals reduces innovation | + Google: Could enable to reverse-engineer proprietary algorithms | 2020 D11 |
| | + EuroCommerce: May increase free-riding and deter investments | 2021 D186 |
| | - Microsoft: Data essential for competitors to improving quality | 2021 D11 |
| Discourse: DMA’s impact on fairness on platform | | |
| Regulation must restrict Big Tech platforms’ (self-) preferencing | + Trivago (Reuters): Gatekeepers give preference to own offerings | 2020 D343 |
| | + SMEunited: Proprietary data access makes vertical integration unfair | 2021 D163 |
| | + SGI Europe: Differential treatment of partners should be prohibited | 2021 D162 |
| | - Google: Vertical integration is efficient and often benefits consumers | 2020 D11, D23 |
| | - Developers Alliance: Neutrality not suitable for non-static markets. | 2021 D59 |
| Discourse: DMA’s impact on platform control | | |
| App sideloading threatens ecosystem security and privacy | + Apple: Sideloading degrades security and privacy of iOS platform | 2021 D4, D6 |
| | + Apple: Developers would suffer from piracy and IP theft | 2021 D6 |
| | o Spotify (Reuters): Apple deflects from excessive commissions | 2021 D344 |
| | - French Gov (FT): Gatekeepers always bring up security argument | 2022 D51 |
| | - Epic (Wall Street Journal): MacOS allows sideloading and is still safe | 2021 D942 |
| Vertical interoperability harms security | + Google (FT): Very open ecosystems can have security implications | 2021 D107 |
| | + Digital Europe: Access to technical functionality impacts security | 2021 D72 |
| | - Vestager (Reuters): Security cannot always justify vertical closeness | 2022 D250 |

Table 3 Narratives and illustrative positions on precise topics identified in the DMA discourse

In the discourse on the **DMA’s impact on competition and choice**, we identify five major narratives. The first narrative in the discourse is that *Regulation must open Big Tech platforms’ walled-gardens*

(e.g., with interoperability). The human rights organization ARTICLE 19 supports the narrative with its position that interoperable, competing platforms allow users to pick their preferred provider. The Dutch government supports the narrative with the position that the lack of vertical interoperability, for example, limits consumers' options for payment services on smartphones. To oppose the narrative, Amazon points out that platforms like Amazon Alexa already exhibit vertical interoperability.

The second narrative in the discourse is that *Regulation must resolve Big Tech platforms' nestedness*. The European labor union federation UNI supports the narrative with its position that the separation of business divisions is necessary to prevent unfair cross-subsidization. The Financial Times' leak of Google's campaign against platform unbundling proponent Breton itself is neutral, while it indicates the urgency for Google to counter this narrative. Microsoft opposes the narrative by stating that data sharing between services increases quality if a platform does not monetize the data directly through advertising.

The third narrative in the discourse is that *Gatekeepers' market entry in adjacent markets must be restricted*. The travel comparison platform trivago supports the narrative with their demand to prohibit leveraging data and customer access from one market to another. With the statement that platforms' enveloping strategy to leverage a pre-existing position from one market to another can have pro-competitive effects, while it should be monitored closely, lobby group Information Technology Industry Council (ITI) takes a neutral position on the narrative. Opposing the narrative, Google takes the position that a restriction risks deterring pro-competitive market entry by referring to Foerderer et al. (2018).

The fourth narrative in the discourse is that *Horizontal interoperability harms innovation and security*. The think tank CERRE supports this by arguing that the standardization required leads to agreement on the lowest common denominator. CERRE also argues that horizontal interoperability reduces the propensity to multi-home, an essential driver of contestability. In contrast, the position of the European Digital SME Alliance is that interoperability can help smaller providers thrive.

“Interoperability based on open standards can be an important element to create an open innovative internet ecosystem in which smaller providers could thrive.”

The final narrative in the discourse is that *Sharing data with rivals reduces innovation*. Google's position is that sharing data could enable competing platforms to reverse-engineer proprietary algorithms, which would reduce incentives to innovate. Opposing the narrative, Microsoft's position highlights the need of data to develop competing platforms.

“This data will be essential to enable competing search engines to train their search algorithms and rapidly improve the quality and relevance of their results.”

In the discourse on the **DMA's impact on fairness on platform**, we identify one major narrative: *Regulation must restrict Big Tech platforms' (self-) preferencing*. SMEunited supports the narrative with their position that it is unfair by Big Tech platforms to use data platform participants generate on the platform to optimize vertically integrated offerings.

Gatekeepers normally have access to the data of the [complementors] and the end users of the platforms, which enables them to utilise that data freely in the creation of new business opportunities.”

SIG Europe also supports the narrative by demanding to prohibit Big Tech platforms from differential treatment of complementors. Google opposes the narrative with the position that banning self-preferencing could hamper presumptively efficient vertical integration and lead to “delayed or mothballed product improvements” (GAMMA 2020 D23). The Developers Alliance also opposes the narrative. The lobby organization states finds banning self-preferencing is only suitable for regulating traditional infrastructure because of platforms' specific features and dynamic. Second, a ban on differential treatment deprives platform owners of influencing participation in the platform ecosystem.

In the discourse on the **DMA's impact on platform control**, we identify two major narratives. The first narrative in the discourse is that *App sideloading threatens ecosystem security and privacy*. Apple supports the narrative with the position that sideloading would expose users to serious security risks and erode Apple's prescribed privacy-enhancing features. Taking a rather neutral position to the narrative, Spotify states that the sideloading discussion is a sideshow to deflect the conversation away from Apple's excessive commissions for (in-)app purchases. Epic opposes the narrative with the position that the MacOS is safe, although it allows sideloading.

The second narrative in the discourse is that *Vertical interoperability harms security*. With the position that open ecosystems can have security implications, Google supports the narrative. DigitalEurope's position that access to technical functionality can negatively affect user experience and security also supports this narrative. The European Commissioner for Competition Margrethe Vestager opposes the narrative with her position that the security argument against vertical interoperability is not justified.

5 Discussion

Our analysis of the discourses on a proposed platform regulation has implications for the literature on digital platforms. It mainly illustrates a broader view on digital platform ecosystems, their actors, and their dynamics. Our analysis of the wider ecosystems suggests that more players are relevant and that not only the keystone platform affects its ecosystem, but the broader structure of other platform ecosystems and other participants as well. Across key strains of IS platform research (platform openness, boundary resources, value-creation and -capture, and power in platform ecosystems), the identified discourse positions allow revealing implications for further research.

Extensive existent platform research deals with the topic of **platform openness** (Ondrus et al., 2015; Schreieck et al., 2016). Our results allow for deriving three novel perspectives on platform openness that contribute to IS literature: openness in ecologies of ecosystems, openness in vertical arrangements of platforms, and consequences of walled gardens for broader ecosystems. The perspectives concern the complementor and provider level of openness and the boundary in between (Hein et al., 2020; Ondrus et al., 2015). First, our current understanding of platform openness does not take path dependencies between ecosystems into account (Ondrus et al., 2015). So far, research lays a strong focus on individual platform ecosystems and their direct surrounding but not on dependencies in an ecology of platform ecosystems. Research only begins recognizing the nestedness of platforms, services, and functionalities in platform ecosystems (Márton, 2022; Wang, 2021). Yet, the impact of nestedness on other ecosystems is not fully understood. Thus, it remains unclear whether prescribed openness helps competing ecosystems thrive or pulls complementors toward the novel opportunities in the so-far nested ecosystem.

Second, research has not considered the impact of the openness of one platform on other platforms in a vertical arrangement of platforms. IS research considers multi-layered platforms (Wang, 2021) but does not study mechanisms and consequences of openness in vertical arrangements of platforms that belong to different platform owners. For example, the consequences of opening up a platform ecosystem (e.g., app store) for an underlying platform ecosystem (e.g., operating system) remain unclear. As in the discourse on sideloading, consequences for security and privacy possibly play a major role.

Third, the discourse positions on the narrative that walled gardens need to be opened challenge our current understanding of platform ecosystems. So far, IS research tends to define the concept and scope of a platform ecosystem in the sense that the participants of a platform ecosystem actively shape it and participate in it (Parker et al., 2017). The discourses allow us to also acknowledge the effect of walled gardens on the fate of actors in a broader ecosystem. What makes this view of openness special is that it does not only consider complementors but also other platform ecosystems. The discourses highlight that, in the case of "walled gardens", only the "walls" separate the ecosystem in the narrower sense from the broader ecosystem, which consists of more actors who, however, are not allowed to participate in the walled garden. This more comprehensive understanding of ecosystems would allow, for example, studying the effects of walls on diversity and displaced participants in broader ecosystems.

Our results allow for deriving a novel perspective on **boundary resources** that contributes to IS literature. Research considers boundary resources as a tool for platform owners to govern platform openness and foster generativity in the ecosystem (Ghazawneh and Henfridsson, 2013). Scholars find boundary resources particularly critical for governing complementors with high autonomy (Hein et al., 2020). Our analysis reveals that several discourse participants desire to employ third-party tools and services (e.g., in-app payment services) instead of the platform owner's tools. Such criticism of current tools and services in the discourses challenges our current understanding of boundary resources.

While existing research also finds that boundary resources may not always be offered by the platform owner (Eaton et al., 2015; Um et al., 2022), we lack understanding details and implications of third-party boundary resources. It remains unclear in which dimensions such third-party boundary resources correspond to the current understanding of boundary resources and in which dimensions they deviate from it. For example, the incentive for offering third-party boundary resources remains unknown. It is potentially no longer governance and generativity but monetizing the service and simplification from a complementor perspective. Such a shift could lead to competition between providers of third-party boundary resources. This could lead to a transition to a new type of organizational structure characterized by interconnection and integration with the surrounding elements on the platform. On the one hand, competition could increase quality and reduce prices. On the other hand, it could lead to fragmentation. Future research on this detail of third-party boundary resources could connect research on boundary resources and research on decentralized information systems.

Also, the implications of an obligation to allow certain third-party boundary resources (e.g., in-app payment services) on platform governance remain unknown. Existing research reveals that platform owners may modify boundary resources dynamically to counter exploitation of their platform (Karhu et al., 2018). Thus, paradoxically, a potentially reduced ability to govern highly autonomous complementors, which contribute to the variety and amount of complements (Hein et al., 2020), could lead platform owners to shift to a strategy with less autonomous complementors. Such a strategy would require defining bilateral objectives and contracts between the platform owner and each complementor that, in an extreme case, make specific (parts of) boundary resources redundant. This would drastically reduce openness at the complementor level (Ondrus et al., 2015). Nevertheless, before making such drastic changes, platform owners must weigh up the negative consequences (e.g., scalability, flexibility, creativity) of losing autonomous complementors.

Studying **value co-creation** and **value capture** is another major interest in IS platform research. From a platform owner perspective, research identifies strategies to enable and balance value creation and value capture in platform ecosystems (Schrieck et al., 2021; Tan et al., 2016). Literature suggests that platform owners should first strive to increase network effects and complementor value co-creation before starting to capture value once achieving a large and vibrant platform ecosystem (Parker et al., 2016; Tan et al., 2016). From a complementor perspective, research finds that the ecosystem's capability to extend the complementors' innovations and distribute and monetize its offerings determines the attractiveness of participating in innovation platform ecosystems (Selander et al., 2013). Our results allow for deriving a novel perspective on complementor value co-creation and platform owner value capture that contributes to IS literature.

The discourses suggest that we do not fully understand the relationship between value creation and value capture in digital platform ecosystems. They challenge balancing value capture and ecosystem value creation mainly based on the size of the network (Parker et al., 2016). While recent studies find evidence for the impact of platform lock-in, control over sales channels, and visibility for customers on value capture, such alternative factors remain understudied (Schrieck et al., 2021). Several contributions point to further possible dimensions for value capture decisions. Platform owners such as Booking, Spotify, and Allegro suggest that they are not suitable to be declared a gatekeeper that captures excessive value, as they do not have a bottleneck position in the value chain. Also, Microsoft finds that only the largest few platforms that control access of others to the market can capture value without sacrificing value co-creation. The platform Zalando proposes that "total consumer time" determines a platform's capacity to capture value. The lobby groups SME Alliance and HOTREC highlight in their position the

dominance of the platform they consider as a gatekeeper that captures excessive value. While these discourse contributions are naturally biased, IS platform research might underestimate the position in the value chain, penetration by end customers, or dependence of complementors as additional dimensions for value capture strategies for platform owners. These factors might also play a role in determining the attractiveness of participating in innovation platform ecosystems from the complementor perspective (Selander et al., 2013).

The distribution of **power in platform ecosystems** is of growing interest in IS platform research. Studies mainly find that platform owners hold a powerful position in the ecosystem and exercise their power to shape the ecosystem (Eaton et al., 2015; Hurmi et al., 2022; Perrons, 2009). Derived from power theories, the power of a platform owner in a relational dyad with a complementor is based on the complementor's dependence on resources that the platform owner controls (Cutolo and Kenney, 2021).

Our results allow for deriving a novel perspective on power in platform ecosystems that contributes to IS literature. Extant literature on relationships between platforms provides knowledge on horizontal (e.g., competition between platforms) and vertical (e.g. layered modular architecture) relationships (Rietveld and Schilling, 2021; Yoo et al., 2010). Yet, studies focusing on power relations and dependencies between platform ecosystems remain scarce. In the DMA discourse, multiple platform owners (e.g., eBay, Idealo, DuckDuckGo, trivago, Spotify) portray themselves as powerless in their relationship with the owner of a Big Tech platform ecosystem. While a great number and scope of existing research on inter-firm power relations exist (Fleming and Spicer, 2014; Zhu and Westphal, 2021), the varying interdependencies in relationships between platform ecosystems make the power distribution particular. For example, the platform trivago maintains relationships with other platforms such as Apple's app store, Google Search (e.g. ads platform and "Find Results On" feature), the Facebook platform (single sign-on and social elements), and online travel agency platforms such as Booking. These platforms are, in turn, in relationships with each other. Thus, future research could identify the mechanisms and dynamics of the power relations between platform ecosystems. Likely, leaning on power theories, the availability and distribution of resources in and outside a relationship between one platform and another play a role (Fleming and Spicer, 2014).

Our practical contributions lay in improving the understanding of strategies in the platform regulation policymaking process. This concerns the digital platform ecosystems that might be regulated, smaller platforms that compete with potential gatekeepers, complementor firms, and end-user representatives.

A limitation of our study is its focus on the European legal area. Nevertheless, we assume that the DMA will have far-reaching effects beyond the European Union (Bradford, 2020). Nevertheless, this limitation motivates performing a replicative study for another legislative region. Second, the DMA affects only a selection of very large "gatekeeper" platforms. Yet, due to their size and scope, these are likely the most important for developing an understanding of wider ecosystems. Third, there could be narratives that are only brought up in other places we did not consider. For example, analyzing the scientific discourses on the DMA and platform regulation could be fruitful in the future (Wall et al., 2015). Finally, our perspective lacks detailed information on the background of the positions in the discourses. Future research could conduct semi-structured interviews with discourse participants.

6 Conclusion

Analyzing the discourses on the Digital Markets Act (DMA) allow us to study wider platform ecosystem structure that goes beyond the triangle of platform owner, complementors, and end users on a single platform. The discourses are a revelatory case to understand the position of actors, their interactions, and dependencies in wider platform ecosystems. Contrasting our findings against the current state of research, we contribute to research by suggesting new dimensions for understanding digital platform ecosystems. The dimensions concern openness in ecologies of platform ecosystems, vertical arrangements of platforms, and walled gardens, the need to theorize boundary resources as tools provided by third parties, the challenge of balancing value creation and capture based primarily on network size, and the gap in understanding power dynamics between ecosystems.

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