

**Bocconi**

# **RULES THAT EMPOWER**

**TURNING EU DIGITAL  
REGULATION  
INTO A CATALYST  
FOR INNOVATION**

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## RECOMMENDED CITATION

This report outlines actionable policy recommendations to stimulate innovation in the digital market by enhancing the clarity, effectiveness, and coherence of EU regulations.

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### EXTENDED ABSTRACT

The digital landscape of Europe is currently undergoing significant technological and regulatory transformations. The primary challenges for the European Union lie in promoting an EU-based tech sector while managing major global trends such as the influence of dominant platforms, the rapid development of artificial intelligence, the advent of decentralized business networks, and the spread of dual-use technologies.

Regarding the first objective – **promoting innovation** – a recent report (*EU Innovation Policy - How to Escape the Middle Technology Trap*)<sup>1</sup> by researchers at CESifo EconPol Europe, the Institute for European Policymaking at Bocconi University and the Toulouse School of Economics has focused on the financing of Research and Development (R&D). It highlighted critical elements including fragmented funding at the Member State level, funding toward traditional sectors (like automotive) rather than native-digital sectors, and governance weaknesses in the European Innovation Council compared to the US ARPAs (Advanced Research Project Agencies). Overall, that report argues that current European efforts are not sufficient, in both quantity and quality, to enable Europe to compete in the value-creating space of the digital economy.

This report focuses on the second objective: how the EU can manage global trends in the digital ecosphere, with a particular emphasis on the **rules** that it has set to **govern relationships between platforms and businesses**. European institutions have dedicated substantial attention to this relationship, adopting a regulatory approach so intense that the term “**Brussels effect**” has emerged to describe how EU regulations impact big tech companies globally, as these companies adapt to these rules even outside the Union’s borders. For example, in areas like data protection and privacy, the enactment of the landmark GDPR led companies such as Meta to implement (some aspects of) GDPR globally.<sup>2</sup> However, while GDPR has notable merits, according to most recent studies it has also hurt innovation and growth, underscoring the need to carefully balance innovation and regulation.<sup>3</sup>

While **critics often argue that regulations impede growth and investment**, numerous examples show that **well-crafted rules can instead foster both**. In the renewable energy sector, EU directives and incentives such as feed-in tariffs spurred large-scale **investments in solar and wind technologies**, making Europe a global leader in clean energy. In the **automotive industry**, strict **safety regulations** mandating features like airbags and anti-lock braking systems drove innovation and investment in safer vehicle technologies, enhancing both consumer **trust and market**

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<sup>1</sup> See the full IEP report: [EU Innovation Policy - How to Escape the Middle Technology Trap](#)

<sup>2</sup> See the cases of [Facebook](#) and [Microsoft](#)

<sup>3</sup> See, among others, the ex-post evaluation studies released in the last four years by researchers affiliated with the National Bureau of Economic (NBER). Since the GDPR came into effect in May 2018, the evidence is limited to relatively short-run impacts. The studies largely - though not universally - indicate negative post-GDPR effects: on EU venture investments (in terms of overall dollar amounts raised across funding deals, number of deals, and dollar amount per deal); firms’ performance (in innovation, competition, the web, and marketing). As an example, an NBER study in 2024 by [Demirer, Jiménez Hernández, Li and Peng](#) finds that in response to the GDPR, EU firms decreased data storage by 26% and data processing by 15% relative to comparable US firms, becoming less “data-intensive,” consistent with a 20% increase in the cost of data on average.

**competitiveness**. Similarly, post-crisis financial reforms like **Basel III** strengthened the **stability of the banking sector**, reducing risks and attracting long-term investment. The **pharmaceutical sector**, despite its heavy regulatory oversight, continues to draw significant capital due to the certainty and credibility provided by rigorous drug approval processes. However, not all regulatory frameworks have been as successful. For example, in **telecommunications**, market liberalization has sometimes **struggled to reconcile competition with sustained investment** in infrastructure. Similarly, **GDPR**, while enhancing consumer trust, has created **compliance challenges**, especially for smaller firms. These examples highlight that regulatory frameworks must provide **clarity, predictability, and proportional enforcement to support both investment and innovation over the long term**.

This report analyzes the **wave of new tech regulations in Europe and their effects** to suggest a series of refinements needed to make them effective in promoting an EU-based tech sector. Over the last few years, the European Union has undertaken a regulatory revolution with major legislative acts, including the **Digital Markets Act (DMA)**, the **Digital Services Act (DSA)**, and the **Artificial Intelligence Act (AIA)**. These regulations have important implications for internet users, businesses, and platforms.

Although the regulatory implications for users are relevant for the interaction between EU citizens and platforms – particularly in the case of DSA – this report will focus on the **economic relevance of new tech regulations**, therefore investigating the impact on business-to-platform relationships. In this area, we see the need to **avoid creating uncertainty** in the rules or increasing the red tape; **the need is not for new rules or dramatic deregulation, but rather for smart enforcement of the current rules and their careful refinement**. This approach would best serve EU businesses.

The DMA is a notable example of balance between innovation and regulation, and of a differentiated approach toward large platforms and other tech players: the obligations of the DMA are primarily designed to limit the power of the largest tech platforms (i.e., *gatekeepers*), while fostering competition, contestability, and the entry of new and smaller business operators to the core platform services in Europe. The landmark decision in 2022 to **regulate the interaction between large platforms and the businesses operating with them** signals a new era of regulation for the technology sector and has far-reaching implications for the designated companies and the broader digital sector.

However, achieving a balance between the different objectives is complex, particularly as the technologies the EU aims to regulate are central to the new economic and geopolitical competition. Will this new regulatory approach prove adequate in curbing the abuse of major platforms? Will it achieve the goal of making digital markets fairer and more accessible? How can the current regulatory approach be improved to achieve market competition and contribute to enhance the EU digital sector?

In this report, researchers at the Institute for European Policymaking at Bocconi University and the Toulouse School of Economics investigate these key questions. It aims to provide an in-depth analysis of the **challenges posed by the digital economy**



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**and the regulatory approaches required to address them.** It also underscores the importance of EU legislation in preventing the **extreme concentration of digital markets** and curbing the **disproportionate power wielded by major technology companies.**

This report analyzes critical issues within the digital economy and proposes **several policy recommendations** for improvement. Chapter 1 establishes the **importance of addressing these issues**, while Chapters 2 through 4 offer **concrete and actionable policy proposals** directly derived from the analyses presented within each chapter, providing practical pathways to address the challenges discussed.

In particular, Chapters 2 and 3 offer distinct policy recommendations for **mitigating market concentration**, while Chapter 4 outlines key recommendations for **implementing an alternative, decentralized model.** Grounded in **state-of-the-art economic, legal and managerial research**, the report focuses on refining existing regulations rather than proposing extensive modifications.

It begins in the **first chapter** from presenting *constitutionalism* as a principle for understanding the societal need to having rules that adequately balance big tech's influence with public oversight. Traditional competition and antitrust tools struggle to counter the power of major digital actors. The introduction of the DMA was meant to overcome this limitation, but it raises new questions about the interplay between regulatory, constitutional, and antitrust law. This regulation shifts focus from economic aspects of digital platforms to addressing **how these powerful entities interact with public power.** While classical constitutionalism limited government authority via principles like separation of powers, today's "**digital constitutionalism**" must address the shift in power dynamics from vertical (public power vs. individuals) to horizontal or diagonal (private powers vs. individuals).

The **second chapter** explores the **relationship between the DMA and EU antitrust law**, framing the DMA's role within the competition policy approach pursued by the Commission through recent antitrust interventions in digital markets. It also examines specific insights from DMA rules and their application to platform services such as **digital advertising, marketplaces, internet search and social networks.** The chapter's policy proposals aim to refine and enhance the DMA provisions as practical tools for fostering a more prosperous digital economy in Europe. Without proposing radical changes, it emphasizes how and why strengthening the DMA rules ensuring that platforms' business partners interact in a stable and fair context that can be conducive to their growth and investments.

The **third chapter** addresses **merger control**, a key competition law tool. Concentration projects involving digital players have shaped big tech's external growth and spurred policy debates. Concerns over under-enforcement have led to calls for stronger interventions at both the Commission and Member State levels, but this runs against a recent political proposal by the newly formed Commission. Through a comparative analysis of economic research on digital mergers' impact on innovation and recent enforcement experiences in the EU and US, this chapter offers an understanding of these opposite viewpoints and novel policy suggestions to **improve**

**the ability of enforcers to address the most problematic effects of digital mergers.**

The **fourth chapter** explores the **potential of Web 3.0 platforms to decentralize internet access**. These platforms represent new models of distributed governance and credible alternatives to the centralized Web 2.0 model dominated by a few large platforms. Web 3.0 leverages Distributed Ledger Technologies (DLTs), blockchain, Decentralized Finance (DeFi), and Decentralized Autonomous Organizations (DAOs). The chapter discusses various practical examples of Web 3.0 and proposals for B2B supply-chain finance solutions that reduce fragmentation and ensure interoperability, thereby enhancing internal capital markets and supply-chain finance efficiency.

Overall, the recommendation in this report can be seen as the proposal of a paradigm shift aimed at **redistributing power from big tech companies to individual users and smaller entities that seek to grow and invest to achieve an adequate scale to compete globally in today's digital markets dominated by large platforms**. It is a particularly appealing development for European institutions aiming to foster competition and innovation within the single market. The report provides several policy proposals for facilitating the adoption of this new paradigm.

The regulatory interventions in the European digital sector analyzed in this study are fundamental, but the web of relevant rules is broader and more complex than what we discuss.

A complete picture would need to include, for instance, the regulations governing investments such as the **supervision of State aid** to various large scale, **cross-country investments** (such as the IPCEI, Important Projects of Common European Instruments) and, more broadly, the **revision of State aid rules** to enhance the capability of public financing of the digital transition. Moreover, on the **rules governing data**, the EU is currently exploring new, better venues relative to the GDPR to strike a balance between innovation and regulation by intervening in data markets.

The recent data regulation is a notable example as it aims to expand safe access to public and private data, ideally enabling new businesses to thrive. Although not the focus of this report, the following chapters will delve into the role of data in several specific instances, such as in the digital advertising market (Chapter 2) and in merger regulation (Chapter 3).

Finally, it should be stressed that any recommendation for the evolution of the regulation of the digital sector needs to coordinate with the **evolution of AI**. Since this aspect is so broad and relevant by itself, it will not be addressed in this report, but it will be at the heart of a forthcoming report complementing the current one.

### OVERVIEW OF THE MAIN POLICY RECOMMENDATIONS

This report outlines **actionable policy recommendations to stimulate innovation in the digital market** by enhancing the clarity, effectiveness, and coherence of EU regulations.

A competitive and innovative digital ecosystem within the EU hinges on the effective implementation of regulations that **encourages the growth of a competitive and innovative digital ecosystem** by prioritizing investment in local startups, improving access to funding, and supporting the scaling up of EU digital businesses. Tailored and straightforward regulations, coupled with robust implementation, are essential to achieving these objectives. **Strengthening awareness of digital rules among SMEs and other business partners** of digital platforms is equally crucial to enhancing compliance and fostering a deeper understanding of the new regulatory landscape.

The recommendations target three critical areas. First, they aim to **enhance market contestability** by curbing the dominance of large technological companies and fostering innovation through improvements to the Digital Markets Act (DMA). Second, they address **anti-competitive practices in mergers and acquisitions (M&A)** by strengthening oversight and integrating innovation-focused considerations. Third, they promote the **adoption of decentralized technologies**, such as distributed ledger technologies (DLTs), to create a more diversified and resilient technological ecosystem.

Overlapping regulations and jurisdictions currently increase compliance costs and uncertainty, undermining competition and innovation. To mitigate these challenges, the report advocates for a **unified and streamlined European regulatory framework** that clarifies and consolidates fragmented regulations, ensures **consistent enforcement**, and **adapts existing rules to the evolving dynamics of digital markets**. Through these measures, the EU can position itself as a global leader in digital regulation while fostering a dynamic and competitive digital economy.

Although each chapter needs to be read in its entirety to appreciate the motivations and nuances of the policy recommendations offered, to facilitate access and to encourage readership, we present here our three main policy proposals. These three proposals will be declined and detailed through the chapters, based on their specific content.

## PROPOSAL #1.

# Clarifying and Unifying Fragmented and Overlapping Regulations

First, we propose to **clarify and unify fragmented and overlapping regulations**. A key factor underlying the **productivity divide** between the EU and the US in the IT sector – as highlighted in the Draghi Report – is the **level of investment**. For regulation to support, rather than hinder, such investment, it must **provide certainty** – certainty that stems from both **clear regulatory language and predictable implementation**.

This is why our first set of general recommendations focuses on **enhancing the clarity of the DMA's provisions and eliminating uncertainty over overlapping regulations**. Clear and consistent rules are essential to create a **stable environment that fosters long-term investment and innovation in the digital economy**. Such an approach is crucial to help **close the innovation gap** with other countries, as recently stressed in the EU Competitiveness Compass proposal for a 28th legal regime.

The report emphasizes the imperative of creating a coherent legal framework to eliminate regulatory fragmentation in particular with respect to:

- **Digital Markets Act (DMA):**
  - Revise the DMA to reorganize prohibitions and obligations (Articles 5, 6, and 7) based on their objectives, improving clarity.
  - Establish a unified framework for digital advertising to address overlapping regulations and increase legal certainty.
  - Define clear criteria for implementing antitrust remedies that align with DMA obligations to avoid regulatory overlap.
- **Decentralization:**
  - Organize a new, coherent EU-wide regulatory framework for decentralized organizations, addressing legal uncertainties while fostering innovation.
  - Address existing regulatory ambiguities hindering the development of DLTs by creating a European contractual framework that should facilitate legal recognition of technology-mediated ownership and management structures.

## PROPOSAL #2.

# Improving the Enforcement of Existing Regulations

Second, we recommend **strengthening the enforcement of existing regulations**. Failure to effectively address platform violations of the digital rules introduced over the past two years risks undermining the essential protections these rules were designed to provide for EU businesses, particularly SMEs and startups. **Sustainable growth and innovation depend on a predictable regulatory environment** where dominant platforms are held accountable to the law.

The report also highlights the critical need for a coordinated, **European-wide approach to rule enforcement**. Greater harmonization across Member States reduces legal fragmentation, enabling businesses to scale efficiently while fostering confidence for investment. By minimizing regulatory disparities, this alignment promotes a more **equitable and competitive single market**, crucial for innovation and long-term economic development.

The specific recommendations presented in the report in this area include:

- **Digital Markets Act (DMA):**
  - Implement a staggered enforcement system where the European Commission acts as the sole enforcer initially, with national authorities gaining power later.
  - Develop collaborative mechanisms to allow gatekeepers to pilot compliance solutions with regulatory authorities.
  - Simplify the definition of the set of ancillary services to which the self-preferencing obligations apply.
- **Mergers and Acquisitions (M&A):**
  - Distinguish between non-exclusionary and exclusionary mergers, focusing on the latter's potential to marginalize competitors.
  - Incorporate innovation-focused insights into merger reviews, including acquisition price thresholds and shifting the burden of proof in cases involving potential competition concerns.
  - Use a holistic approach to analyze digital mergers, considering core and ancillary services, pricing strategies, network effects, and data usage, while accounting for digital-specific complexities – such as cross-side externalities, multi-homing, and non-monetary metrics for free services .

## PROPOSAL #3.

# Improving Regulation's Fitness for Evolving Digital Markets

Third, we propose to **improve regulation's fitness for digital markets and have a forward-looking approach**, while also recognizing the significant **differences between digital and traditional economic environments**. By creating a more **adaptive regulatory framework**, we aim to foster an environment where EU digital businesses can innovate and thrive, ultimately reducing the Union's dependency on foreign technological actors and positioning the EU as a competitive force in the global digital economy.

The specific policy recommendations in this area presented in the report include:

- **Digital Markets Act (DMA):**

- Introduce a general rule requiring gatekeepers to reduce the attractiveness of their offerings when this attractiveness stems from factors other than efficiency or innovation so to make competitors' offerings comparatively more appealing and, hence, enhancing growth despite a lower monetization ability.
- Mandate standardized, effective transparency obligations for digital advertising across all large platforms that are practically useful to reduce advertisers lock-in and free intermediary innovation and investments.
- Define in a general way ancillary products or services as those not designated as core platform services and mandate that gatekeepers apply self-preferencing rules universally to all ancillary products and services.

- **Decentralization:**

- Promote Distributed Ledger Technologies (DLTs) and decentralized business networks as alternatives to centralized platforms, empowering small and medium-sized enterprises (SMEs).
- Encourage the use of blockchain and Web 3.0 technologies to enhance transparency and reduce dependence on dominant digital gatekeepers.
- Emphasize public-private partnerships, collaboration and co-regulation by promoting voluntary codes of conduct as effective tools for addressing the deployment of DLTs and for dealing with systemic risks.

By addressing these priorities, this report aims to establish a robust, innovative, and competitive digital industry in the EU, supporting long-term growth and resilience.

### METHODOLOGICAL NOTE AND THE ROLE OF DATA

This study is mainly based on academic research. The research cited in this report was conducted primarily, but not exclusively, by the authors and their colleagues at the Bocconi Institute for European Policymaking and the Toulouse School of Economics. The approach is interdisciplinary, drawing from Economics, Finance, Law, and Management, to address the multifaceted nature of the topic. While the chapters reflect the views of their authors, a common theme is the focus on relevant and actionable policy proposals. These proposals are grounded in research from the fields mentioned above and based on a broad range of methods. The text minimizes technical details to ensure accessibility for a broad audience, while providing a comprehensive list of references for further reading.

The report uses existing data sources to enhance the description of certain sectors and substantiate some claims. However, it is key to stress that the general scarcity of accessible and reliable data is a significant challenge in the analysis of digital markets. Much of the crucial information is controlled by the large technology platforms, creating barriers for researchers and policymakers who would need to rely on accurate data to craft effective, evidence-based policies. Despite these limitations, this report prioritizes starting each analysis with the available data to ensure that its conclusions and recommendations are well-founded and contextualized within the broader landscape.

Among the few institutional sources of data on the digital realm are databases and reports from international organizations such as the United Nations. For instance, the UN Conference on Trade and Development (UNCTAD) provides publicly available databases and reports offering a general overview of the digital sector. A notable insight contained in the UNCTAD data can be found in the Index of Readiness for Frontier Technology and Innovation Report 2023. The Index represents the readiness of countries to embrace and develop innovative technologies – among them AI, blockchain and 5G. The report reveals that while EU countries are, on average, better positioned than China, they still lag behind the US in readiness to embrace these frontier technologies. Additionally, underlying data suggest that the EU's position could soon deteriorate compared to both China and the US due to limited access to financing and lower R&D investments.<sup>4</sup>

The data in this report, which concerns specific digital industries and markets, has been collected from publicly available sources. Institutional data sources include the European Commission, Eurostat, the EU Blockchain Observatory Forum, and the US Securities and Exchange Commission (SEC). However, a significant portion of market-related data is held by private companies, requiring reliance on non-institutional sources.

The non-institutional sources used in the report are of different kinds, which can be grouped in four main categories. First, investor relations made by public companies, used here as a reference for acquisition prices. Second, data from academic literature,

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<sup>4</sup> Frontier technology readiness index, annual (2021 data), UNCTADstat Data center.

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used, for instance, to report on the number of acquisitions made by large technological companies. Third, media sources, such as the Forbes with its list of largest tech companies and their characteristics. Fourth, data shared by companies specialized in data gathering and visualization – Statista, Statcounter, Cloudflare, Similarweb, Gitnux and Zipdo – are used as a reference in several instances throughout the report, such as to describe market sizes, market shares, platform users and companies' investments.

The relevance of the need for adequate data cannot be understated. Essentially all the rules analyzed in this report – including the DMA and DSA, as well as more traditional merger regulation – are applied based on data-determined thresholds.

For example, the DMA designates firms providing core platform services as *gatekeepers* if they meet specific quantitative thresholds based on turnover and the number of active users in the EU. Specifically, a company is designated a gatekeeper if it achieves an annual Union turnover of at least EUR 7.5 billion or a market capitalization of at least EUR 75 billion, provides the relevant service in at least three Member States, and has at least 45 million monthly active end users and 10,000 yearly active business users in the EU. The presence of these thresholds explains why the set of covered firms evolves, as seen with the designation in May 2024 of Booking.com as gatekeeper under the DMA.

However, accurately measuring quantities in the digital realm is complex. For instance, the number of active users is a challenging quantity to assess. The EU relies on a combination of self-assessment by firms and third-party data, which often lacks the necessary completeness, depth, and accuracy for effective monitoring. Indeed, data on user engagement across different platforms or precise user demographics may be incomplete.

Enhancing the ability of trusted public institutions to access, record, and publicly disclose data on the digital economy would be a welcome development. Eurostat publishes statistics on the digital economy, but they are based on surveys among EU citizens and businesses, thus suffering from a lack of universal coverage.<sup>5</sup> Despite the Commission's active role in regulating data flows, through initiatives like the Data Governance Act and Data Act,<sup>6</sup> a systematic tracking of key statistical data and their public accessibility has not yet been implemented or even effectively discussed in the public debate leading to the DMA. We consider the development of such public data a precondition for effective tech sector regulation.

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<sup>5</sup> See [Digital economy and society statistics - enterprises](#), Eurostat

<sup>6</sup> The Data Act, which entered into force on 11 January 2024 and will become applicable in September 2025, aims to ensure equitable access to and sharing of data across sectors, thereby promoting innovation and economic growth. Meanwhile, the Data Governance Act, applicable since September 2023, establishes mechanisms for safe and responsible data sharing through trusted intermediaries. Although this report does not explicitly explore in depth these frameworks – due to the broadness of the topic – their role is taken into consideration in the formulation of the recommendations in this report.



# I. THE SOLITUDE OF COMPETITION LAW AND THE ROLE OF CONSTITUTIONAL LAW IN DEALING WITH DIGITAL PRIVATE POWERS

**Chapter I** presents the roles of competition law and constitutional law in curbing the power of private digital corporations arising from extreme concentration in digital markets.

**Giovanni De Gregorio** (UCP/Bocconi University)  
**Oreste Pollicino** (Bocconi University)

### INTRODUCTION

At the start of European integration, competition law played a central role as a key tool to manage and limit economic power. When the Treaty of Rome was signed in 1957, it prioritized economic freedoms and competition in the marketplace.<sup>7</sup> This approach was quite different from the US antitrust laws, like the Sherman Act,<sup>8</sup> which were politically motivated and aimed at protecting small businesses from large, distant, and potentially corrupt corporations. In Europe, however, the focus was more technical than political, with political decisions left to individual Member States due to the EU's decentralized nature.

The same economic imprinting also shaped Europe's early approach to digital technologies in the late 20th century. Economic freedoms and competition law guided policymakers in addressing the challenges and opportunities of evolving digital markets. This "digital liberalism" approach influenced Europe's first steps in digital regulation. These primarily consisted of exempting online intermediaries from liability for secondary infringements and introducing data protection rules aimed at strengthening the internal market.<sup>9</sup>

The limited regulation encouraged technological growth and new business models. The success of e-commerce platforms and social media highlights the benefits of this choice but also reveals a downside: the risk of market concentration. Over time, economic freedoms, initially a tool for market integration, also enabled private companies to amass significant power. This shift has exposed gaps in competition law, as the power of these companies has extended beyond markets into political and societal influence. Today, their control over digital spaces raises constitutional concerns, highlighting the need to protect fundamental rights and democratic values from the dominance of private governance. Constitutional law increasingly must address these issues.<sup>10</sup>

Social media platforms, for instance, have significantly contributed defining how online content circulates. As observed by Balkin, freedom of expression in the digital age can be defined as a triangle,<sup>11</sup> as it involves interactions among three players: the state, individuals, and private companies like social media platforms. Unlike traditional media, social media platforms use automated systems to moderate content. These systems can instantly decide to delete or suppress content, and they determine where to position information in social media, significantly impacting public discourse.<sup>12</sup>

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<sup>7</sup> Kamiel Mortelmans, 'The Common Market, the Internal Market and the Single Market, What's in a Market?' (1998) 35(1) *Common Market Law Review* 101.

<sup>8</sup> Sherman Antitrust Act (1990).

<sup>9</sup> Giovanni De Gregorio, 'The Rise of Digital Constitutionalism in the European Union' (2021) 19(1) *International Journal of Constitutional Law* 41.

<sup>10</sup> Oreste Pollicino, 'The Quadrangular Shape of the Geometry of Digital Power(s) and the Move towards a Procedural Digital Constitutionalism' (2023) 29(1-2) *European Law Journal* 10.

<sup>11</sup> Jack Balkin, *Free Speech Is a Triangle*, 118 *Col. L. Rev.* 2011 (2018).

<sup>12</sup> Tarleton Gillespie, *Content Moderation, AI, and the Question of Scale*, 7(2) *BIG DATA & SOC'Y* (2020).

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The immense power of these private digital companies creates challenges for modern democracies. Many tech giants generate more revenue than the GDP of several EU countries. This requires a rethinking of how technological progress is governed.<sup>13</sup> Historically, constitutional law limited government power and ensured it operated within legal boundaries. In the digital age, however, constitutionalism faces horizontal power dynamics between individuals and private entities rather than the traditional vertical relationship between the state and its citizens, thus characterising digital constitutionalism.

For a long time, the EU left these new power dynamics largely unregulated, prompting individual Member States to act. However, this uncoordinated approach risked fragmenting the single market. To meet a demand for protection which could not be achieved only by relying on the vertical protection ensured by constitutional rights, the EU introduced new regulatory instruments. These include the Digital Services Act (DSA),<sup>14</sup> the Digital Markets Act (DMA),<sup>15</sup> and the Artificial Intelligence Act (AI Act).<sup>16</sup> These laws aim to reduce power imbalances, moving from a market-focused strategy to one centred on constitutional principles.

Among the new legislations, the DMA stands out as particularly important for addressing market power imbalances among corporations (see Chapter 2 for a focused analysis of the DMA). The DMA aims to enhance the contestability of markets dominated by a few large tech companies and to curb the ability of these companies to leverage their dominance to unfairly expand into other markets. The regulation represents a significant innovation as it is specifically designed to constrain only the largest and most powerful companies – whose misconduct poses the greatest risk – while leaving the regulatory environment for smaller competitors unchanged. This targeted approach ensures that the legislation has the greatest impact where it is most needed, without stifling innovation or competition among smaller firms.

Despite recent innovations, the EU has struggled to modernize its merger regulation, particularly in dealing with mergers and acquisitions among digital platforms (see Chapter 3 for a comprehensive overview of the issues related to M&A in the digital sector). Digital businesses, with their complex multi-sided markets and interconnected ecosystems, present unique challenges that traditional regulatory tools often fail to capture and address. For instance, digital ecosystems allow companies to leverage one business to the advantage of another, even if they seem unrelated. The inadequacy of traditional merger regulation in the digital sphere was evident in the 2012 acquisition

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<sup>13</sup> Hans-W. Micklitz and other, *Constitutional Challenges in the Algorithmic Society* (Cambridge University Press 2021).

<sup>14</sup> Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC.

<sup>15</sup> 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.

<sup>16</sup> Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828.

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of Instagram by Facebook, where regulators underestimated the potential of the then-small startup to challenge Facebook's dominance, ultimately allowing Facebook to consolidate its market power. In contrast, the US has recently issued new merger guidelines that consider novel concepts more appropriate for evaluating mergers in digital markets. The guidelines, for instance, address factors such as the elimination of competition, effects on competitors' access to services, entrenchment through systematic acquisitions, patterns of acquisitions, and the unique dynamics of mergers in multi-sided markets, aiming to provide a more comprehensive and forward-looking assessment of digital mergers.

It must be noted that, to address the power of tech giants, the EU cannot only rely exclusively on restrictive regulation but should also promote alternative business models within the Union. Notably, this is the case of Digital Ledger Technologies (DLT) which could provide a solution by facilitating shared governance models (see Chapter 4 for a discussion of how DLT could effectively achieve this role and foster new organizational models for business).

This introductory chapter explores three main themes. The first section examines the rise of digital liberalism in the EU and its impact on economic freedoms in the digital space, as seen in key court rulings. The second section looks at the EU's response to constitutional challenges and the shift toward digital constitutionalism. The final section considers the future of European digital policy and its potential directions.

## THE EVOLUTION OF EUROPEAN DIGITAL POLICY

The European Union's journey toward digital liberalism is rooted in its economic foundations. The Treaty of Rome, signed in 1957, established the European Economic Community with the primary goals of creating a common market and harmonizing economic policies among Member States. Central to this vision were the four freedoms: free movement of people, goods, services, and capital. These freedoms remain fundamental drivers of European integration and the growth of the internal market.<sup>17</sup> The goal of this system was 'to protect society and create an equitable Internet environment'.<sup>18</sup> Consequently, the consolidation and harmonisation of the internal market was one of the primary drivers of the Union approach at the end of the last century.

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<sup>17</sup> Consolidated version of the Treaty on the Functioning of the European Union (2012) OJ C 326/47, Title II and IV.

<sup>18</sup> Matthew Feeley, 'EU Internet Regulation Policy: The Rise of Self-Regulation' (1999) 22(1) Boston College International and Comparative Law Review 159, 167.

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Across the Atlantic, the embrace of digital liberalism was largely driven by a positive view of digital technologies as opportunities for growth and prosperity, rather than threats to individual rights and freedoms. The EU prioritized minimizing regulatory burdens to protect economic freedoms and encourage innovation, rather than focusing on safeguarding constitutional values. At that time, concerns about the rise of powerful private entities challenging the protection of fundamental rights online and competing with public authorities were not yet prominent. Instead, regulation was perceived as a barrier to the potential benefits of the digital environment.

Within this framework, a migration of constitutional ideas has occurred across the Atlantic. As highlighted by Christou and Simpson, the US concept of the Internet as a self-regulating space driven by neoliberal globalization theories impacted the European legal framework, despite the Union's inherently cooperative approach to Internet regulation.<sup>19</sup> Until the adoption of the Charter of Fundamental Rights of the European Union in 2000 – and its binding status following the Lisbon Treaty – the Union's approach was firmly rooted in economic principles, emphasizing fundamental freedoms such as the freedom to provide services.

The EU's self-regulatory approach is somehow exemplified by the e-Commerce and Data Protection Directives. In 2000, the e-Commerce Directive established liability exemptions for illegal content handled by Internet service providers, thus fostering the development of online services while maintaining minimal regulation.<sup>20</sup> Similarly, the Data Protection Directives (1995) aimed to ensure the free circulation of data in the internal market.<sup>21</sup> This strategy, which sought to balance economic freedoms with limited regulatory intervention, positioned competition law as a crucial regulatory tool. However, as discussed in the next chapters, the limited scope and enforcement challenges of competition law meant it could not fully meet the extensive responsibilities assigned to it by the EU.

The EU's focus on protecting economic freedoms has significantly influenced digital regulation. The Data Protection Directive and the e-Commerce Directive are prime examples of this liberal economic orientation within a constitutional framework prior to the Lisbon Treaty. Both directives emphasize internal market objectives, such as the seamless circulation of digital services and personal data across Member States. Although they reference fundamental rights like freedom of expression and privacy, these legal instruments primarily reflect the economic priorities of the European project within its constitutional context.

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<sup>19</sup> George Christou, and Seamus Simpson, 'The Internet and Public-Private Governance in the European Union' (2006) 26(1) *Journal of Public Policy* 43. See also Edward Halpin and Seamus Simpson, 'Between Self-Regulation and Intervention in the Networked Economy: The European Union and Internet Policy' (2002) 28(4) *Journal of Information Science* 285.

<sup>20</sup> Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (2000).

<sup>21</sup> Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (1995).

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The EU's liberal economic approach faced significant challenges due to rapid changes in the digital landscape at the beginning of the century. Two major developments marked the end of the initial liberal phase and prompted the European Court of Justice (ECJ) to adopt a more active role in developing a new European constitutional strategy.<sup>22</sup> The first was the swift rise and consolidation of new private actors in the digital sector. Network effects, the role of data as a barrier to entry, and first-mover advantages led to high levels of market concentration, and in some cases, monopolies emerged.

The second development was the recognition of the European Charter of Fundamental Rights as the Union's bill of rights. Under this new constitutional framework, the ECJ began using the Charter to evaluate and interpret European legal instruments, placing greater emphasis on the effective protection of fundamental rights and freedoms. This proactive stance shifted the focus from merely formal considerations to the substantive application of constitutional law. Although the ECJ had previously acknowledged the role of fundamental rights in limiting economic freedoms and market principles before the Maastricht Treaty, the Charter's recognition allowed for a more balanced approach between economic and constitutional dimensions.<sup>23</sup>

By identifying fundamental rights as general principles of EU law, the Court enabled a balancing act between economic freedoms and constitutional protections.<sup>24</sup> The absence of legislative reviews for the e-Commerce and Data Protection Directives left the ECJ using the Charter to address the emerging challenges of fundamental rights in the digital age. This judicial intervention highlighted the limitations of an exclusively economic perspective and facilitated the transition to a new constitutional phase, where fundamental rights are given greater consideration alongside economic objectives.

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<sup>22</sup> Oreste Pollicino, *Judicial Protection of Fundamental Rights on the Internet. A Road towards Digital Constitutionalism?* (Hart 2021).

<sup>23</sup> See Case C-112/00, Eugen Schmidberger, Internationale Transporte und Planzüge v Republik Österreich (2003) ECR I-905; Case C-36/02, Omega Spielhallen- und Automatenaufstellungs-GmbH v Oberbürgermeisterin der Bundesstadt Bonn (2004) ECR I-9609; Case C-341/05, Laval un Partneri Ltd v Svenska Byggnadsarbetareförbundet (2007) ECR I-11767; Case C-438/05, Viking Line ABP v The International transport Workers' Federation, the Finnish Seaman's Union (2007) ECR I-10779.

<sup>24</sup> See Case 29/69, Erich Stauder v City of Ulm - Sozialamt (1969); Case 11/70, Internationale Handelsgesellschaft mbH v Einfuhr- und Vorratsstelle für Getreide und Futtermittel (1970); Case 4/73, J. Nold, Kohlen- und Baustoffgroßhandlung v Ruhrkohle Aktiengesellschaft (1977).

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### A NEW PHASE FOR EUROPEAN DIGITAL POLICY

In the digital age, constitutional law has become increasingly significant in shaping European digital policy. The initial focus on economic freedoms and minimal regulation to promote innovation and market integration has been challenged by the growing influence of digital technologies and the concentration of power in the hands of private corporations. This transformation has forced a reconsideration of the traditional role of constitutional law, as private entities now hold power that was once exclusively exercised by public authorities.

Since the mid-2010s, and particularly in the 2020s, the European Union has reclaimed its legislative role in regulating the digital space – previously largely shaped by the European Court of Justice. This shift has marked the beginning of what has been called a new era of “digital constitutionalism”<sup>25</sup> in Europe. This term refers to a constitutional approach focused on safeguarding and promoting the foundational values of the European Union, starting with that of dignity, which is enshrined in the first article of the European Charter of Fundamental Rights. The EU has entered a phase where it actively addresses the risks posed by unchecked economic freedoms, not relying only on antitrust to deal with private powers but complementing its economic focus with a constitutionally guided approach.

The European Union has drawn lessons from the judicial activism of the European Court of Justice (ECJ). The ECJ’s actions have been pivotal in injecting democratic values into the digital environment, prompting a new European constitutional phase to address emerging challenges. Following the Treaty of Lisbon, the European Commission acknowledged the changing digital landscape. In the framework of the Digital Single Market strategy,<sup>26</sup> the Commission issued a communication urging the need to ensure that online platforms “protect core values” and increase “transparency and fairness for maintaining user trust and safeguarding innovation”.<sup>27</sup> The issuance of the communication stems from the recognition of the critical role of online platforms in providing access to information and content, as well as their growing impact on fundamental rights. The Commission stressed that these platforms bear “wider responsibility” because of their influence.<sup>28</sup>

These early initiatives paved the way for a mix of soft and hard law instruments aimed at regulating content and data. This approach is evident in the field of content, where procedural safeguards – including transparency reporting – have been introduced by

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<sup>25</sup> Giovanni De Gregorio, *Digital Constitutionalism in Europe. Reframing Rights and Powers in the Algorithmic Society* (Cambridge University Press 2022).

<sup>26</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A Digital Single Market Strategy for Europe COM(2015) 192 final.

<sup>27</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Online Platforms and the Digital Single Market Opportunities and Challenges for Europe COM(2016) 288 final.

<sup>28</sup> Ibid.

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the Directive on Copyright in the Digital Single Market,<sup>29</sup> the amendments to the Audiovisual Media Service Directive,<sup>30</sup> and the Regulation on Terrorist Content.<sup>31</sup> The General Data Protection Regulation (GDPR) further strengthened protections for personal data, emphasizing accountability and safeguarding fundamental rights.<sup>32</sup> Additionally, the EU has collaborated with platforms to combat issues such as disinformation,<sup>33</sup> as seen with the Code of Practice on Disinformation (2018) and its updated version in 2022.

These measures have anticipated the adoption of the Digital Services Act and Digital Markets Act – which aim to provide a new legal framework for competition and digital services, while also mitigating the constitutional challenges raised by online platforms and protecting European democratic values. The Digital Services Act provides a horizontal system of substantive and procedural safeguards that limit platforms' power in content moderation. The Digital Markets Act introduces mandatory obligations enriching the role of competition law beyond the general prohibited practices of abuse of dominant positions and market concentration, which have not been enough to deal with the consolidation of private powers in the digital age.

The Digital Services Act (DSA) and Digital Markets Act (DMA) introduced significant innovations, not only by bringing digital services under a more comprehensive regulatory framework but also by employing novel regulatory tools. The DMA, in particular, marks a shift from the traditional ex-post enforcement of rules – which has often been ineffective in addressing misconduct in digital markets – to ex-ante provisions that proactively prevent digital gatekeepers from abusing their market dominance. Importantly, the DMA tightens regulations on digital gatekeepers while avoiding additional burdens for small, medium, and most large companies.

However, the DMA has certain limitations that must be addressed to fully realize its potential benefits. For instance, some of its provisions overlap with existing regulations and the responsibilities of national authorities. This overlap risks leading to multiple proceedings, conflicting decisions, and higher compliance costs for businesses. Additionally, certain provisions are ambiguously worded. On the one hand, this ambiguity allows companies flexibility in designing remedies to address potential issues. On the other hand, it creates uncertainty regarding whether these remedies meet compliance standards, potentially complicating enforcement and adherence to

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<sup>29</sup> Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (2019) OJ L 130/92.

<sup>30</sup> Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive) in view of changing market realities OJ L 303/69.

<sup>31</sup> Regulation (EU) 2021/784 of the European Parliament and of the Council of 29 April 2021 on addressing the dissemination of terrorist content online OJ L 172/79.

<sup>32</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (2016) OJ L 119/1.

<sup>33</sup> Strengthened Code of Practice on Disinformation (16 June 2022).



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the rules. A detailed discussion of several specific examples of these problems is at the heart of the next chapter.

The Artificial Intelligence Act (AI Act) is another milestone in aligning European values with digital advancements. It categorizes AI systems based on risk levels, imposing stricter obligations for higher-risk applications and banning certain harmful uses, such as systems designed to manipulate individuals.<sup>34</sup> Transparency requirements, such as labelling for deepfakes – multimedia content fabricated by generative – are also included.<sup>35</sup> Unlike the earlier liberal approach to technology, the AI Act prioritizes the protection of fundamental rights and democratic values. The AI regulation underlines the new EU approach to regulate innovation, providing regulatory basis and safeguards in the development and deployment of artificial intelligence systems. The urgency of regulating AI also reflects its dual-use nature, with significant implications for both civilian and military applications, underscoring the existential risks associated with its misuse.<sup>36</sup>

The role of competition law in the digital age is another critical area for reform. Traditional merger controls often fall short in addressing the complex dynamics of digital markets, where acquisitions – especially of smaller companies – can lead to significant data concentration and harm competition. To counter “stealth consolidation”, regulators need to proactively monitor smaller acquisitions and consider the unique characteristics of digital platforms. But this clearly risks reducing the incentive of innovators to create new business that can be acquired and scaled by the large platforms. Taking a holistic approach to competition law enforcement could strengthen its effectiveness in digital markets, aligning it more closely with the EU's broader objectives.

Also, Distributed Ledger Technology (DLTs) and decentralised platforms offer Europe a path towards cooperative networks that operate without centralised control. By enabling shared governance and collaborative ecosystems, DLT can support small and medium-sized enterprises without relying on centralized control. Initiatives like the European Economic Interest Grouping (EEIG) could formalize decentralized organizations, fostering resource-sharing and innovation while preserving autonomy. Combined with decentralized financial tools and a digital Euro, these measures could empower SMEs, dilute market concentration, and enhance Europe's position in the global digital economy. However, to reap the benefit of the technology, the EU must improve the regulatory system, in order to guarantee certainty and avoid fragmentation. Competition law should also be updated to consider the emergence of new players controlled by decentralized organizations.

Overall, while significant progress has been made, the European Union must further refine its regulatory tools to more effectively safeguard citizens' rights and freedoms

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<sup>34</sup> Digital Services Act, Art 5.

<sup>35</sup> Ibid, Art 50

<sup>36</sup> See , for instance, the remarks offered by the Nobel laureate Geoffrey Hinton on the risks of AI in a New [York Times article](#) and in an interview to the [MIT Sloan School of Management](#)

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against corporate power, while also ensuring the efficiency of its economy by addressing market imperfections and preventing extreme market concentration.

While the Digital Markets Act (DMA) is well-positioned to restore contestability in the digital market, it requires certain refinements to maximize its effectiveness and reduce uncertainty. Merger regulations and enforcement mechanisms must be updated to address the distinct challenges posed by digital markets, including the risk of stealth consolidation and data monopolies. Additionally, the current legal uncertainty surrounding Distributed Ledger Technologies (DLTs) must be resolved to unlock the potential of these technologies in supporting decentralized governance and fostering cooperative agreements. By leveraging DLTs, the EU can reduce dependence on powerful, centralized foreign digital giants, promoting a more autonomous and resilient digital ecosystem.

## **PERSPECTIVES ON EUROPEAN DIGITAL POLICY**

The European Union has reached a significant turning point by adopting a new approach focused on protecting fundamental rights and democratic values. Through judicial decisions and new laws like the Digital Services Act and the Artificial Intelligence Act, the EU is reshaping its rules to address the growing influence of powerful private companies in digital spaces. This shift aims to strike a balance between supporting economic freedoms and safeguarding citizens' rights, ensuring that private entities do not misuse their power online.

The EU's approach is unique on the global stage. It offers a middle ground between strict, repressive measures and relying solely on companies to regulate themselves. This "third way" emphasizes cooperation, aiming to balance individual rights and economic growth in the digital age.

This strategy recognizes the interconnected roles of public authorities and private businesses. Trust between these groups has become essential. Beyond formal compliance with rules, effective regulation depends on accountability, collaboration, and goodwill. To avoid overly rigid laws, the EU has adopted flexible strategies like risk-based regulation and co-regulation.

A risk-based approach adjusts duties and obligations according to the specific risks of an activity. Instead of the binary logic of compliance/non-compliance, it tailors requirements to the needs of the situation. The reliance on the risk-based approach shows how the Union aims to promote a regulatory strategy focused on the balancing of interests and values, which intrinsically belongs to the core of European constitutionalism.

The GDPR emphasizes a bottom-up and accountability-driven approach where companies handling personal data, known as data controllers and processors, must assess and manage risks to privacy themselves. They are held accountable if they fail to comply with the rules. This approach is based on the idea that responsibility for managing risks should rest primarily with those who are regulated.

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In contrast, the Digital Services Act combines both "top-down" and "bottom-up" elements. It sets clear obligations for different types of online service providers but gives very large online platforms (VLOPs) – as defined by the DSA<sup>37</sup> – some flexibility to create their own strategies for addressing risks. This balance aims to ensure that rules are effective without being unnecessarily burdensome. Meanwhile, the Artificial Intelligence Act (AI Act) takes a more centralized, top-down approach. It classifies AI systems based on their level of risk – from minimal to unacceptable – and enforces strict compliance measures for high-risk systems, including banning some. Reversing the GDPR approach, which allows companies significant discretion, the AI Act defines these risk categories and requirements directly, leaving little room for interpretation.

The EU's regulatory model is not simply a shift from self-regulation to strict rules. Instead, it seeks to balance the protection of fundamental rights, such as privacy and freedom of expression, with economic freedoms. This approach also reflects the interconnected roles of public authorities and private companies. Since public enforcement alone is limited, private businesses play an essential part in the broader system,<sup>38</sup> shaping and applying regulations alongside public authorities.

Furthermore, the Union has expanded this approach by focusing on co-regulation. The Strengthened Code of Practice on Disinformation complements the approach of the Union followed with the Digital Services Act by supporting a cooperative regulatory regime. The Digital Services Act recognizes to the Commission (and the European Board for Digital Services) the role of encouraging and facilitating the drawing up of voluntary codes of conduct, taking into account in particular the specific challenges of tackling different types of illegal content and systemic risks. These codes can play a critical role not only to better detailing the obligations coming from the Digital Services Act, but they should be also considered as risk mitigation measures implemented by VLOPs to tackle systemic risks, including disinformation. According to the DSA, 'adherence to and compliance with a given code of conduct by a very large online platform or a very large online search engine may be considered as an appropriate risk mitigating measure'.

Co-regulation is another key feature of the EU's approach. For example, the Strengthened Code of Practice on Disinformation works alongside the DSA to create a cooperative system. Under the DSA, the European Commission encourages companies to develop voluntary codes of conduct, particularly for addressing different types of illegal content and systemic risks.<sup>39</sup> These codes not only clarify the DSA's requirements but also serve as risk management tools for VLOPs. According to the DSA, 'adherence to and compliance with a given code of conduct by a very large online platform or a very large online search engine may be considered as an appropriate risk

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<sup>37</sup> DSA, Art. 33.

<sup>38</sup> Gunther Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization* (Oxford University Press 2012).

<sup>39</sup> Digital Services Act, Art 45(1).

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mitigating measure'.<sup>40</sup> This makes them an important tool for bridging public policies and private accountability.

The AI Act also highlights the importance of codes of conduct. These voluntary guidelines can encourage responsible use of AI, particularly for low-risk or non-high-risk systems.<sup>41</sup> For high-risk AI applications, like those in healthcare, education, or justice, the Act mandates stricter rules. The AI Pact, a recent initiative by the European Commission, complements this effort. It invites AI companies to align with the Act's requirements voluntarily, even before the law takes full effect. This reflects the EU's emphasis on collaboration between regulators and businesses in digital policy.

Codes of conduct are a prime example of how the EU is forging a "third way" in regulation. Instead of relying entirely on rigid top-down rules, the EU involves private companies in creating and implementing solutions. Public authorities set the overall goals and maintain enforcement power, while private actors are responsible for applying these rules. This cooperation can help address enforcement challenges, such as combating disinformation, and makes companies more likely to accept penalties when necessary. Greater dialogue between regulators and companies can also mitigate disproportionate measures, affecting not only internal market goals, but also fundamental rights as also underlined by the case of the suspension of ChatGPT by the Italian Data Protection Authority.<sup>42</sup>

This framework demonstrates the EU's ability to balance the protection of fundamental rights with economic freedoms, which is a cornerstone of European constitutionalism. Therefore, the constitutional dimension of European digital policy is likely to bring the Union towards a new approach, also considering the global rush on AI.

New regulations, such as the Digital Markets Act (DMA), the DSA, and the AI Act, lay the foundation for this "third way". However, as implementation progresses, the EU must refine these rules to maximize their benefits. The DMA needs refinement to avoid difficulties in enforcement and excessive compliance costs for companies. Mergers regulation needs closer attention to curb excessive concentration in the digital industry. Additionally, emerging technologies like Distributed Ledger Technologies (DLTs), which allow shared governance and reduce dependence on centralized tech giants, should be encouraged and regulated to support sustainable growth.

The success of European digital policy will ultimately depend on how well these regulations are enforced. As digital technologies continue to evolve, the EU faces the challenge of protecting individual rights and democratic values in a space where private companies hold significant power. This digital ecosystem requires public and private actors to focus on collaboration. This shared effort is essential, especially given the fragmentation of Europe's regulatory framework. Indeed, it is essential that the legal framework be stabilized to allow the stakeholders to adapt to it. Citizens and firms need time to adapt to the new rules, and firms need stability of the regulatory

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<sup>40</sup> Ibid, Recital 104.

<sup>41</sup> AI Act, Art. 50.

<sup>42</sup> Italian Data Protection Authority, Case no. 112, Decision 30 March 2023 [9870832].

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framework to adopt the medium to long term view that is essential to make the large investments that most of the digital economy requires. Enforcement authorities and courts will play a critical role in ensuring consistency and effectiveness across the system, but the economic forces set into motion by the digital economy will likely work in the opposite direction. For instance, some observers remark how the growing speed at which tech companies grow poses a major challenge to any attempt to stabilize the regulation: indeed, to reach the threshold of 100 million users, it took platforms such as Facebook, Twitter, and Dropbox – launched between 2004 and 2008 – between 4 and 5 years, 3.5 years for WhatsApp (launched in 2009), 2.5 years for Instagram (launched in 2010), 9 months for TikTok (launched in 2016) and 2 months for ChatGPT (launched in 2022).<sup>43</sup> Digital constitutionalism has the potential to offer a simple solution to the seemingly impossible task of reconciling stable regulations with the rapid evolution of the tech sector: by focusing on fundamental rights and clearly spelled-out, general guiding principles rather than on technical norms the EU can strike the right balance. The next chapters discuss in detail how this can be achieved in the areas of the DMA enforcement, the merger regulations and the adoption of blockchain and Distributed Ledger Technologies.

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<sup>43</sup> See <https://visionandvalue.com/portfolio/the-impact-of-global-digital-companies-on-consumers-firms-and-governments/>

# II. ANTITRUST AND REGULATION FOR THE DIGITAL MARKETS: INSIGHTS ON HOW TO COORDINATE DIFFERENT COMPETITION POLICY TOOLS FOR THE DIGITAL ECONOMY \*

**Chapter 2** explores the joint role played by the DMA and antitrust regulation in contrasting concentration in digital markets and curbing the power of Big Tech companies. The chapter outlines several proposals to improve the efficacy of the DMA, especially to foster entry by smaller players and market contestability.

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**Mariateresa Maggiolino** (Bocconi University)

\* This chapter greatly benefited from the exchanges between the participants at a workshop held at Bocconi University on June 26<sup>th</sup>, 2024.

## II. ANTITRUST AND REGULATION FOR THE DIGITAL MARKETS

### Insight on how to coordinate different competition policy tools for the digital economy

#### INTRODUCTION

This chapter focuses on the recently introduced Digital Markets Act (DMA) by the European Union, alongside antitrust regulation in digital markets. It is structured in two parts. The first part offers a broad overview of antitrust issues within the EU, exploring how the DMA aims to address these challenges in the context of digital markets. It concludes by identifying "gaps" in the DMA and presenting specific policy recommendations to improve its framework. The second part delves into four key platform services in the digital market, dedicating a section to each. These sections start with a quantitative overview of the relevant markets, followed by a detailed analysis of the DMA's impact on each service. Particular attention is given to the practical implications of implementing the policy, emphasizing how the DMA will influence the functioning and regulation of the platforms involved.

#### GENERAL CONTEXT AND BROADER ISSUES

In the rapidly evolving landscape of digital markets, the European Union is working to address the longstanding limitations of its competition law. For years, the Union's digital market has been dominated by foreign tech giants that exploited a legal framework originally designed for offline markets, thereby distorting competition to their advantage. In response to this challenge, the European Commission has not only innovated in the application of existing laws but also introduced new instruments to correct market imbalances. Among these tools, the Digital Markets Act (DMA) stands out for its innovative approach and significance. In the following sections, we will explore the shortcomings of the EU's traditional competition law and examine the advantages and drawbacks of the new DMA.

#### Limitations of the EU Competition Law

In the years leading up to the Digital Markets Act (DMA), the European Commission was focused on preserving undistorted competition within the EU's digital markets. However, this effort faced two major challenges: the constraints of existing European competition law, particularly Article 102 of the Treaty on the Functioning of the European Union (TFEU),<sup>44</sup> and the rise of national regulations attempting to introduce new tools to govern digital ecosystems, which risked fragmenting the Internal Market.

When it comes to digital markets, the limitations of EU competition law can be summarized in five key areas.

#### EU Competition Law Focuses on Market Power

In EU competition law primarily addresses market power – the ability of a firm to reduce supply or raise prices while remaining profitable. However, the process of

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<sup>44</sup> Some scholars have indeed explained the DMA as the answer not to a market failure, but to a regulatory failure – see [M. Cappai and G. Colangelo, A unified test for the European ne bis in idem principle: the case study of digital markets regulation, \(2021\)](#)

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investigating market power is time-consuming and complex. It requires a detailed market definition process, which involves gathering information about the preferences and behaviors of all actors involved, including suppliers, clients, consumers, and both current and potential competitors. As a result, antitrust cases can be slow and burdensome, often taking years to resolve.

Moreover, firms in digital markets can harm competition through unilateral actions, even without necessarily holding market power. This is reflected in the recent moves by several Member States to introduce or strengthen national provisions against the abuse of economic dependence. These provisions can be particularly meaningful for the case of digital ecosystems, which exert types of power beyond traditional market power, influencing both business-to-business (B2B) and business-to-consumer (B2C) relationships.

For example, as discussed in Chapter 1, each digital ecosystem holds the power of disposition, enabling it to set the rules for its platform and compel other companies to comply. They also control critical resources like interoperability codes and datasets, which are essential for businesses operating within their ecosystem. Furthermore, their data analytics capabilities provide them with the power of information and manipulation, allowing them to outpace competitors in predicting market trends and subtly shaping consumer behavior through search rankings, recommendations, and other forms of information control.<sup>45</sup>

In addition to these influences, digital ecosystems command vast financial resources, employ large workforces of highly skilled individuals, and drive innovation by dictating when and how new products or services are introduced. Their economic power is immense, and this extends into the political sphere, where they shape the social and regulatory environment through lobbying, campaign contributions, and more indirect forms of influence, such as media control. This combination of powers presents a formidable challenge for competition law as it currently stands.<sup>46</sup>

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<sup>45</sup> For the analysis of these traditional forms of power, see M. Maggolino, *The Power of Digital Ecosystems*, Speech at Competition Policy and Data Conference, Stockholm, Swed., June 8, 2023.

<sup>46</sup> AA Berle, *Power – Epilogue in America*, Harcourt, Brace & World [1968] 199-216.



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#### EU Competition Law Can Be Difficult to Enforce Due to Blurred Boundaries

The boundaries of EU competition law, particularly regarding the abuse of a dominant position by digital ecosystems, are often unclear. Only two categories of abuse can be prosecuted:<sup>47</sup> exploitative practices, which directly harm consumer welfare, and exclusionary or anticompetitive practices, which indirectly harm consumer welfare by distorting competition.<sup>48</sup> However, sanctioning such behaviors is difficult. Antitrust authorities must invest significant time and effort to prove that specific legal conditions are met, as these are not always well-defined.

For example, to establish that an exploitative practice has occurred, antitrust authorities must demonstrate that the dominant firm imposed unfair bargaining conditions. The Commission's practice suggests that such conditions may be deemed unfair if they are disproportionate,<sup>49</sup> unilaterally imposed,<sup>50</sup> unrelated to the contract's objectives,<sup>51</sup> opaque,<sup>52</sup> or if they undermine the economic freedom of the counterparties.<sup>53</sup> However, the concept of "unfairness" itself remains loosely defined, with the final result of creating uncertainty and risks inconsistent interpretations and enforcement.

Similarly, proving that a dominant firm's conduct is exclusionary and anticompetitive involves demonstrating three key elements: (i) the likely exclusionary effects, (ii) the likely anticompetitive effects that are not outweighed by efficiency or innovation gains, and (iii) the absence of valid justifications for such practices. Importantly, the legality of these practices does not depend on their form,<sup>54</sup> but on their actual or potential

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<sup>47</sup> It is true that there is an ongoing discussion in the doctrine, especially following the recent Google Shopping case – General Court, case T-612/17, Google LLC, formerly Google Inc., and Alphabet, Inc. v. European Commission, EU:T:2021:763 – about whether discriminatory practices should be considered a separate category of abuse or if they should be classified under the two mentioned families of exploitative practices and exclusionary, anti-competitive practices. Nevertheless, this debate does not seem relevant for the purposes of this report.

<sup>48</sup> CG, Case C377/20, *Servizio Elettrico Nazionale SpA c. Autorità garante della concorrenza e del mercato e a.*, ECLI:EU:C:2022:379, § 44.

<sup>49</sup> CG, Case 27/76, *United Brands Company e United Brands Continentaal BV contro Commissione*, ECLI:EU:C:1978:22, § 190.

<sup>50</sup> COMP/E-2/36.041, *PO—Michelin*, § 265 e CG, Case C-247/86, *Société Alsacienne et Lorraine de Télécommunications et d'Électronique (Alsatel) v. SA Novasam*, ECLI:EU:C:1988:469.

<sup>51</sup> CG, Case C-333/94 P, *Tetra Pak International SA contro Commissione*, ECLI:EU:C:1996:436; CG, Case C-143/19 P, *Der Grüne Punkt – Duales System Deutschland GmbH v European Union Intellectual Property Office* (2019) ECLI:EU:C:2019:1076, and Case C-372/19, *Belgische Vereniging van Auteurs, Componisten en Uitgevers CVBA (SABAM) v Weareone.World BVBA and Wecandance NV* (2020) ECLI:EU:C:2020:959.

<sup>52</sup> Commission, 2002/405/CE, COMP/E-2/36.041, *PO—Michelin*, GU L 143, §§ 220-224; and CG, Case 247/86, *Société alsacienne et lorraine de télécommunications et d'électronique (Alsatel) contro Novasam SA*, ECLI:EU:C:1988:469, §§ 9-10.

<sup>53</sup> CG, Case 127-73, *Belgische Radio en Televisie e société belge des auteurs, compositeurs et éditeurs contro SV SABAM e NV Fonior*, EU:C:1974:25, § 15 and Commission, 71/224/CEE, IV/26.760, *GEMA*; 72/268/CEE, IV/26.760 *GEMA II*; and 82/204/CEE, IV/29.971, *GEMA-Satzung*.

<sup>54</sup> CG, Case *Servizio Elettrico Nazionale SpA et al. v. Autorità Garante della Concorrenza e del Mercato et al.*, C-377/20, EU:C:2022:379, § 72 and P. Ibáñez Colomo, *Anticompetitive effects in EU competition law*, *Journal of Competition Law & Economics* 17, no. 2 (2020), 350-351.

effects.<sup>55</sup> This necessitates a deep analysis of business strategies and a thorough understanding of both short- and long-term market dynamics.

Moreover, as the legal debate following the Google Shopping decision illustrates,<sup>56</sup> there is disagreement among legal scholars on whether the conditions proving unlawful effects should be based on a specific set of facts<sup>57</sup> or whether they may vary depending on the scenario.<sup>58</sup> In short, while it is possible to demonstrate that a dominant firm, such as a digital ecosystem, engaged in exclusionary and anticompetitive practices, doing so often challenges traditional antitrust frameworks and requires considerable resources and time.

### Antitrust Rules Are Applied Ex-Post

Article 101 and 102 TFEU<sup>59</sup> establish prohibitions that apply ex-post, meaning they come into effect only after a business practice has been implemented and is shown to potentially be harming competition. Unfortunately, this often means that these provisions are invoked only after the damage has already occurred.

This creates two major challenges. First, EU competition law cannot proactively guide markets toward fair competition; it is limited to addressing and remedying anticompetitive practices after the fact. Second, it falls to the European Commission to identify and prove that a business's practices violate antitrust law. As mentioned earlier, this process, which includes defining relevant markets, assessing dominance, and evaluating the effects of the practices in question - can be lengthy, complex, and resource-intensive, leaving competition authorities vulnerable to failure. As a result, antitrust proceedings can drag on for years.

In fast-evolving digital markets, where innovation occurs rapidly, these delays can render remedies ineffective by the time they are enforced. A prime example is the case against Google, where the final ruling by the EU Court of Justice upholding the €2.4

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<sup>55</sup> CG, C-280/08 P, *Deutsche Telekom AG v. European Commission*, EU:C:2010:603, § 252; CG, C-52/09, *Konkurrensverket v. TeliaSonera Sverige AB*, EU:C:2011:83, § 64; CG, C-413/14, *Intel Corp. v. European Commission Intel*, EU:C:2017:632, § 138; CG, C-307/18, *Generics (UK) Ltd et al. v. Competition and Markets Authority*, EU:C:2020:52, § 154.

<sup>56</sup> Google has been fined for displaying the shopping results from its own service – Google Shopping – more favorably than third-party services on the result page of Google Search, the dominant search engine. Such a behavior has been fined by the commission as it gave an unfair advantage to Google's service, potentially reducing competition and innovation. For a critical review of the Commission's decision (later upheld by the CG) to qualify Google's conduct as "self-preferencing", see F. Ghezzi and M. Maggolino, *The notion of abuse: Cues from the Italian Amazon case*, in *Digital platforms, competition law, and regulation: Comparative perspectives*, ed. Kalpana Tyagi et al. (London: Bloomsbury Publishing PLC, forthcoming 2023).

<sup>57</sup> P. Ibáñez Colomo, "Self-preferencing: Yet another epithet in need of limited principles", *World Competition* 43, no. 4 (2020): 417-446.

<sup>58</sup> Mariateresa Maggolino, *The Value of Liability Tests in Abuses of Dominance*, in *Market and Competition Law Review*, 2023, 45-70.

<sup>59</sup> The Treaty on the Functioning of the European Union (TFEU), originally known as the Treaty of Rome, is one of the two treaties forming the EU constitutional basis – the second being the Treaty on European Union (TEU). The TFEU contains, among others, important provisions on competition.

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billion fine imposed in 2017 for the anticompetitive promotion of its shopping service was only delivered in September 2024. This decision came 14 years after the investigation first began in November 2010, highlighting how slow antitrust enforcement can be in the face of rapidly changing digital landscapes.

#### Several Competitive Issues Remain Unregulated

In economics, markets are often viewed as mechanisms that reward efficient firms favored by consumers, while penalizing inefficient or outdated ones. Consumers, whether end users or intermediary buyers, act as judges by selecting firms through their purchasing decisions. EU competition law acknowledges this dynamic<sup>60</sup> and aims to protect the functioning of the market by using consumer welfare as a key metric. In essence, it focuses on firm practices that, by leveraging market power, risk distorting competition. This could manifest as reduced output and increased prices in the short term, or diminished quality, variety, and innovation in the long term.

However, while EU competition law addresses certain core issues, it leaves several critical aspects unregulated, especially in digital markets. These overlooked areas deserve attention due to their growing relevance.

Regarding consumer bias, EU competition law does not address this issue, even though concerns are rising about consumers' ability to accurately evaluate firms, particularly in the digital sphere. Cases like Google Shopping illustrate how companies can manipulate consumer choices by controlling the information they access.<sup>61</sup> Cognitive biases and inertia often influence consumer perceptions of company performance, as seen in the Google Android<sup>62</sup> and Booking<sup>63</sup> cases. Increasingly, there is recognition that digital platforms exploit these biases to steer consumers toward choices they might not otherwise make if acting rationally.

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<sup>60</sup> CG, Case C413/14 P, *Intel Corp. v. Commission* [2017] EU:C:2017:632, §137 Intel; Case C 23/14, *Post Danmark A/S v. Konkurrenserådet* [2015] EU:C:2015:651, § 34, and Case C377/20, *Servizio Elettrico Nazionale and Others* [2022] EU:C:2022:379, § 46.

<sup>61</sup> *Google Search (Shopping)* (Case AT.39740) Commission Decision 17 December 2017; Case T-612/17, *Google LLC and Alphabet Inc. v. European Commission* EU:T:2021:763; see also Margherita Colangelo, Mariateresa Maggolino, 'Manipulation of information as an antitrust infringement' (2020) 26(2) *The Columbia Journal of European Law* 63. See also the proposal for a New Competition Tool addressing market failures linked to consumer biases in the Draghi Report.

<sup>62</sup> *Google Android* (Case AT.40099), Commission Decision 18 July 2018; Case T-604/18, *Google and Alphabet v Commission (Google Android)* [2022] EU:T:2022:541. At the heart of the case was the Google imposition to smartphone manufacturer willing to use Android as Operative System to preinstall Google Chrome as default browser and Google Search as default search engine. Such an obligation has been considered as abuse of market power by the European Commission.

<sup>63</sup> In the Booking case, the commission blocked the acquisition of eTraveli (a flight-booking service) by Booking.com (a hotel-booking service). This was the first decision based on ecosystem concerns: while eTraveli does not operate in the same market of Booking, the markets are connected as flight-booking often preludes hotel-booking, therefore the Commission feared that the acquisition would have increased concentration in the hotel-booking market where Booking was already dominant. *Booking/eTraveli*, Case M.10615, §§ 243 and 913, 915 and 916.

Regarding fairness, EU competition law does not address issues arising from superior bargaining power unless such imbalance stems from a dominant market position. Yet, economists have shown that the unfair exercise of bargaining power can distort competition in various contexts – oligopolies,<sup>64</sup> incomplete contracts,<sup>65</sup> significant information asymmetries,<sup>66</sup> or when rationality of the economic agents is seriously biased.<sup>67</sup> This is particularly relevant in digital markets, where power imbalances are common.

Regarding market contestability the EU competition law also overlooks market features affecting it. It assumes market conditions as given, even when they promote monopolization or act as barriers to entry, reducing competition on merit. Digital markets, in particular, tend to become dominated by large tech firms, making them increasingly less contestable over time. While the "essential facilities doctrine" offers some protection – this legal doctrine ensures that firms can access key resources owned by monopolists – it doesn't address other situations where companies exploit market power from privileged access to essential resources. For example, first movers in digital markets often accumulate massive data advantages, effectively excluding competitors from the market. EU competition law does not address the unequal access to resources, leaving firms with superior data, labor, capital, or other advantages largely unchallenged. This lack of balance contradicts the idea of a market that rewards innovation, as these initial advantages create a skewed playing field. Moreover, variations in legal systems, labor costs, access to capital, taxation, and innovation incentives further exacerbate these disparities.<sup>68</sup>

In summary, while EU competition law effectively tackles certain competitive issues, key challenges – such as consumer bias, fairness, and market contestability – remain largely unregulated, particularly in the context of rapidly evolving digital markets.

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<sup>64</sup> A. Pezzoli, *Abuso di dipendenza economica e concorrenza. Analisi economica di un ibrido?*, in V. Minervini, G. Colangelo (a cura di), *La nuova stagione dell'abuso di dipendenza economica*, il Mulino, 2023, 137.

<sup>65</sup> O. Hart e J. Moore, *Incomplete Contracts and Re-negotiation*, *Econometrica*, vol. 54, 1988; O. Hart, *Incomplete Contracts and the Theory of the Firm*, *Journal of Law, Economics, & Organization*, vol. 4, 1988 e C. Osti, *L'abuso di dipendenza economica*, *Mercato Concorrenza Regole*, n. 1, 1999.

<sup>66</sup> R.J.R. Peritz, *Theory and Fact in Antitrust Doctrine: Summary Judgment Standards, Single-Brand Aftermarkets and the Clash of Microeconomic Models*, *Antitrust Bulletin*, 45, 2000, 887; B. Klein, *Market Power in Aftermarkets*, in F. McChesney (a cura di), *Economic Inputs, Legal Outputs: The Role of Economics in Modern Antitrust*, Hoboken, Wiley, 1998, 47; C. Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, *Antitrust Law Journal*, vol. 63, 1995; B. Klein, R.G. Crawford e A.A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, *Journal of Law & Economics*, 21, 1978, 297.

<sup>67</sup> Cfr. R.H. Coase, *The Nature of the Firm*, *Economica*, 4, 1937; Id., *The Problem of Social Cost*, *Journal of Law & Economics*, III, 1960; O.E. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implications*, New York, Free Press, 1975; Id., *Transaction Cost Economics: The Governance of Contractual Relations*, *Journal of Law & Economics*, 22, 1979, 233.

<sup>68</sup> It is no coincidence that the establishment of a single European market is also driven by the effort to standardize these regulations, which undoubtedly set the EU apart from other legal frameworks like those of the United States or China.

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#### National Remedies and Risk of Fragmentation

We have observed that the competitive gap between digital ecosystems and their rivals is often influenced by factors such as consumer biases, the exploitation of superior bargaining power, the structural characteristics of digital markets, and digital ecosystems' initial advantages. These aspects remain largely unregulated by EU antitrust law. Notably, these limitations – shared by many national competition laws – have prompted national legislators and sectoral regulators to address the limited contestability of digital markets and the unfair practices of digital ecosystems through alternative national measures. However, the implementation of these national rules to regulate digital ecosystems poses a risk to the unity and integrity of the EU internal market.<sup>69</sup> The following are some national initiatives that illustrate these efforts.

- 1. Multi-sided and Network Market Actors in Germany:** In line with the measures now implemented by the Digital Markets Act (DMA), Germany's Competition Law,<sup>70</sup> since 2021, empowers the national competition authority (Bundeskartellamt) to designate companies that are significantly active in multi-sided or network markets and hold paramount importance for competition across markets. The Bundeskartellamt can intervene when one of these designated companies engages in anticompetitive practices (as defined by law), with the burden of proof falling on the company. The company can justify its actions by demonstrating that they lead to efficiencies.
- 2. Economic Dependence in Belgium, Germany, Italy and France:** In 2019 Belgium introduced new legal provisions prohibiting the abuse of economic dependence in its Code of Economic Law.<sup>71</sup> In 2020, Germany enacted the GWB Digitalization Act, which broadened the provision sanctioning the abusive exploitation of relative market power towards economically dependent undertakings.<sup>72</sup> Among other things, this legislation established the rights of dependent firms not to be denied access to essential data by dominant counterparts. Italy reformed its law on the abuse of economic dependence in 2022,<sup>73</sup> introducing a presumption of economic dependence for business users of digital platforms. The French Competition Authority also acted in 2020, applying national laws against Apple<sup>74</sup> for allegedly abusing the economic dependence of its premium resellers by favoring Apple-owned stores and larger retailers, such as supermarkets.

The proliferation of national solutions to regulate digital ecosystems risks fragmenting the EU internal market. This fragmentation could lead to several challenges, including:

- Increased compliance costs due to differing national regulatory requirements.

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<sup>69</sup> On this point, see DMA, Recitals 6-8.

<sup>70</sup> Article 19(a) of Germany Competition Law

<sup>71</sup> Article IV.2/1 of the Belgian Code of Economic Law

<sup>72</sup> i.e. §20(1)-(2) of the Act against Restraints of Competition

<sup>73</sup> Law 192/1998, art. 9

<sup>74</sup> Art. L 420-2 of the French Commercial Code

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- Multiple legal proceedings and the associated coordination challenges.
- Conflicting decisions across jurisdictions.
- Potential double jeopardy for businesses.

At the EU level, discussions began in 2020 about adopting a new approach to market investigations in these scenarios and granting the Commission the authority to intervene. However, these efforts were later abandoned.<sup>75</sup> Nevertheless, an ad hoc sector-specific solution for digital markets was adopted in the form of the DMA.

### The Highs and Lows of the DMA Era

The Digital Markets Act (DMA), enacted in November 2022, aims to regulate the largest tech players – referred to as “gatekeepers” – in their interactions with business partners within the EU. Since March 2024, gatekeepers are required to comply with DMA rules governing more than 20 types of services related to digital markets, known as “core platform services.” As the first systematic ex ante regulation of digital markets, the DMA has the potential to significantly reshape the evolution of the tech sector in the EU, particularly by providing smaller players with the opportunity to compete on a more level playing field with gatekeepers.

Unlike previous EU laws and regulations in the tech sector, which have faced severe criticism for imposing regulatory barriers that disproportionately affect smaller and younger firms, the DMA specifically targets gatekeepers. By establishing regulations at the EU level, the DMA also helps mitigate the risk of fragmentation within the internal digital market.<sup>76</sup>

In this chapter, we will evaluate the DMA based on evidence gathered from its initial months of implementation. On one hand, we will explore the improvements the DMA brings to the preservation of well-functioning digital markets. On the other hand, we will identify potential shortcomings of the DMA. Drawing on insights from academic research, we will also propose policy implications aimed at enhancing the DMA’s ability to foster innovation in the EU.

### What the DMA Improves

The Digital Markets Act (DMA) brings several advantages that enhance the European Commission’s ability to safeguard the well-functioning of digital markets. There are five main improvements introduced by the DMA.

#### Clear Identification of Target Firms

The DMA requires the Commission to publicly designate digital companies – known as gatekeepers – subject to its obligations and restrictions through a specific procedure based on defined quantitative and qualitative criteria.

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<sup>75</sup> See: [EU competitiveness: Looking ahead](#).

<sup>76</sup> See the report for the EU Commission by Mario Draghi [“The future of European competitiveness,” \(2024\)](#).

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Unlike EU competition law, which distributes enforcement efforts across all potentially dominant firms, the DMA targets a select group of companies. This targeted approach eliminates the need for case-by-case assessments based on the specific circumstances of various market scenarios by reducing the need to define relevant markets and prove dominance, the DMA saves considerable time and resources. Moreover, the ex-ante designation of gatekeepers allows the Commission to avoid complex discussions about the nature and scope of market power. It eliminates debates about whether the law should target firms that, while not dominant, exert significant bargaining power, or whether it should address other forms of power that could undermine B2B or B2C relationships.

In summary, the preemptive identification of gatekeepers ensures a more efficient regulatory process, enabling the Commission to focus on enforcing compliance rather than continually reassessing market dynamics.

#### **Clear Indication of Unlawful Practices**

The DMA explicitly lists practices that are forbidden without allowing for objective justification or an efficiency defense. By outright prohibiting these practices, the DMA shifts from the effect-based approach characteristic of EU competition law to a form-based approach. This strategy prevents harmful practices from emerging in the market and removes the need for the Commission (or other enforcers) to investigate competitive harm on a case-by-case basis.

Consequently, by dismissing the need for extensive economic analysis and the efficiency-oriented consumer welfare test, and by lowering the evidentiary burdens on the Commission, the DMA results in a quicker, clearer, and more effective regulatory process that is better suited to the rapid pace of digital market evolution.

#### **Specific Obligations for Gatekeepers**

The DMA establishes clear obligations for gatekeepers aimed at making digital markets more contestable and fairer. Unlike traditional antitrust law, which can only impose remedies after the fact, the DMA prescribes specific behaviors it considers beneficial, guiding markets toward goals of fairness and contestability. Some scholars note that a key motivation behind the DMA is to expedite the implementation of remedies.<sup>77</sup> This forward-looking approach aims to create a regulatory environment that contains and potentially reduces gatekeeper power.<sup>78</sup>

Moreover, the DMA shifts responsibility for compliance onto the firms themselves. Once the Commission identifies potential infringements, it is the gatekeepers' responsibility to ensure adherence to DMA rules. This shortens the oversight process

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<sup>77</sup> Luís Cabral, Justus Haucap, Geoffrey Parker, Georgios Petropoulos, Tommaso Valletti, and Marshall Van Alstyne, 'The EU Digital Markets Act', (2021) 10.

<sup>78</sup> See also Giorgio Monti, '[The Digital Markets Act – Institutional Design and Suggestions for Improvement](#)', (2021). The DMA is a well-designed tool which surmounts what have been perceived as the main weaknesses of using competition law in digital markets, namely the slowness by which antitrust cases proceed and the lack of teeth in the remedies imposed.

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and enhances compliance with certain practices while prohibiting others. Essentially, the DMA establishes a proactive regulatory framework for digital markets, akin to other forms of command-and-control regulation.

### **The DMA Does What Antitrust Law Cannot Do**

The DMA is a tool employed by European institutions to bridge the gap between gatekeepers and their competitors. It aims to: (i) reduce the information asymmetries affecting businesses and end users of digital platforms, (ii) limit the bargaining power of gatekeepers and prohibit their one-sided practices to ensure the fairness of digital markets,<sup>79</sup> (iii) reduce barriers to entry to digital markets to ensure their contestability,<sup>80</sup> and (iv) redistribute resources and opportunities between gatekeepers and their rivals. Many of its provisions are designed to achieve one or more of these goals simultaneously.<sup>81</sup>

For example, consider that Article 5(2) which mirrors the German Facebook<sup>82</sup> case by forbidding data combinations across services unless user consent is provided. This provision serves as a tool to ensure fairness for end users and prevent gatekeepers from raising data-related barriers to entry into digital markets.

The rules in Article 5(3) to (8) DMA address practices such as parity clauses (similar to those seen in antitrust cases involving Booking and Expedia), anti-steering provisions (as seen in the recent Apple Store antitrust case), restrictions on accessing and using the platform, potential limits on the right to sue gatekeepers, and obligations to use the gatekeeper's payment services or other core platform services. These practices can constitute abuse of superior bargaining power, potentially leading to exclusionary and anticompetitive effects that make markets less contestable. Moreover, compliance with some of these obligations can help ensure equality of arms between gatekeepers and their rivals.

Similarly, the provisions in Article 6 are inspired – to varying degrees – by principles of transparency, fairness, and proportionality, and they promote contestability, resource sharing, and equal opportunity. Specifically, Articles 6(3), 6(4), and 6(6) allow rivals and end users the freedom to install or uninstall applications on their platforms. Articles 6(7) and 7 govern interoperability, while Articles 6(10) to 6(13) require gatekeepers to provide access to their own data, app stores, search engines, and social networks on Fair, Reasonable, And Non-Discriminatory (FRAND) terms, prohibiting disproportionate terms for terminating basic platform services.

### **The DMA Empowers the Commission to Take Swift Action**

Interestingly, the EU Commission initiated several non-compliance investigations immediately after compliance with the DMA provisions became binding in March

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<sup>79</sup> On the notion of fairness included in the DMA, see Recital 33.

<sup>80</sup> On the notion of contestability included in the DMA, see Recital 32.

<sup>81</sup> Also the DMA acknowledges this fact – see DMA, Recital 34.

<sup>82</sup> In a case against Meta, the Bundeskartellamt prohibited the company from combining user data from several sources without the users' consent.



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2024. These cases primarily concern the measures that gatekeepers proposed to comply with the new regulation, highlighting the complexities of enforcing the DMA. Notably, three out of the six originally designated gatekeepers are now under formal investigation.

Meta, for instance, introduced a pay-or-consent model requiring EU users to choose between consenting to the cross-use of their personal data or paying €10 per month to use its social media platforms, leading to accusations of violating Article 5(2) of the DMA and a preliminary finding of breach. Similarly, Apple's is the subject of several investigations. One of these concerns the 30% fee that the company charges for App Store and in-app purchases, as the company has been preliminarily found to infringe DMA Article 5(4) by not allowing app developers to freely direct customers to purchase offers outside the Apple ecosystem. Alphabet is under investigation for alleged self-preferencing in search results for Google Shopping, Google Flights, and Google Hotels, potentially infringing DMA Article 6(5).

These investigations reflect both the swift action of the Commission and the conflicting interests of gatekeepers, which, on the one hand, are reluctant to comply with regulations that may hinder their profitability, while on the other hand, face the threat of severe fines for non-compliance. Somehow predictably, when granted broad latitude to reshape their operations to comply with the DMA, gatekeepers often propose remedies designed to formally meet the ambiguous regulatory criteria while effectively maintaining the status quo.

#### What Can Still Be Improved

Despite the potential benefits of the Digital Markets Act (DMA) in harmonizing regulations across the EU, several challenges remain that could hinder its effectiveness. These issues stem from the complexity of implementation, regulatory overlaps, and inherent ambiguities within the DMA itself. Addressing these shortcomings is crucial to ensure that the DMA achieves its intended goals of fairness and contestability in digital markets while minimizing confusion for businesses and regulatory bodies. Below, we identify key areas for improvement.

#### The DMA Does Not Eliminate Fragmentation

The DMA expressly aims to improve the internal market by aligning divergent national laws and removing obstacles to providing and receiving services. Its rules are intended to create a harmonized legal framework at the Union level, benefiting the Union's economy and consumers. This is why the DMA centralizes implementation and enforcement at the EU level, rather than relying on the traditional decentralized or parallel antitrust enforcement at the national level.

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However, under its Articles 1(5) and 1(6), the DMA does not preclude the possibility of applying EU competition law to gatekeepers as long as it does not undermine the enforcement of the DMA; nor does it prevent national competition laws and other national laws, such as those addressing the abuse of economic dependence, from being applied. As a result, the risk of fragmentation remains. Specifically, this regulatory overlap could subject a gatekeeper to cumulative proceedings, facing several risks and costs: (i) increased compliance costs due to different sets of national regulatory requirements; (ii) multiple proceedings and the coordination costs they entail; (iii) conflicting decisions; and (iv) double jeopardy.<sup>83</sup>

## POLICY RECOMMENDATION

Reducing fragmentation can be achieved in several ways, such as giving the Commission exclusive authority to oversee gatekeepers or using a staggered enforcement system. In this latter system, national authorities would gain the power to enforce the DMA after an initial period of, for example, five years, during which the Commission acts as the sole enforcer. This approach is similar to the past enforcement of Article 101(3) of the TFEU, where the Commission temporarily held exclusive powers until its interpretation of the law became clear and consistent enough for national authorities to apply it. Ideally, the choice among these options should be guided by a cost-benefit analysis.

Exclusive enforcement by the Commission as a possible solution may risk neglecting smaller, regional market issues where gatekeepers may act differently based on local market dynamics. For instance, a gatekeeper might use its EU-wide dominance in the e-commerce market to implement exclusivity agreements in a smaller Member State, where local businesses are disproportionately dependent on its platform due to limited alternatives (while the gatekeeper's designation stems from its influence across multiple Member States, its practices can still disproportionately impact smaller or less competitive markets, highlighting the need for regional responsiveness in enforcement). While such practices could significantly harm local competition and consumers, the Commission might prioritize broader EU-wide or cross-border cases, delaying necessary intervention in the regional market. This delay could leave smaller businesses and consumers vulnerable to prolonged anti-competitive practices, disproportionately impacting them on specific Member States.

To address these side effects while maintaining the essence of the recommendation, the proposal could be refined to ensure exclusive Commission authority for DMA enforcement, supported by formalized collaboration with NCAs. For example, NCAs could assist by identifying region-specific concerns such as restrictive agreements

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<sup>83</sup> [G. Colangelo, \*The European Digital Markets Act and Antitrust Enforcement: A Liaison Dangereuse\* \(May 19, 2022\), ICLE White Paper](#)

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targeting small markets or localized anti-competitive behavior, which might otherwise be overlooked. NCAs could also conduct preliminary investigations under the Commission's guidance, providing essential local expertise while leaving ultimate enforcement and decision-making to the Commission. This arrangement ensures that gatekeepers face a single, harmonized enforcement regime while addressing the unique challenges posed by regional market dynamics.

#### **Asymmetry of Information Could Hinder DMA Enforcement**

A significant challenge to enforcing the DMA effectively lies in the asymmetry of information between gatekeepers and other stakeholders, including regulators, smaller businesses, and technical experts. Gatekeepers possess deep knowledge of their internal systems, data flows, and technical capabilities, giving them a strategic advantage when interpreting or resisting regulatory requirements. This asymmetry makes it difficult for regulators to determine whether a gatekeeper's claim of technical infeasibility is genuine or a tactic to avoid compliance due to economic inconvenience.

To address this, the Commission should enhance its access to independent technical expertise and create mechanisms for real-world testing of DMA obligations. Regulatory sandboxes can provide a controlled environment where new obligations can be tested and evaluated in collaboration with various stakeholders, allowing regulators to verify technical feasibility, assess potential impacts, and refine compliance strategies before full-scale implementation. Such measures would improve enforcement reliability and ensure that technological and economic claims are objectively assessed.

### POLICY RECOMMENDATION

The European Commission should address the asymmetry of information between gatekeepers and regulators by establishing independent technical advisory bodies and developing regulatory sandboxes to test DMA obligations, ensuring enforcement is based on objective, verifiable assessments of technological feasibility

#### **Some Ambiguity Remains**

Additionally, the DMA does not eliminate the inherent ambiguity in legal rules, which can lead to uncertainty arising from different interpretations of its wording, as well as practical problems related to the implementation of its rules. This was a major theme that emerged during the workshop held at Bocconi University on June 26<sup>th</sup> to develop ideas for the present chapter and where representatives of both platforms and SMEs involved in the tech sectors expressed their views. For the latter, in particular, the DMA rules and the possibilities that it opens for their business remain largely untapped due to ambiguities in their concrete application. Apple serves as a clear case study

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illustrating this regulatory ambiguity and the potential conflicts between the DMA and antitrust law.<sup>84</sup>

In theory, the DMA allows third parties to compete with Apple's App Store. However, in practice, competition is restricted by the demanding conditions<sup>85</sup> set by Apple in its compliance proposal released in March 2024. The solution adopted by Apple imposes substantial costs on both potential competitors wishing to establish their own stores and app developers looking to join different stores. The conditions can be viewed as a de facto non-compliance with the DMA, and the Commission has started an investigation into them. In this case, the Commission must meticulously review Apple's proposed compliance plan to ensure it promotes contestability and fairness. Simultaneously, it must ensure that Apple's behavior, even if compliant with the DMA, does not violate antitrust laws. These two assessments are interconnected but distinct in terms of both scope and methods. The uncertainty surrounding these evaluations poses a risk to investment decisions not only for Apple but also for potential competing app stores and app developers.<sup>86</sup>

## POLICY RECOMMENDATION

Develop transparent rules for "sandboxes" where gatekeepers and regulators can collaboratively interact to implement pilot solutions for systems that need to comply with the DMA. It is crucial that third parties, including businesses operating on the platforms and vetted entities (identified, for instance, along the lines of Article 40 of the DSA), have access to the results of these sandbox initiatives.

### **Awareness About DMA Benefits Must Be Increased**

Industry consultations have revealed two additional key concerns regarding the DMA's impact. First, many firms still have limited awareness of the benefits the DMA aims to deliver, particularly in terms of fostering a more competitive and open digital ecosystem. Second, there is widespread skepticism about the effective implementation of the DMA, with companies drawing parallels to the incomplete and inconsistent enforcement of the General Data Protection Regulation (GDPR).

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<sup>84</sup> Cremer, Heidhues, Schnitzer, Scott Morton, 2024. *Apple's exclusionary app store scheme: an existential moment for Digital Markets Act*.

<sup>85</sup> Core Technology Fee: every app (except non-profit or gov. apps) with more than a million users, that choose to be available on other app stores too, will pay a 0.50\$ fee per use per year.

<sup>86</sup> See [MacCarthy, 2024. \*Overseeing app stores to promote competition in the Digital Markets Act\*. Brookings](#)

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To address these concerns, the European Commission must take decisive action to enforce the DMA consistently and rigorously, as prescribed by the rule of law. Strong and visible enforcement is critical not only to build trust in the regulatory framework but also to spread awareness of the DMA's potential benefits across the industry.

#### POLICY RECOMMENDATION

The European Commission should prioritize consistent enforcement of the DMA to build trust, while launching targeted awareness campaigns to inform businesses about the regulation's benefits and opportunities

#### **DMA Lacks Some Transparency**

Another concern is the lack of transparency of the DMA text. In addition to the intrinsic complexity of a system currently subject to both EU and Member State overlapping regulations, the ambiguity of both the DMA wording and the functioning of the platform systems contributes to unjustified complexities.

#### POLICY RECOMMENDATION

Instead of grouping the practices listed in Articles 5, 6, and 7 as prohibitions and obligations, the content of the DMA could be reorganized systematically based on their goals, thereby enhancing clarity and understanding.

Reorganizing the DMA by goals rather than grouping Articles 5, 6, and 7 as prohibitions and obligations clearly has the potential side effect of creating cross-referencing issues. Currently, related rules are grouped together in a way that allows stakeholders to view all relevant provisions in one place, such as those related to interoperability. However, a goal-based structure might fragment these provisions across different sections based on objectives like fairness, contestability, or lock-in reduction. Careful design of the revised structure of the rules should aim at limiting this risk.

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### Gatekeepers Could Pass Costs to Small Businesses

Although the Digital Markets Act (DMA) formally imposes obligations on gatekeepers, there is a significant risk that these regulatory costs may be shared with – or even passed on to – smaller businesses operating on their platforms. This "cost pass-through" effect requires close monitoring by regulators. For instance, during our consultations with various business operators active in digital advertising, it was noted that some gatekeepers had already communicated to smaller advertisers that they would need to modify their data flows and system integrations to comply with new DMA-driven processes. Failure to do so could result in these businesses being unable to continue operating on the platform.

To prevent such unintended consequences, it is essential that the European Commission actively tracks this phenomenon and takes steps to mitigate its impact. A targeted policy recommendation could focus on mechanisms to determine whether gatekeepers genuinely require the collaboration of small businesses to restructure information flows, rather than being able to do so independently. Additionally, policies should support smaller players in adapting to these regulatory changes, thereby ensuring that compliance requirements do not inadvertently lead to higher costs for small businesses or their exclusion from the market.

## POLICY RECOMMENDATION

Policy Recommendation: The European Commission should establish a mechanism to monitor whether and to what extent gatekeepers pass DMA-related compliance costs onto smaller businesses. To support these businesses in complying with regulatory changes, the Commission could provide targeted assistance—such as technical support, standardized compliance guidelines, and transitional funding—financed through revenues generated from fines imposed on gatekeepers for non-compliance with DMA obligations.

## SPECIFIC CORE PLATFORM SERVICES

In this section, we will focus on four core platform services that have long been under the scrutiny of the European Commission and have been involved in some of the most significant EU competition cases. The four core platform services we will examine are:

1. **Digital Advertising:** The primary business of Google and Meta, also a significant revenue source for Amazon.
2. **Internet Search:** A market largely dominated by Google.
3. **Intermediation:** This encompasses services such as Apple's App Store, Google Play Store, Amazon and Meta Marketplaces, and popular services like Google Maps and Google Shopping.

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- 4. Social Media and Number-Independent Interpersonal Communication Services (NI-ICS):** This includes Facebook, Instagram and widely used communication apps such as Meta's Messenger and WhatsApp.

For each service, we will provide a brief quantitative characterization of the market, where applicable, followed by a technical analysis of the associated DMA rules and potential areas for policy intervention.

#### Transformations in Digital Advertising

Digital advertising is one of the main financial engines of the entire tech sector. The DMA includes robust provisions aimed at enhancing transparency within this sector, which, combined with the related regulations introduced by the Digital Services Act (DSA), may significantly transform a field historically characterized by opaque methods of revenue generation and allocation.

#### An Overview of the Digital Advertising Market

Table II.1 below presents statistics for the top ten firms by revenue in the global digital advertising market, valued at \$545 billion in 2023 (*Visible Alpha*). The table highlights the dominance of Alphabet, primarily driven by Google's leading position in both search and display advertising, as well as YouTube's prominence in video advertising.

Similarly, Meta holds a dominant position in social media advertising through its platforms, Facebook and Instagram. Notably, the information in the second column underscores the absence of any EU-based firms in the top ranks, with Alphabet and Meta leading the way in their respective areas.

**Table II.1**  
**Market Shares (2023)**

Company	Country	% of Total Ad Revenue	Ads Revenue (Billion USD)
Alphabet	USA	42.4	231
Meta Platforms	USA	22.7	124
Amazon	USA	8.8	48
Alibaba	China	5.8	32
PDD Holdings	China	3.6	20
Tencent	China	2.7	15
Microsoft	USA	2.3	13

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<b>Baidu</b>	China	2.1	11
<b>JD.com (JingDong)</b>	China	1.8	10
<b>Kuaishou</b>	China	1.7	9

*Notes: Data are forecasts for the year 2023. Source: elaboration from [Visible Alpha](#)*

Next, Table II.2 illustrates the rapid growth of revenues in the digital advertising sector. Although digital advertising can be regarded as a relatively mature industry, its growth remains remarkable.



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**Table II.2:**  
**Google, Amazon and Meta Revenues from Digital Advertising**

Year	Google Ad Revenue (Billion USD)	Growth	Meta Ad Revenue (Billion USD)	Growth	Amazon Ad Revenue (Billion USD)	Growth
2019	135	-	70	-	13	-
2020	147	9	84	21%	18	38%
2021	209	43	116	37%	31	77%
2022	224	7	114	-2%	38	21%
2023	238	6	132	16%	47	24%

Source: Elaboration from Visible Alpha for years from 2019 to 2022; data for 2023 from company statements for [Amazon](#), [Meta](#) and [Alphabet](#)

Finally, Table II.3 highlights the EU market for digital advertising, presenting both its current size and growth over the past six years. The EU market accounts for approximately 10% of the global market in terms of ad spending, with a total value reaching \$63 billion in 2023.

**Table II.3**  
**Trend in Digital Advertising Spending**

Year	Ad Spending EU27 (Billion USD)	Ad Spending (% on world spending)	Social Media Ad Spending EU 27 (Billion USD)	Social Media Ad Spending (% on world spending)	General Ad Spending Growth EU27 (%)	Social Media Ad Spending Growth EU27(%)
2018	32.9	10.8	7.4	10.1	19.7	35.4
2019	37.6	10.3	9.2	9.4	14.3	24
2020	42.1	9.7	11.6	8.7	12.0	25.9
2021	53.1	9.3	15.0	8.3	26.2	29.5
2022	57.8	9.4	15.9	8.4	8.7	5.6
2023	63.0	9.3	17.2	8.3	9.0	8.2

Notes: data for EU27 countries. Source: elaboration from Statista

### EU Fragmented Regulation for the Digital Advertising Market

The relevant provisions in the DMA on digital advertising are Articles 5(9), 5(10), and 6(8), which aim to ensure the contestability of advertising services. These articles

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enable businesses and users to verify the quality and effectiveness of gatekeepers' advertising services through gatekeepers' performance measurement tools. Previously, the digital advertising market was characterized by significant opacity in revenue generation and allocation.

To understand the impact of the DMA on digital advertising, it is crucial to recognize two interconnected trends currently transforming the landscape. First, data flows from platforms to sellers and advertisers are becoming increasingly fragmented. Second, AI algorithms (AIAs) are progressively being utilized for pricing and other economic determinations, particularly in bidding for online advertising auctions. As a result of these trends, there is a growing need for advertisers to access detailed information about the ad market, particularly competitors' bids.

The DMA addresses this need by mandating that ad platforms disclose specific data to advertisers. Key disclosure requirements include:

- Daily, free information on each advertisement, detailing prices, fees, deductions, and surcharges for each online advertising service.
- Publisher remuneration information, including deductions and surcharges (with consent).
- Daily average remuneration details (no consent needed).
- The basis for calculating prices, fees, and remuneration.
- Access to performance measurement tools and data, both aggregated and non-aggregated, allowing advertisers to verify and measure ad effectiveness.

However, the DMA is not the only regulation affecting digital advertising in the EU. The fragmented nature of EU legislation governing online advertising spans the GDPR, e-Privacy Directive, DMA, DSA, and other sectoral rules. This has created significant regulatory complexity and enforcement challenges. While the DSA's prohibition of dark patterns<sup>87</sup> and restrictions on personalized advertising based on sensitive data are positive steps, broader safeguards are essential. The increasing use of AI in advertising amplifies the potential for manipulative practices, and environments where consumer data is leveraged without clear safeguards pose risks of harm and market distortions. This needs to be explicitly addressed by the DMA rules; paradoxically, limiting gatekeepers' ability to intervene may aid the most malicious actors. These considerations lead to the following policy recommendation.

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<sup>87</sup> Dark patterns in web design are deceptive user interface techniques used to manipulate or trick users into taking actions they might not intend, such as making a purchase, sharing more data, or signing up for services.

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#### POLICY RECOMMENDATION

Establish a unified regulatory framework specifically targeting digital advertising. This framework should encompass consumer rights, data protection, transparency standards, and fair competition principles, ensuring that all stakeholders are subject to a consistent set of rules. Such harmonization would reduce legal uncertainty and streamline compliance for businesses across the EU. Additionally, the scope of the DMA and DSA should be expanded to include more robust protections against manipulative advertising practices, particularly those enabled by AI.

#### **Transparency in Digital Advertising**

The requirement for digital platforms to provide data fairly and transparently to all advertisers, without favoring some over others, could significantly stimulate the development of the EU digital advertising sector. However, this raises questions about the technical feasibility of implementation. Some argue that if guaranteeing identical data flow proves unfeasible, a potential solution could be to eliminate data access altogether for all advertisers, thereby removing the risk of discrimination. While this approach may sound counterintuitive, it aims to achieve the same goal as the DMA's access obligations – fostering fair competition and creating a more transparent market environment.

Furthermore, the DMA's ad transparency obligations are significantly bolstered by various provisions, both within the DMA itself and in other regulations. Notably, the DMA includes rules that limit data portability across services. Additionally, the Digital Services Act (DSA) plays a crucial role, particularly with its requirements for publicly accessible ad repositories and restrictions on targeting ads involving minors and other sensitive data. These limitations on targeting represent a fundamental shift in the data flows that have traditionally made digital advertising more effective than its traditional media counterparts. They lead to a decrease in granular data usage and promote contextual advertising over personalized advertising, particularly due to reduced data transfers across different services within gatekeepers.

It is also essential to ensure that the data shared among competing companies as a result of these obligations does not inadvertently facilitate collusion, thereby harming competition.

Overall, transparency in digital advertising has the potential to induce significant systemic effects. Whenever advertisers and publishers become aware of substantial differences in ad effectiveness across platforms, they may react by reallocating their marketing budgets towards the most effective channels. We plan to conduct a thorough analysis of the expected evolutions in the digital advertising market.

### POLICY RECOMMENDATION

Mandate standardized, effective transparency obligations across all large platforms. This should include real-time access to key data metrics (such as ad performance and competitor bidding data) for advertisers and third parties as well as unrestricted visibility of all targeting parameters available to the platform. Additionally, allow advertisers and their intermediaries to effectively use such targeting information in their campaigns.

#### **AI Bidders in Digital Advertising**

The digital advertising market operates through auctions, where publishers sell ad space to advertisers. Increasingly, advertisers are relying on AI algorithms to optimize their bidding strategies in these auctions. According to Decarolis et al. (2024), platforms hosting the auctions, such as Google Ads, earn higher revenues when they provide less data to the bidding algorithms. Generally, the performance of AI algorithms improves with increased data availability. When AI-driven bidding tools are provided with ample data, they can secure ad space at lower prices. Conversely, when platforms restrict data access, the performance of these algorithms suffers, leading to higher prices for ad space.

Data availability is even more concerning when platforms like Google develop proprietary AI bidding tools such as Performance Max. These proprietary tools are trained on superior datasets compared to what is available to competitors, giving them an advantage. This disparity drives intermediaries out of the market, as platform-sponsored AI tools outperform third-party systems, prompting advertisers and publishers to bypass intermediaries and work directly with the platforms.

The above cited study also finds that the choice of the auction format influences the level of auctioneer's revenues. These insights suggest that the informational environment and auction design play crucial roles in shaping the strategic behavior and performance of AIAs in digital advertising auctions. Finally, the presence of lock-in effects – dependencies created by proprietary tools and superior datasets that make switching platforms difficult – should be addressed. Ensuring a level playing field requires that AI tools used in advertising be interoperable and subject to oversight to prevent anti-competitive practices.

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#### POLICY RECOMMENDATION

Establish interoperability standards for AI systems used in digital advertising. Platforms should be required to provide APIs or data interfaces that enable advertisers to seamlessly transfer data and algorithms between systems.

#### A Practical Example of Scarce Coordination: The Google Case

An additional crucial element to highlight is the need for coordination between the DMA and antitrust interventions within the same domain. While we have discussed this issue generally, it is particularly relevant in the advertising sector, where the Commission is currently investigating Google for allegedly abusing its dominant position in the digital advertising market (under Article 102 of the TFEU). The investigation may lead to a decision requiring the breakup of certain parts of Google's operations.

The investigation focuses on three key segments of the advertising ecosystem:

1. **Publisher Ad Servers:** Tools that publishers use to manage ad spaces on their websites and apps.
2. **Ad Buying Tools:** Platforms that advertisers use to manage their automated ad campaigns.
3. **Ad Exchanges:** Platforms where publishers and advertisers connect in real-time, often through auctions, to trade display ads.

Specifically, Google provides:

1. Google Ads and DV 360 (ad buying tools),
2. DoubleClick For Publishers (DFP) (a publisher and ad server),
3. AdX (an ad exchange).

Google, which dominates the first two segments, is accused of abusing its position by favoring its AdX exchange in two key ways. First, by using DFP to provide ADX with more data than competitors, abusively enhancing its performance. Second, by placing bids of Google Ads and DV 360 mainly to AdX, making it the most attractive ad exchange.

In its preliminary findings, the Commission has suggested that due to the inherent conflict of interest, a behavioral remedy would likely be ineffective. Instead, a mandatory divestment of part of Google's services may be necessary to address competition concerns. However, it remains unclear how compliance with the DMA could impact the ongoing antitrust case against Google.

### POLICY RECOMMENDATION

Define clear criteria for implementing antitrust remedies that affect gatekeepers' operations that are also subject to the DMA.

#### **Internet Search: is a Choice Screen an Effective Regulation?**

The dominance of a few key players in the internet search market, particularly Google, has prompted regulators worldwide to consider interventions that promote competition. As a critical gateway to the web, search engines play a pivotal role in shaping how information is accessed and how advertising revenues are distributed. This chapter explores whether implementing "choice screens" – which allow users to select their preferred default search engine – is an effective regulatory tool for addressing market concentration, particularly in the context of the EU's Digital Markets Act (DMA).

#### **An overview of Internet search**

Over the past few decades, Google has nearly monopolized the search engine market, to the point where "search" has become synonymous with "Google." This is particularly true in Europe, where in 2024, Google held an overwhelming 91% market share across all devices.

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**Table II.4**  
**Major Search Engines**

Search Engine	Country of Origin	Market Share (Aug 2024)	Annual Revenue	Key Investments	Partnerships
<b>Google</b>	USA	91.22%	\$279.8 billion (2022) (Total Revenue)	\$200 million 'GoBig' initiative	N/A
<b>Bing</b>	USA	3.64%	Not publicly disclosed	Privacy-focused and AI investments	Yahoo, DuckDuckGo
<b>Yandex</b>	Russia	2.85%	356 billion Rubles (\$6.74 billion, 2021)	AI and localized search technology	N/A
<b>Yahoo!</b>	USA	0,92%	\$5 Billion (2021) (Total Revenue)	Content delivery and Ad tech	Bing
<b>Baidu</b>	China	0.01% (0.76% globally)	Not publicly disclosed	AI, mobile integration, autonomous driving	Smartphone manufacturers in China
<b>DuckDuckGo</b>	USA	0.64%	\$100 million (2022)	Privacy and ethical search	Bing

*Notes: The market share data are related to Europe and for search across all types of devices.*

*Source: Statcounter.*

Table II.5 shows how the dominance is even more pronounced in mobile search, where Google’s share reached nearly 97% in 2023. Bing, while more successful on desktops due to its integration with Microsoft’s operating system and browser, had only a 0.5% share on mobile.

In the mobile market, Yandex has been able to expand its market share in Turkey thanks to a ruling by the Turkish competition authority<sup>88</sup> and across many Eastern European countries through its investments in this area. Similarly, DuckDuckGo has carved out a niche by positioning itself as a privacy-conscious alternative to Google.

**Table II.5  
Mobile Search Market Share (2023)**

Search Engine	Market Share
<b>Google</b>	96.6%
<b>Yandex</b>	1.7%
<b>Bing</b>	0.5%
<b>DuckDuckGo</b>	0.4%
<b>Yahoo!</b>	0.4%
<b>Ecosia</b>	0.2%
<b>Seznam</b>	0.1%
<b>Petal Search</b>	0.03%
<b>Qwant</b>	0.02%
<b>Other</b>	0.04%

*Notes: Data for “Europe”, for searches on Mobile.  
Sources: Statcounter.*

The web browser market is closely tied to search, as browsers are a primary gateway to search engines. While Alphabet’s Chrome leads this market too – as shown in Table II.6 – there is slightly more competition, with Safari and Firefox each holding more than 5% market share. The market for web browsers is intrinsically connected to that of search.

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<sup>88</sup> The Turkish competition authority in 2018 blocked Google from entering in revenue sharing agreements with mobile devices manufacturers in order to preinstall Google Search as default search engine.



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**Table II.6**  
**Market Shares of the Web Browsers**

Web Browser	StatCounter Data (2020-2022)	Cloudflare Data (2023)	Similarweb Data (October 2023)
Chrome	60%	59%	60%
Safari	20%	16%	23%
Firefox	6.4%	9.1%	5.4%
Edge	3.9%	5.6%	5.8%

Notes: Data is for all devices. Source: European Commission ([Microsoft Edge Case](#)). The commission uses: Statcounter data for "Europe". Cloudflare and Similarweb data for European Union.

#### Choice screens and the DMA Regulation of Internet Search

The DMA regulations for search engines and browsers build on the European Commission's antitrust experience. The antitrust case *Google Android*<sup>89</sup> is an example in this sense. In 2020, Google was found guilty of illegally tying its operating system to its search engine, and as part of the remedy, was required to present users with a "choice screen" to select their preferred search engine when activating Android devices.

This antitrust remedy has since been formalized in the DMA through Article 6(3), requiring all gatekeepers to provide such a choice screen. Additionally, Article 6(5), which addresses self-preferencing, specifically targets search engines but also applies to other digital services.

However, the design of these choice screens has proven to be a crucial determinant of the remedy efficacy. Research and real-world experience show that choice screen effectiveness depends on factors like how and when users are prompted to choose their search engine or browser, and whether default settings are easy to change. The European Commission seems to have endorsed this approach by treating differently the choice screens implemented by the gatekeepers and beginning an infringement procedure against Apple but not Google, based on how their respective browser choice screens were implemented.

#### The Consumer Bias Issue

Many DMA obligations, including Article 6(3), rest on the assumption that consumers will make informed choices about which services to use, as the EU Court of Justice has affirmed. However, the DMA does not fully account for the impact of consumer biases. Default settings, for instance, exploit consumers' tendency to stick with the options presented to them, even in the presence of alternatives. The use of preset default

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<sup>89</sup> See the [Google Android case](#)

options is based on the belief that consumers are biased and tend to choose the option that is given to them out of convenience.

Recent antitrust cases, including Google Android and Booking/eTraveli, highlight concerns about consumers' status quo bias and inertia. The European Commission argued that these biases allow dominant players to maintain their market power without necessarily offering superior services. The case against Booking, for example, revealed how consumer inertia allowed it to leverage its strong brand to dominate the market, rather than through better prices or quality.

Such biases can limit the effectiveness of remedies like choice screens. Even if consumers are aware of alternatives, they may not switch from gatekeepers' services out of habit or convenience. This could mean that more intrusive measures are needed to foster real competition.

### **The Google Case: A Turkish Alternative to Choice Screens**

For years, Google has paid mobile manufacturers to set its search engine as the default option. Given that users, influenced by behavioral biases, often do not change their default settings, these agreements have raised significant competitive concerns. The fact that Android, owned by Google and the world's most widely used mobile operating system, allows the company to wield considerable negotiating power over manufacturers is troubling. Additionally, Google Search near-monopoly in many countries – including of course the EU – restricts competitors from gaining traction. As a result, competition authorities worldwide have sought to curtail these practices, yielding mixed results. One noteworthy approach is the remedy enacted by the Turkish competition authority, which we will examine in detail.

### **An Academic Perspective on the Turkish Remedy**

Economic literature has examined consumer bias in the context of choice screens. For instance, research by Decarolis, Li, and Paternollo (2024) indicates that the introduction of the choice screen in the EU had a minimal impact on Google's market share. However, the study also highlights that remedies implemented in other countries have successfully reduced monopolistic market shares.

The Turkish Competition Authority took a more aggressive stance, imposing restrictions on contracts between Google and mobile manufacturers that prohibited revenue-sharing agreements with Google (but not with its rivals). This led manufacturers, particularly Huawei, to adopt Yandex as their default search engine, significantly reducing Google's market share and benefiting Yandex. Nonetheless, it is challenging to determine whether this approach was more beneficial to consumers than the EU's choice screen since, following the EU's decision, Google invested €200 million to enhance its services in the region – the so called "Go Big in Europe" strategic plan.

Moreover, the analysis of the past interventions has revealed that the presence of viable competitors is crucial for prompting users to select alternatives in the choice

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screen. In the past, Yandex has been a major beneficiary of these interventions. But under the DMA and its implied stabilization of the choice screen system, the emergence of new, high-quality competitors might be encouraged. This is particularly critical because, at a time of intense geopolitical tensions, it is self-evident that careful consideration should be paid to which players would emerge as winners from a regulatory intervention curbing Google's dominant position and strong rivals to Google like Russia's Yandex or China's Baidu might pose concerns falling outside the realm that can be addressed by the DMA rules.

#### **Applicability of the Turkish Remedy in the EU**

We must discuss whether the Turkey's remedy and general rules reproducing it could be viable in different markets other than that for search engines and whether they are compatible with EU legal principles.

To develop this analysis, we must consider the core of the Turkey's remedy: by prohibiting Google from entering into revenue-sharing agreements with mobile device manufacturers, the Turkish competition authority effectively compelled Google to reduce the attractiveness of its commercial offerings. This measure, in turn, incentivized manufacturers to view the offers of Google's rivals as comparatively more lucrative, thereby encouraging them to shift towards those competitors. Such a measure raises several questions in terms of compatibility with the EU norms which we summarize below.

Firstly, it must be considered that antitrust remedies imposed by the European Commission must be *proportionate* and *necessary*.<sup>90</sup> Necessity requires that the remedy must effectively eliminate the consequences of unlawful behavior, in addition to halting the conduct itself. Proportionality requires that, when multiple measures are suitable for the purpose, the least burdensome option must be chosen, ensuring that the disadvantages caused by the remedy are not disproportionate to the aims pursued. Since the Turkish remedy is tailored to address the behavioral biases of consumers, it is reasonable to consider that this remedy would be deemed both necessary and proportionate.

Secondly, another issue is whether a remedy that objectively restricts a company's economic activity can address a situation – namely, the behavioral bias of digital consumers – that lies beyond the company's control. One could argue that the issue arises from natural market phenomenon and that no responsibility can be put on the company, except for having exploited it. From this perspective, it is questionable whether the “Turkish remedy” could have been adopted in the EU.<sup>91</sup> However, the regulatory landscape that emerged from the DMA seems compatible with the Turkish remedy. Indeed, all the DMA rules are based on a common premise: that the goals of digital market contestability and the necessity of counterbalancing consumer bias can justify the restriction of gatekeepers' economic freedom.

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<sup>90</sup> See Article 7 of Regulation 1/2003

<sup>91</sup> See Article 7 of Regulation 1/2003

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Thirdly, beyond legitimacy issues, one might ask a more general question: whether requiring companies to diminish their attractiveness to facilitate rivals' competitiveness serves the interests of consumer welfare and economic growth. In this regard, one could argue that this intrusive approach, though at the expense of short-term consumer welfare, could ultimately benefit long-term economic growth. In our view, the solution to this apparent conflict of values and ideals lies precisely in the Turkish remedy. While it is true that the Turkish competition authority required Google to become less attractive to mobile device manufacturers, it did so by prohibiting Google from entering into revenue-sharing agreements with them – that is, it required Google to stop paying manufacturers to strike deals with it! In this way, the Turkish authority limited Google's attractiveness, but not one based on the efficiency or quality of Google's products and services. Instead, it targeted an attractiveness rooted in Google's liquidity and superior financial power.

In the short term, big tech services quality could decrease due to the new regulation, but over the long term we can expect them to benefit from higher competition. The DMA could spur innovation if lawmakers focus on sectors dominated by gatekeepers rather than newer industries. The search engine market, being well-established, could benefit from innovation, but as the study of *Google Android* and related cases reveals this depends on a series of factors, but this is contingent upon several factors, including regulatory design and local competitors.

## POLICY RECOMMENDATION

Introduce a general rule within the DMA requiring gatekeepers to reduce the attractiveness of their offerings when this attractiveness stems from factors other than efficiency or innovation. This rule should aim to make competitors' offerings comparatively more appealing, targeting behaviors that enhance gatekeepers' attractiveness not due to competitive merits (such as efficiency gains or quality improvements) but due to their ability to share monopoly profits with partners. This could be termed the "Monopoly Rent Can't Buy Consent" rule.

Clearly, this recommendation should also include provisions for close monitoring of rapidly growing entrants, allowing regulators to address anti-competitive practices even before these companies qualify as gatekeepers under the DMA.

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#### Intermediation: Self-Preferencing in Online Marketplaces

Self-preferencing in online marketplaces represents a significant regulatory concern within the framework of the Digital Markets Act (DMA). This practice, which refers to the preferential treatment of a platform's own products or services, has gained attention as the DMA incorporates elements from antitrust remedies.<sup>92</sup> However, self-preferencing is a broad concept encompassing various behaviors, and there is no universally accepted definition, even within EU antitrust cases.

#### An Overview of Self-Preferencing

Traditionally, self-preferencing has been understood to include scenarios where platforms provide preferential treatment to their own products, such as the prominent display of Google Shopping results at the top of Google Search results or the visibility given to Amazon's own label brands within its marketplace. It also extends to preferences granted to businesses that utilize ancillary services provided by the platform, such as the favorable treatment of sellers who use Amazon's logistics services.

In particular, the first usage of the term self-preferencing in the EU antitrust cases dates back to the 2017 Google Shopping case, where the term was used to denote a favorable ranking of Google Shopping outcomes on the Google search engine. Table II.7 reports some data on Google Shopping which shows how relevant this service still is on Google search, despite the successful antitrust case by the EC in 2017 to limit the potential for abusive self-preferencing.

**Table II.7**  
**Data on Google Shopping**

Metric	Value
Google Shopping Ad Revenue (2020)	\$96 billion

<sup>92</sup> DMA rules here reproduce word by word the commitments in the EC *Amazon* case. See article 6(5): "The gatekeeper shall not treat more favorably, in ranking and related indexing and crawling, services and products offered by the gatekeeper itself than similar services or products of a third party. The gatekeeper shall apply transparent, fair and non-discriminatory conditions to such ranking and related indexing and crawling." Interestingly, this article if taken literally does not appear to cover all of the different types of self-preferencing behaviors that recent antitrust cases have pursued. See the EC [Amazon Case](#) and other related cases are the EU *Google Shopping* case, the Italian Amazon case and the French *Google Ad Stack* case. However, the definition of ranking in Article 2 of the DMA is so broad that Article 6(5) could apply to any gatekeeper, no matter their business model. This means that even if they operate a marketplace, the rule applies as long as they give their own products or services preferential treatment – «relative prominence» – over those of third parties. Additionally, it's important to clarify that the prohibition on self-preferencing covers both scenarios: when the preferential treatment is aimed at a final product made by the gatekeeper (such as Amazon Basics) to win over consumers, and when it's aimed at an intermediate or complementary product of the gatekeeper (such as Amazon Logistics) to gain favor with business users.

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Google Shopping Ad Revenue Share (Q3 2021)	42% of total Google ad revenue
Google Shopping Click Share (Q3 2021)	63% of all Google ad clicks
Average Cost-Per-Click (CPC) in 2020	\$0.66
Retail Search Ad Spend Share	76% of retail search ad spend
Google Shopping Ad performance	34% more often than regular text ads

*Notes: Data at a global level. Sources: [Gitnux](#), [Zipdo](#).*

### Self-Preferencing Many Forms: The Case of Amazon

Self-preferencing can manifest in various ways, and there is currently no universally accepted definition for it. To highlight the complexity of defining self-preferencing, Table II.8 draws on the Amazon case in Europe, summarizing some of the alleged advantages considered self-preferencing in this instance.

Amazon has faced numerous accusations of self-preferencing. In 2020, the European Commission preliminarily identified Amazon as dominant in the French and German online marketplace services markets. It found that Amazon’s use of sellers’ confidential data unfairly distorted competition. At the same time, the Commission launched another investigation into Amazon’s criteria for selecting the Buy Box winner and determining eligibility for its Prime Program. These practices were suspected of favoring Amazon’s retail business and sellers using its logistics services. The preliminary findings suggested Amazon abused its dominance in the French, German, and Spanish markets by giving preference to its own retail and logistics services.

As Table II.8 shows, many of these alleged advantages are difficult to measure, as they rely on non-public data. Some would even require insight into the platform’s ranking algorithms to be properly assessed.

The situation is further complicated because, in certain cases, even knowing how the algorithm works may not be enough. The algorithms use parameters (like the seller’s price), which can be influenced by the flow of data transmitted by the platform to the sellers. This means that even seemingly objective criteria may be subject to manipulation or distortion, as they can be influenced by data provided by the platform itself.

**Table II.8**  
**Amazon FBA Advantage Data**

Advantage Type	Advantage for FBA Sellers	Disadvantage for Non-FBA Sellers (FBM)	Relevant Data
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Non-application of performance metrics to third-party sellers	FBA sellers not subject to certain performance metrics, giving them an advantage	FBM sellers must meet restrictive criteria	N/A
Obtaining the Prime Badge	Automatically eligible for Prime Badge	Must qualify through Seller Fulfilled Prime (SFP) program	70% to 90% of Prime user spending associated with Prime offers
Higher probability of being awarded the Buy Box	FBA sellers secure over 80% of the Buy Box	FBM sellers secure less than 20% of the Buy Box	70% to 90% of total Amazon sales in Germany and France occur via the Buy Box
Participation in special events and offers	FBA sellers are more likely to participate in special events and offers	Lower participation in special events and offers	N/A
Eligibility for 'Free Shipping via Amazon'	Automatically eligible for 'Free Shipping via Amazon'	Not automatically eligible for 'Free Shipping via Amazon'	N/A

Source: European Commission ([Amazon Case](#))

To address these concerns and the others summarized in Table II.8, three sets of commitments were adopted: (1) Data Use – Amazon will not utilize non-public seller data from its marketplace for its retail decisions, applicable to both automated tools and personnel. This restriction includes data usage for its branded and private label products; (2) Buy Box Fairness – Amazon committed to equal treatment of all sellers in the Buy Box selection process and to display a second distinct offer if it significantly differs in price or delivery from the winner; (3) Prime Program Equality – Amazon will set impartial criteria for sellers and offers qualifying for Prime, allow sellers to select any carrier for logistics and delivery without interference, and refrain from using any obtained carrier information for its own logistics advantage.

#### Self-Preferencing in the DMA

The DMA establishes clear rules on self-preferencing in Article 6, which closely mirrors the commitments imposed on Amazon in its self-preferencing case. Under Article 6(2), gatekeepers are prohibited from using non-public data from business users for competitive purposes. Article 6(5) specifically bans gatekeepers from prioritizing their own products or services over third-party offerings in rankings, indexing, or crawling. Ranking conditions must be fair, transparent, and non-discriminatory (FRAND). In essence, Article 6(5) aims to prevent gatekeepers from exploiting their control over

platforms to unfairly promote their own products at the expense of market contestability.

In general, marketplaces are becoming ubiquitous in commerce and essential for connecting producers and consumers. The stellar growth in the EU of marketplaces like TEMU or Shein makes the regulation of self-preferencing one of the most impactful areas of the DMA as the potential scope for improper uses of businesses non-public data is continuously growing.<sup>93</sup>

### **Early Applications of DMA Self-Preferencing Prohibition**

DMA Article 6(5) has already been used, or taken into consideration, in two cases. First, the European Commission's investigation into Alphabet examined Google's use of its search engine to promote its services – such as Google Shopping, Google Flights, and Google Hotels – over competitors. These services received more prominent placement in search results, not due to superior quality, but because of self-preferencing and more attractive displays. Google had already been fined €2.4 billion in 2017 for similar practices involving Google Shopping. This fine was upheld by the Court of Justice of the EU in September 2024. Second, has also come under scrutiny, though not officially investigated. The Commission is gathering information on whether Amazon has been ranking its own products higher than competitors in its marketplace search results.

The DMA also has relevant applications in addressing emerging challenges related to the Internet of Things (IoT). For instance, in sectors like automotive technology, recent cases have highlighted potential conflicts between car manufacturers and developers of operating systems for in-car touchscreens. As these screens become larger and more central to the driving experience, car manufacturers—much like mobile phone manufacturers—have partnered with Alphabet and Apple to license Android Auto and Apple CarPlay.

However, bundling these operating systems with key apps, such as navigation tools, and requiring access to the vast amounts of data generated by vehicles has led to tensions. For example, General Motors (GM) recently moved to limit third-party control over in-car infotainment systems in favor of developing its own software, designed for deeper integration with its vehicles.

The DMA, by preventing self-preferencing and requiring vertical interoperability, provides a regulatory framework that ensures business interactions remain fair. This, in turn, promotes competition, encouraging challengers to invest and innovate rather than being disadvantaged by the dominance of gatekeepers.

### **Self-Preferencing in the Economic Theory**

The economic theories developed to understand the effects of self-preferencing distinguish between two different settings. First, in cases like search engines, where

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<sup>93</sup> Remarkably, however, some major marketplaces like TEMU are not covered by the DMA because its business users are based outside the EU, in China, thus making it not clear the designation thresholds at the time of writing.



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there are no commissions on sales, self-preferencing can affect sellers' pricing and investment in quality. Under price competition, the platform-owned firm may charge higher prices, harming third-party sellers and consumers. Under quality competition, the platform chooses higher quality and self-preferencing has ambiguous outcomes for sellers and consumers.<sup>94</sup>

Second, in cases like marketplaces, where platforms charge commissions on sales, self-preferencing can affect commission rates. Some studies argue that platforms have incentives to raise commission rates, leading to higher prices for third-party sellers and consumers (Anderson & Bedre-Defolie 2023). Others suggest the opposite, claiming that platforms may lower commission rates to increase third-party sellers' participation (Etro 2023, Zenny 2022).

Given the importance of online marketplaces for both EU producers and consumers, and the uncertain predictions from economic theory, it's crucial to have timely and systematic assessments of how DMA's self-preferencing rules are impacting the market. We expect different effects depending on the firm's business models. Focusing on Amazon, this firm serves a dual role as a platform: (i) it provides a marketplace where independent sellers can directly sell products to consumers, and (ii) it competes with these sellers by selling products as a retailer in the same marketplace. This dual role grants Amazon unique advantages but also introduces inherent conflicting goals.

#### Open Questions About Self-Preferencing

As we have seen, self-preferencing can be particularly hard to define and detect, and its regulation leaves some open questions. In particular, two interpretative questions about it still need to be resolved.

#### Ancillary Product Definition

The prohibition on self-preferencing, in order to be implemented, requires the ability to distinguish between a gatekeeper's core platform services and the secondary (ancillary) products or services being favored. However, this exercise is often complicated. Consider some examples: In the case of Airbnb, offering professional photography services to hosts seems like an ancillary product. But is an iOS developer's payment system also ancillary? Or consider Amazon's services like logistics, repricing software, or even Amazon Web Services (AWS).<sup>95</sup> Some services, like one-day shipping, are costly and lead to losses, while others, like AWS, generate most of the company's profits.

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<sup>94</sup> See de Cornière & Taylor, 2014, 2019, Burguet, Caminal & Ellman 2015. Bisceglia, M. and J. Tirole (2023). Fair Gatekeeping in Digital Ecosystems. Choi, J. P. and D.-S. Jeon (2021). A Leverage Theory of Tying in Two-Sided Markets with Nonnegative Price Constraints. *American Economic Journal: Microeconomics* 13(1), 283–337.

<sup>95</sup> Amazon Web Services (AWS) is a branch of Amazon offering cloud computing services

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These examples highlight the need for clarity in applying the DMA, particularly in determining which services and products should be classified as ancillary. To prevent treating all of a gatekeeper's offerings as a single entity and to avoid depending on external competitors,<sup>96</sup> we propose the following recommendation.

### POLICY RECOMMENDATION

Define a gatekeeper's ancillary products or services as any product or service that has not been designated as a core platform service.

Clearly, the provision mentioned above should be interpreted broadly to prevent easy circumvention. In addition to ensuring that the gatekeeper does not favor its own products, regulators should also verify that the gatekeeper is not striking preferential deals with specific third-party sellers. For example, when Amazon was sanctioned in India for self-preferencing, it responded by favoring certain sellers with which it had closer relationships, creating a different form of self-preferencing.

#### **Self-Preferencing Rules Application to Ancillary Products**

Suppose the gatekeeper's secondary product or service is genuinely better than that of its competitor. If the criteria governing the mechanism by which the gatekeeper's product or service gains prominence are FRAND, can we rule out the possibility of illegal self-preferencing? If that's the case, the focus should shift to our ability to assess the validity of the criteria used to structure ranking, indexing, crawling, or other mechanisms that grant prominence. There seems to be a genuine trade-off between the ease of applying the rules for the EC and the potential incentive to innovate and improve the quality of its services by the gatekeeper. However, the legislator has already solved this difficult decision when adopting the DMA and it would thus seem only natural to follow this decision by applying a very clear-cut formulation as follows.

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<sup>96</sup> Could the mere existence of third parties offering the secondary product or service be enough of a criterion? From a forward-looking perspective, could the potential for such third parties to emerge also be sufficient?

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#### POLICY RECOMMENDATION

The gatekeeper should be required to apply self-preferencing rules to all its ancillary products and services, as defined earlier, without exception.

### Expanding Interoperability Obligations to Social Media

The DMA treats interoperability standards and social media as two separate sets of issues. In this concluding section we argue why they are intrinsically linked and why applying the horizontal interoperability requirements of the DMA to social media might be a game changer in this market.

#### An Overview of Interoperability

Digital markets are characterized by large network effects, which create high barriers to entry and lead to market-tipping dynamics.<sup>97</sup> Interoperability, defined by the European Commission as “the ability of information systems to exchange data and enable information sharing” is viewed as a necessary (though perhaps not sufficient) remedy to ensure contestability in these markets (Kades & Scott Morton, 2021).

Under interoperability, network effects are no longer confined to incumbents but are shared with new entrants, effectively becoming a public good. This shifts the landscape from platforms competing for the market to platforms competing within the market (Belleflamme & Peitz, 2020).

**Table II.9:**  
**Internet Telecommunications by EU Internet Users in 2023**

Sending/ receiving e- mails	Telephoning or video calls, or instant messaging (i.e. via Skype, Messenger, WhatsApp, Viber)	Instant messaging (i.e. via Skype, Messenger, WhatsApp, Viber)	Telephoning or video calls	Communicating with instructors or learners using audio or video online tools (e.g. Zoom, MS Teams, Google Classroom)
86%	90%	82%	75%	19%

Source: Eurostat.

<sup>97</sup> Market-tipping is the process through which a competitive market reaches a crucial threshold of user adoption, transitioning from having many suppliers to being dominated by one or a few suppliers. This phenomenon commonly occurs in markets with significant network effects, particularly in multi-sided platforms.

Table II.9 displays the use of digital communications tools by active internet users in the EU in 2023. With a population of approximately 450 million and an internet penetration rate of around 91%, internet communications play a crucial role in the daily lives of EU citizens. Notably, 90% of users in the Union choose internet platforms to communicate via calls and messages. The scale of these numbers underscores the platforms' significant influence on the preferences and decisions of EU citizens, a topic that will be explored in greater detail later in this section.

### **Interoperability in the DMA**

The DMA is the first regulatory attempt to introduce interoperability into digital markets. Its provisions include Article 7, which focuses on ensuring horizontal interoperability between messaging services provided by gatekeepers,<sup>98</sup> and Articles 6(4) and 6(7), which address vertical interoperability. While recent cases highlight the importance of vertical interoperability,<sup>99</sup> the following discussion will focus on horizontal interoperability.

Article 7 mandates that any provider of number-independent interpersonal communication services (NI-ICS) in the EU can request interoperability with services offered by a gatekeeper, and that gatekeepers must comply with such requests within three months. Interoperability starts with basic text messaging (to be implemented within six months after designation), gradually expands to group chats (after two years) and video calls (after four years). It must be achieved without compromising security to protect user privacy.

### **Interoperability for Messaging Apps**

Interoperability is already a reality in the mobile phone and email industries: “when interoperability works, it is seamless” (Kades & Scott Morton, 2021), and many experts advocate for its implementation in digital markets with strong network effects to promote competition and benefit consumers (Scott Morton et al., 2023). The basic premise is that by sharing network effects among competitors, interoperability levels the playing field, fostering stronger competition. Nevertheless, non-trivial economic trade-offs and implementation challenges exist. In the particular case of NI-ICS, experts remain uncertain about the overall impact of interoperability (Bourreau & Kramer, 2023).

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<sup>98</sup> Gatekeepers are those digital platform designated by the European Union as such because they provide an important gateway between businesses and consumers in relation to core platform services.

<sup>99</sup> On the 19th of September, 2024, the European Commission started two specification proceedings to assist Apple in complying with its obligations on interoperability, after thirty-four companies formally complained on how Apple had chosen to adapt its rules to meet the new requirements in a letter addressed to the [European Commission](#). The [letter](#), signed by important developers such as Epic Games or Spotify, says that “Apple’s new terms make a mockery of the DMA”

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Horizontal interoperability requires the establishment of standardized features shared across platforms (standardization). This can reduce incentives to innovate in these standardized features while increasing investment in non-interoperable features as a means of differentiation. For example, while platforms may improve their user interfaces, they may have less incentive to develop secure communication technologies if the benefits must be shared with competitors or not implemented due to incompatibility with other interoperable platforms. However, platforms still have reasons to innovate on the standard for their internal user base, as within-platform communication is not affected by interoperability. Nevertheless, significant differences between interoperable and non-interoperable services might undermine efforts to promote interoperability. Another concern is that, currently, users often use multiple platforms (multihome), which fosters competition. With interoperability, on the contrary, users might remain loyal to a dominant platform since they can communicate with all their contacts without leaving the service. This raises questions about whether interoperability alone is sufficient to drive competition in NI-ICS, which may lack clear non-interoperable features.

Implementing interoperability in NI-ICS also involves significant technical challenges and trade-offs. The DMA mandates ex-post standardization but does not define the standard itself. According to Article 7(4), gatekeepers must first provide a technical reference offer, though the Commission can invoke Article 48 to set or adjust standards if necessary. Key issues, such as (consent for) discoverability, security, and abuse prevention, remain to be resolved. We refer to Bourreau & Kramer (2023) for a detailed discussion.

### Interoperability to Increase Competition

Messaging platforms are essentially conduits for information exchange, meaning that a lack of competition in this space has a less direct impact on social welfare compared to social media platforms. Social media platforms, in contrast, govern information flows, shaping beliefs and opinions. Numerous studies have documented how harmful they can be, not because harm is intended but because their financial incentives induce the adoption of algorithms that bolster the time users spend engaging on the platform (Horwitz et al., 2021; Allcott et al., 2022).<sup>100</sup>

Indeed, this is because personalization algorithms are designed to learn user preferences and then maximize engagement, not to enhance the user well-being. These platforms can afford to operate this way due to the large network effects they benefit from, as no competitor can rival Instagram, TikTok, X, or Facebook, each of which is a quasi-monopolist in its type of social network. This is where interoperability acts as a silver bullet, precisely because algorithms remain non-interoperable.

However, if social media platforms were to become interoperable, their primary point of differentiation, and thus their competitive focus, would shift to algorithms. As a result, following a simple à la Bertrand argument, platforms would be compelled to optimize for user well-being and to advertise so, as failing to do so would drive users away (Risco & Leonart-Anguix, 2024).

Even though the implementation of interoperability on social platforms may face technical challenges and strong opposition from the largest platforms, it is undeniable that, provided users are capable of understanding the harm of different personalization algorithms, ensuring user well-being requires extending the DMA to include this measure.

## POLICY RECOMMENDATION

Introduce an interoperability obligation on social services that are hosted by the gatekeepers' platforms.

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<sup>100</sup> In fact, Bursztyn et al., (2023) show that users on Instagram and TikTok are willing to pay to have others (including themselves) deactivating their accounts.

# III. DIGITAL MERGERS

**Chapter 3** explores the mechanisms of merger regulation, the challenges of applying them to digital markets, and their critical role in preventing concentration and curbing the power of major technological companies. It also presents policy proposals to enhance the efficiency of merger regulation in the digital market context.

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## INTRODUCTION

Consolidation projects involving digital players have played a major role both in the patterns of growth of Big Tech and in the recent policy debate. As shown in Table III.1, the main digital platforms have realized in the last 15 years a very large number of such acquisitions.<sup>101</sup> Acquisitions, as opposed to IPO's, are by far the more relevant pattern of growth of start-ups in the software industry.<sup>102</sup>

**Table III.1**  
**Big-tech Acquisitions During the 1996 – 2021 Period**

Big Tech	Firms acquired between Jan 1996 and Jan 2021
Alphabet	106
Amazon	128
Apple	104
Meta	264
Microsoft	257
<b>Total</b>	<b>859</b>

*Notes: Big Tech companies considered here are Alphabet, Amazon, Apple, Meta and Microsoft. Source: Gautier A. and Maitry R. (2024). Big Tech Acquisitions and Product Discontinuation. Journal of Competition Law & Economics, 2024, 00, 1–18*

Historically, Big Tech companies have frequently acquired competitors at various stages of development. Table III.2 highlights several notable acquisitions made by four major tech giants: Alphabet (formerly Google), Apple, Meta (formerly Facebook), and Microsoft. Some of these acquisitions involved companies that were already well-established, boasting mature user bases and evident growth potential.

For example, Microsoft acquired LinkedIn 13 years after its launch, when the platform had already surpassed its initial phase of rapid growth. Similarly, Apple's acquisition of Shazam occurred 16 years after the music recognition app's debut. By this stage,

<sup>101</sup> See Gautier A. and Maitry R. (2024). Other scholars have offered estimates on the number of acquisitions by Big Tech companies. Focusing only on the "big five," Motta and Peitz (2021) report 42 acquisitions by Amazon, 33 by Apple, 21 by Facebook, 48 by Google, and 53 by Microsoft in the period 2015–2020. The FTC (2021) lists over six hundred acquisitions by the same five firms that fall below the thresholds for notification in the period 2012–2019. References:

Gautier A., Maitry R. (2024), Big Tech Acquisitions and Product Discontinuation, Journal of Competition Law and Economics, 20, 246–263.

Motta, M., and Peitz, M. (2021). Big tech mergers. *Information Economics and Policy*, 54, 100868. See also Federal Trade Commission (2021). Non-HSR Reported Acquisitions by Select Technology Platforms, 2010--2019: An FTC Study.

<sup>102</sup> See Eisfeld L. (2024), Entry and Acquisitions in Software Markets, *mimeo*.



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Shazam had entered a phase of stability, if not decline, as evidenced by its reported acquisition price being significantly below the billion-dollar mark.

Conversely, other acquisitions targeted startups in their early stages, before they could emerge as formidable competitors. Instagram and YouTube exemplify this approach. Meta acquired Instagram just two years after its launch, transforming it over the next 12 years from a 50-million-user app into one of the world's largest social media platforms, boasting over 1.4 billion active users. This acquisition, alongside that of WhatsApp, solidified Meta's dominance in social media and communication and prevented the emergence of strong competitors. Similarly, Alphabet acquired YouTube only a year after its launch. Over time, YouTube evolved into the world's largest video platform, further strengthening Google's leading position in the online search and digital content markets.

**Table III.2**  
**Some Notable Acquisitions by Big Tech Companies**

Buyer	Alphabet			Apple	Meta	Microsoft		
<b>Acquired company</b>	YouTube	Waze	Fitbit	Shazam	Instagram	WhatsApp	Skype	LinkedIn
<b>Year of launch</b>	2005	2008	2007	2002	2010	2009	2003	2003
<b>Acquisition year</b>	2006	2013	2019	2018	2012	2014	2011	2016
<b>Acquisition price (\$ bn)</b>	\$ 1.6 bn	\$ 1 bn	\$ 2 bn	\$ 0.4 bn	\$ 1 bn	\$ 19 bn	\$ 8.5 bn	\$ 26 bn
<b>Users at time of acquisition</b>	NA	NA	<a href="#">30 Mn</a>	<a href="#">160 Mn</a>	<a href="#">50 Mn</a>	<a href="#">450 Mn</a>	<a href="#">170 Mn</a>	<a href="#">430 Mn</a>
<b>Users today</b>	<a href="#">2.5 Bn</a>	<a href="#">140 Mn</a>	<a href="#">38.5 Mn</a>	NA	<a href="#">1.4 Bn</a>	<a href="#">3 Bn</a>	<a href="#">2.27 Bn</a>	<a href="#">770 Mn</a>

*Sources: Data about price of acquisition came from: SEC for YouTube, Waze and Fitbit; Investor relations by Meta for Instagram and WhatsApp; investor relations by Microsoft for Skype and LinkedIn; Financial Times for Shazam (the price of acquisition was not officially disclosed). Data on users at time of acquisition come from: Statista for Instagram; Investor relation by Meta for WhatsApp; Investor relation by Microsoft for Skype and LinkedIn; SEC for Fitbit; European Commission for Shazam. Data on current users come from Statista for Skype, LinkedIn, Fitbit, WhatsApp, Instagram, YouTube; Google for Waze.*

Merger control in this area has been quite ineffective for different reasons. In cases involving established firms, the assessment by the enforcers has sometimes been incomplete, failing to capture the motivations of the merger and the evolution of the

business models and to update the traditional analysis to the peculiarities of digital markets.<sup>103</sup> The acquisition of start-ups, instead, quite often has not been monitored given the small size of the targets compared with the standard thresholds, a phenomenon known as stealth consolidation.

The debate on antitrust in digital markets and its empowerment has played a central role in the last few years, with a clear perception of underenforcement and an attempt to promote a more effective intervention.<sup>104</sup> Merger control is one of the central themes. This chapter aims to review the main insights that economic analysis has provided in recent years, comparing with the recent enforcement experience and with the reforms introduced both in the European Union and the US.

The chapter is organized as follows. Section B briefly reviews the institutional setting in the EU and US with a focus on the recent regulation of mergers. Section C deals with the definition of the relevant markets in digital cases. Section D addresses the analysis of digital mergers, further distinguishing between the assessment of competition in digital markets (D.1) and that of the effect of digital mergers (D.2). Section E covers recent contributions on the relationship between mergers and acquisitions and innovation. Section F summarizes the main policy insights and suggestions.

### THE RECENT EVOLUTION IN THE ENFORCEMENT POLICY ON DIGITAL MERGERS

Following the widespread perception of insufficient enforcement, new approaches and tools have been introduced on both sides of the Atlantic.

In the US, in December 2023, the Federal Trade Commission and the Department of Justice released the new Horizontal Mergers Guidelines<sup>105</sup>, after a phase of intense debate and public consultation. Although the new Guidelines apply to all sectors in the economy, many of the provisions are clearly relevant to digital markets. One reason for insufficient enforcement regarding digital mergers is that acquisitions of *potential competitors*, i.e. smaller, innovative firms with minimal revenue but significant potential market impact, escape the radar of antitrust authorities because they do not meet the thresholds for mandatory notification, typically based on revenue. Guideline 4 of the new Horizontal Merger Guidelines (*Mergers Can Violate the Law When They Eliminate a Potential Entrant in a Concentrated Market*) represents a tool for examining the acquisition of small competitors and start-ups. Guideline 5 (*Mergers Can Violate the*

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<sup>103</sup> For an ex-post review of some prominent digital mergers evaluated by the CMA see Argentesi E., Buccirossi P., Calvano E., Duso T., Marrazzo A., Nava S., (2019) Merger Policy in Digital Markets: an Ex-Post Assessment, DIW Discussion paper n. 1836.

<sup>104</sup> See the reports by Crémer et al. (2019) for the DG Competition, by Furman et al. (2019) for the CMA and the report prepared by the Stigler Committee on Digital Platforms (2019). References: Crémer J., de Montjoye Y-A., Schweitzer H. (2019), Competition Policy for the Digital Era, Report for the European Commission.

Stigler Center (2019), *Final Report*; Furman J. (2019), Unlocking Digital Competition, Report of the Digital Competition Experts Panel; and (2019) Stigler Committee on Digital Platforms: Final Report.

<sup>105</sup> See Department of Justice, Antitrust Division (2023), Horizontal Mergers Guidelines.

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*Law When They Create a Firm That May Limit Access to Products or Services That Its Rivals Use to Compete*) covers the potential adverse effects of mergers on the competitors' access to essential products or services, an issue that was central in cases of self-preferencing. Guidelines 6 (*Mergers Can Violate the Law When They Entrench or Extend a Dominant Position*) and 7 (*When an Industry Undergoes a Trend Toward Consolidation, the Agencies Consider Whether It Increases the Risk a Merger May Substantially Lessen Competition or Tend to Create a Monopoly*) consider the dynamic patterns towards entrenchment driven by systematic acquisitions, and they are complemented by Guideline 8 (*When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series*), which allows the assessment of the entire pattern of acquisitions rather than, separately, of each one in isolation. Finally, Guideline 9 (*When a Merger Involves a Multi-Sided Platform, the Agencies Examine Competition Between Platforms, on a Platform, or to Displace a Platform*) explicitly refers to mergers in multi-sided markets, a feature that is key in digital markets.

In the EU, the previous chapter already described how the DMA marked a significant shift from traditional ex-post antitrust intervention to ex-ante regulation of core digital platform services. However, neither the DMA nor the other recent digital regulations address mergers. Merger control remains under the exclusive jurisdiction of DG Competition, including the review of mergers in digital markets. The DMA merely imposes an obligation on gatekeepers to *inform* the Commission of any acquisition they undertake, regardless of the target size. Importantly, this obligation to inform is distinct from the obligation to notify, as it does not require the Commission to review the transaction. Additionally, this obligation is limited to gatekeepers only.

Therefore, acquisitions by large companies of *potential competitors* continue to escape scrutiny. To enhance its ability to investigate such transactions and address stealth consolidation, the European Commission has therefore reinterpreted art. 22 of the European Union Merger Regulation (EUMR).

Art. 22, also known as the "Dutch clause", was originally intended to allow EU Member States without their own merger control regimes to request that the Commission reviews mergers with potentially significant anti-competitive effects. Under the expanded use of art. 22, "below-threshold" mergers could be referred to the EC. For example, the French Competition Authority referred to the Commission for the Illumina-Grail merger under art. 22, even though Grail had no significant EU turnover. As a result, the Commission reviewed and ultimately blocked the merger in 2022.

In September 2024, however, the European Court of Justice (ECJ) annulled the Commission's decision<sup>106</sup>, criticizing its reinterpretation of Article 22. The ECJ ruled that Member States could not refer transactions they lacked jurisdiction to review under their national laws. The Court also highlighted the importance of predictable and clear turnover thresholds for merger reviews, arguing that the Commission's approach undermined legal certainty for businesses.

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<sup>106</sup> See European Court of Justice (2024), Judgment of the Court (Grand Chamber) of 3 September 2024.

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The ECJ's ruling limits the Commission's ability to scrutinize below-threshold transactions. However, some Member States had already started adopting alternative mechanisms to address such deals.

In Italy, Law No 188/2022 introduced the use of "call-in powers" under Article 16-1 bis of the national competition law framework. These powers allow the authority to review "below-thresholds" transactions if three cumulative conditions are satisfied: (i) no more than six months have elapsed since completion of the transaction; (ii) one of the two turnover thresholds provided for in Article 16 of the Law is exceeded or the total worldwide turnover generated by all the undertakings concerned exceeds EUR 5 billion; and (iii) the Authority finds, on the basis of available evidence, that there are concrete risks for competition in the national market or in a part of it. Moreover, the Italian Antitrust Authority has introduced the possibility of using the ratio between the price of the acquisition and the target revenue (a "multiple") as a way to identify acquisitions worth a deeper investigation.

In 2017, Germany and Austria introduced an additional threshold for mandatory notification based on the value of the transaction (400M euros and 200M euros, respectively). Discussions about adopting value-based thresholds have emerged in other countries, including Japan and South Korea.

In the UK, merger control operates under a voluntary notification system rather than a mandatory one. Call-in powers are intrinsic in the system as the Competition and Markets Authority (CMA) has the authority to proactively investigate mergers, whether completed or in progress if it believes they may result in a substantial lessening of competition. The 2021 new Merger Assessment Guidelines (MAGs) have better equipped the CMA to address mergers involving potential competitors. In particular, paragraphs 5.2 and 5.3 distinguish between two categories of loss of potential competition that the merger may cause: (i) *loss of future competition*, i.e. loss of competition between the merging parties that would occur in the future, absent the merger, after the potential competitor would enter the market; (ii) *loss of dynamic competition*, i.e. loss of innovative efforts by the potential competitor (aimed to enter and expand) and/or by the incumbent (striving to mitigate the risk of losing market shares to the potential competitor). This distinction is significant because it clarifies that, in order to prove to the required standard that the merger harms potential competition, the CMA does not need to establish that it is more likely than not that the potential competitor would enter the market absent the merger. Instead, it is sufficient to demonstrate that, in the absence of the merger, the potential competitor and the acquirer would continue investing in innovation. This facilitates enforcement, particularly in digital markets, where predicting the likely evolution of the target in the absence of the merger is often complex.

The new Guidelines signaled the CMA's intention to take a tougher stance against acquisitions involving potential competitors. Indeed, in November 2021 the CMA blocked the acquisition of Giphy by Meta (formerly Facebook), a transaction that had been finalized in 2020, and ordered Meta to divest. Meta appealed, but the Competition Appeal Tribunal confirmed the decision. The final prohibition decision

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was released in October 2022. The CMA concluded that the acquisition would reduce competition between social media platforms and that the deal had already removed Giphy as a potential challenger in the display advertising market. This case marked the first time an authority blocked the acquisition of a potential competitor. Another notable recent case is the proposed merger of Adobe and Figma, which was abandoned by the parties in December 2023, after the CMA's Provisional findings and the EC's Statement of Objections, but before the final decisions. Central to the case were concerns about the loss of potential competition in the markets for product design, vector editing, and raster editing software.

#### THE DEFINITION OF THE RELEVANT MARKET IN DIGITAL MERGERS

When considering the potential impact of a merger, antitrust authorities organize their analysis through a sequence of steps. The definition of the relevant market is usually the first one. It aims to identify the relevant competitors of the undertakings in the pre-merger situation. Strictly intertwined with this first step, the competitive assessment completes the analysis, allowing to capture how concentration may affect the competitive constraints on the undertakings and lessen competition in the market.

The recent communication of the European Commission<sup>107</sup> has summarized and updated the general approach on relevant markets and the steps that the Commission follows to assess it. The document allows us to appreciate how the insights from economic theory have been translated into procedures and empirical factors that form a rich, consistent, and flexible approach.

The logical framework that organizes the exercise can be summarized in the SSNIP (Small but Significant Non-transitory Increase in Price) test. The relevant market is the smallest market in which a hypothetical monopolist could profitably raise the price (usually 5-10%) for a certain period. Through this exercise, it is possible to identify all the existing or entering products that are sufficiently close substitutes to those of the firms involved in a case (demand-side substitutability) to exert competitive constraints on their behavior, as well as those products not yet offered in the market, that may in a short time be supplied by competitors (supply-side substitutability). The analysis, therefore, moves on two dimensions. First of all, it looks at the demand side and the choices of customers in case the hypothetical monopolist would increase the price or degrade the quality of the candidate group of products. The logic of the SSNIP test, however, also allows us to consider the supply side and the possibility that, attracted by the monopoly rents, new firms and products start being offered, eroding the hypothetical monopolist's profits.

Depending on the specific case, the test may be instrumented through a precise quantitative exercise, estimating cross elasticities and simulating the market, or instead be used as a logical framework to organize a set of different pieces of evidence. No matter how it is adopted in practice, the central focus is on identifying the products

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<sup>107</sup> See European Commission (2024), *Commission Notice on the definition of the relevant market for the purposes of Union competition law*, (C/2024/1645).

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and the competitors of the undertakings whose strategies condition the exercise of market power of the firms considered in a case.

Starting with the analysis of the demand side, the definition of the relevant market in digital cases shares some features that can be found in more traditional industries, together with new elements that make the exercise more challenging. The latter, in particular, derive from the nature of multi-sided platforms that often characterize digital firms. A convenient way to identify the more traditional features and the new issues is to start with the definition of multi-sided platforms and derive their constituent features. These, in turn, have to be addressed step by step in the market definition exercise.

To this purpose, we adopt the following definition. A multi-sided platform is a firm offering different sets of products/services to different groups of customers who experience cross-side externalities (indirect network effects) from the participation and/or usage of the agents on the other sides.

Hence, a multi-sided platform is:

1. A multi-product,
2. selling to different groups of customers ,
3. characterized by indirect network effects.

Let us consider these three components of multi-sided markets one by one to recognize similarities with other (one-sided) markets and the new issues to be addressed. This comparison will offer insights into how to define the relevant market and will highlight the novel features of platform markets that call for an adaptation of the traditional approach.

### **1. A multiproduct firm...**

A multi-sided platform is a multi-product firm since, by definition, it supplies at least one product or service to each side. Beyond this basic feature, the supply of multiple products takes various forms.

The platform may offer multiple products to each side. Such products may be complements (e.g., two software applications that can be used together by the customer, such as a photo and messaging app) or substitutes (e.g., two similar navigation apps on the same platform).

The provision of complementary products is a key feature of ecosystems. Although there is no universally accepted definition of an ecosystem, a term that still requires a precise analytical foundation, we tentatively identify an ecosystem as a set of firms that offer products interconnected through a core primary product so that customers have incentives to use products within the same ecosystem, rather than to mix-and-match

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by picking up different products from several ecosystems.<sup>108</sup> In this sense, the notion of an ecosystem seems rooted in the characteristics of a set of products supplied to the customers and integrated around a core product, whose joint purchase and use generate extra utility. The core product may vary from one ecosystem to another, being, for instance, an operating system, a search engine, a social network, a marketplace, etc. For example, a platform connecting multiple sides and the firms active on these sides can be seen as a special case of an ecosystem.

It may also be the case that some products offered to agents on the same side feature their own network effects, their utility increasing with the number of other agents *on the same side* who use them, such as community-based traffic and navigator apps or messaging apps.

All these examples pertain to the nature of a platform as a multi-product firm. Defining the relevant markets in the case of a multi-product firm is a well-established exercise in antitrust that requires listing all the products offered by the firm and, for each of them, the corresponding relevant market composed of products that are sufficiently close substitutes to those supplied by the firm. This list will include the products offered to the customers on each side.

#### **2. ... selling to different groups of customers...**

The second feature of a multi-sided platform is the provision of products to different groups of agents. We reiterate that also this characteristic is not new or peculiar to platforms. A multi-product firm, indeed, may sell very different items that distinct groups of customers purchase. The relevant market approaches this case again by listing the different products and, for each of them, identifying the close substitutes for the associated relevant markets. The latter, on the customers' side, may differ, but the exercise is performed for each product on the list and includes the corresponding purchasers.

#### **3. ... characterized by indirect network effects.**

From the discussion so far, the definition of relevant markets in multi-sided platforms does not require specific analysis or tools relative to those used in more traditional one-sided markets. However, the existence of cross-side externalities produced by the relationships and activities that different groups of customers develop through the platform enriches the analysis.

Many examples can be proposed, and the literature on two-sided markets has explored them in depth. *Attention platforms*, which include traditional media such as newspapers, radio or TV stations, and new digital operators such as online video streaming, social media, search engines, etc., have an element in common: they attract the attention of customers by supplying content or services and offer customers' attention to advertisers. The advertisers' willingness to pay for ads, in turn, is increasing

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<sup>108</sup> The recent Communication of the European Commission on the definition of the relevant market, for instance, includes the following statement in paragraph §104: "*Digital ecosystems can be thought of as consisting of a primary core product and several secondary products whose consumption is connected to the core product, for instance, by technological links or interoperability*".

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in the size and composition of the audience reached. *Matching platforms*, such as marketplaces or dating clubs, offer matching services to the two sides of a match (sellers and buyers, or potential partners), with a positive externality that the composition and size of each community exerts on the other. Credit cards offer payment services to buyers and sellers whose willingness to pay is positively affected by the size of the other group.

In all these examples, a network externality arises between one group of agents and the size, composition, and usage of the other side, where the products supplied by the platform to the different groups may be strictly complementary, as in the case of marketplaces, or very different and even unrelated, as the attention platform example suggests. These cross-side effects are peculiar to multi-sided platforms and make the analysis of the relevant markets new and challenging.

An example may clarify the issue. In well-defined one-sided markets, the exercise of market power is restricted by the presence of other products that are close substitutes for those offered by the firm. If the latter were to raise the price or lower the quality, a significant fraction of its former customers would switch to the rivals active in the same relevant market, making the price increase unprofitable. The assessment remains entirely within the relevant market, which includes all the products with significant cross-elasticity and excludes fundamentally unrelated ones.

When we move to multi-sided platforms instead, an increase in the price or a reduction in the quality of a product on one side, in addition to the own-side effects in the corresponding relevant market, would have a further effect. The demand for products on the other side would depend (positively or negatively, depending on the sign of the externality) on the number and composition of the customers on the first side, as well as on their usage choices. In this case, the network effect does not occur within the same side and group of customers but between different groups belonging to different sides. This second effect would further affect the demand for the first product, possibly in a direction opposite to the initial adjustment, thereby having an impact on the profitability of the price increase.<sup>109</sup> Consequently, the adoption of a SSNIP test, analytically or as a logical framework, requires considering several feedback effects in addition to the standard analysis of elasticities.

More importantly, these effects lead to considering a chain of different products, markets, and firms whose demands are connected through cross-side externalities. Moreover, the pricing strategies of platforms are deeply affected, with price configurations that usually are not observed in more traditional one-sided markets and that challenge the received view of how relevant markets can be identified.

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<sup>109</sup> One may argue that these interactions are reminiscent of those arising when consumers purchase complementary products. In that case, an increase in one price reduces the demand for the corresponding product and, therefore, also the demand for the twin product. The latter, in turn, would further shrink the demand for the initial product. In the case of multi-sided platforms, however, these interactions involve different groups of agents and different interconnected relevant markets, rather than being driven by the preferences of the same consumers.



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Indeed, cross-side externalities affect the way in which a platform sets the membership and usage fees on each side and, therefore, the revenues collected from the different groups of agents. The norm, in multi-sided markets, is an asymmetric price structure, such that total revenues derive in different proportions from the different sides. In some cases, the agents on a given side may receive the product or service for free or even be subsidized for their participation<sup>110</sup>. A free-to-air channel offers its content for free, and a search engine does not charge users for their queries.

Traditionally, the case of a zero price was interpreted as the absence of a commercial transaction of the firm with the customers, which, in turn, was considered the prerequisite of a market. A zero or negative price for a product, however, does not mean that the platform is not participating in that relevant market. What matters in affecting competition is the net utility provided by a firm in comparison with its rivals. In this sense, a zero price represents an aggressive pricing strategy of the firm rather than a withdrawal from competition. At the same time, the profitability of such a strategy may be understood only considering the cross-side effects since such an unbalanced price structure may serve to maximize the size of one side, thereby extracting more revenues from the other.

A second issue that gains new dimensions in multi-sided markets pertains to how firms can differentiate their offers, affecting their substitutability. In a one-sided market, substitution depends on the degree of product differentiation within a group of similar products and represents the result of product design strategies aiming at relaxing price competition. Similarly, platforms can differentiate the products or services they offer to a given side along the same logic of one-sided markets. Marketplaces can differentiate the product mix of the sellers they host, video streaming platforms can offer different portfolios of content, etc. However, platforms may exploit an additional dimension of differentiation related to their business models.

Indeed, platforms potentially offering similar products to their sides may choose diverging sources of revenues, with a platform charging mostly one side and the competing platform raising money from the other. In other words, cross-side externalities are the gateway to comparing and understanding the underlying logic of platforms adopting specific (and often different) business models.<sup>111</sup> Recognizing that platforms with very different business models may still exert strong competitive constraints on each other is an important and non-trivial exercise.

An example may clarify this point. In the broadcasting markets, we have observed, until recently, two major types of operators: the traditional free-to-air TVs that deliver the

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<sup>110</sup> Negative prices are rarely used, due to the possibility of fake participation or usage. However, membership may be subsidized by providing free additional services to the participants. For reference see: Amelio A., Jullien B., (2012), Tying and Freebies in Two-Sided Markets, *International Journal of Industrial Organization*, 30, 436-46.

<sup>111</sup> See Calvano E., Polo M. (2021), Market power, competition and innovation in digital markets: A survey, *Information Economics and Policy*, vol. 54, pp. 1-18, and Ambrus, A. and Argenziano, R. (2009). 'Asymmetric networks in two-sided markets', *American Economic Journal: Microeconomics*, 1, 17-52.

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content for free and raise money from advertisers, and Pay-TV operators that are mostly financed by viewers through their subscription, with no or minimal ad breaks.

These two apparently very different operators might suggest that they do not compete in the same markets since viewers are a source of revenue only for Pay-TV operators, and only the free-to-air stations collect money from advertisers. This observation poses the question of whether a Pay-TV operator may exert a competitive constraint on a free-to-air station in the advertising market. Traditionally, the answer was negative, based on the argument that Pay-TV does not offer commercials to the advertisers. However, if Pay-TV raises its subscription fee, some viewers will shift to free-to-air programming, increasing the advertisers' willingness to pay and allowing the free-to-air station to raise its fee for commercials. Hence, even when direct competition on the same side is not observed, cross-side externalities maintain active competitive constraints between the two types of broadcasters. In other words, competition for viewers' attention is sufficient to create a strategic link also on the side in which the two operators do not compete directly.

This strategic link also allows us to understand the logic of adopting opposite business models. When a TV station withdraws from the advertising market, offering premium, free-of-ads content to its viewers, it increases the latter's willingness to subscribe and the potential revenues of a Pay-TV business model. At the same time, allowing the other station to monopolize the advertising market raises the potential revenues from selling advertising space, therefore increasing the incentives to create a large audience by distributing the content for free. In turn, the supply of ads-crowded content further enhances the willingness of some viewers to subscribe to an ad-free Pay-TV station.

The adoption of different business models, therefore, results from the competitive pressure that leads the two operators to concentrate their revenue sources on different sides to relax price competition<sup>112</sup>, similar to how firms differentiate their varieties to avoid cut-throat competition. In other words, free-to-air and Pay-TV business models may arise as a way to differentiate the sources of revenue and relax competition. Observing very different business models is the result of potentially intense competition and is not proof that the two types of operators do not compete.

Notably, while product differentiation in one-sided markets requires considering the substitutability within a group of similar varieties, in platform markets, the differentiation in the business model can be assessed only considering the entire set, or relevant subsets, of products offered to different sides – video content and advertising space in the broadcasting example – moving from the substitutability of specific products to the similarities of different platforms.

The example of different business models in the broadcasting markets allows us to introduce the issue of supply-side substitutability, the second pillar in market definition. In a given market situation, we may observe a pure Pay-TV operator that does not participate in the advertising market. However, even small changes in market

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<sup>112</sup> See Calvano E., Polo M. (2021), Market power, competition and innovation in digital markets: A survey, *Information Economics and Policy*, vol. 54, pp. 1-18.

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fundamentals may lead the TV station to introduce some commercials in its offer, entering the advertising market. Indeed, the Pay-TV operator is already endowed with the key factor that may motivate this shift in the business model, which is the reach of a relevant audience. In a more general perspective, the business models in platform markets, being often based on pricing or product design, may be modified quickly, moving an operator to a relevant market where it was previously silent.

An example from video streaming may further clarify this issue. Video streaming was initially developed (e.g., Netflix) with a one-sided business model (SVOD: subscription-video-on-demand) in which viewers paid a monthly fee to access the content portfolio. Once the size of the subscribers skyrocketed, however, there was a potential rent to be offered to advertisers, with the additional advantage of being able to target personalized commercials to different groups of viewers sorted according to their viewing choices. Not surprisingly, new business models have emerged, with premium channels still offered ads-free, together with cheaper video streaming channels where ads are placed during programming (AVOD: advertising-video-on-demand).

The flexibility in the business models that characterize digital platforms makes the assessment of post-merger evolutions hard to forecast. This is particularly important for attention platforms on the side of the content delivered. The acquisition of Instagram by Facebook has become a textbook example. At the time of the acquisition, the two platforms looked relatively different, with Facebook as a social network and Instagram specializing in photo and video sharing. Given the differences in the content provided, the merger assessment argued that the two platforms were not competing on the attention side, targeting different groups of users with different content. After the acquisition, however, Instagram rapidly evolved as a social network, focusing on a younger community of viewers than Facebook. Although difficult to forecast, such a transformation in the business model of the target firm might have been considered in analyzing the competitive risks of the merger.

A final issue often plays a key role in digital mergers. Through their activities, platforms collect a wide range of data and information on their customers. A search engine, for instance, collects its users' queries and click patterns, a marketplace records searches and purchases of its customers, and a video-streaming platform observes the searches and choices of its viewers. More traditional one-sided markets exhibit similar features, with a large and established chain of department stores having a detailed knowledge of its customers, for instance, through fidelity cards.

Data has a variety of uses. It may allow the personalization of the services provided and, more generally, may enable services that increase consumers' surplus, but it may also increase surplus extraction, for instance, through personalized pricing, as shown in de Cornière and Taylor (2024a)<sup>113</sup>. Furthermore, data collected in a given activity may also be worthwhile in different, often unrelated businesses. These features are enhanced in digital markets, given the richness of collected information and the possibility of profiling users on a wide range of dimensions and potential businesses

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<sup>113</sup> See De Cornière A., Taylor G. (2024a), Data and Competition: A Simple Framework, *The RAND Journal of Economics*, forthcoming.

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beyond those in which the data are generated. Digital data, in this sense, is an all-purpose input. Hence, data may sometimes be the key motivation for digital mergers, as – to cite some examples – in the Google-Fitbit, Microsoft-LinkedIn, and Amazon-iRobot cases.

Data-driven mergers may, however, be difficult to interpret and analyze both in the phase of market definition and in the assessment of their impact, being potentially motivated by a wide range of business development strategies (see de Cornière and Taylor 2024b<sup>114</sup> and Chen et al. 2022<sup>115</sup>). Market definition in these cases requires the identification of products that might be neither substitutes nor complements but that may be connected by the possibility of using the data collected in one activity in another, apparently unrelated market. For instance, the Google-Fitbit merger might have an impact on the digital health and health insurance markets.

Moreover, their impact on competition may be very different. They may serve as a (anti-competitive) tool to reinforce a dominant position in the legacy business, but they may also constitute a (competitive) bridge to enter new activities, challenging established market positions. Furthermore, when data can be used in related markets, a cross-market merger may affect competition and market power in the primary or secondary market as well. Hence, while the role of data is key in some digital mergers, the impact on the market(s) involved requires careful inspection.

Summing up, the intensity and direction of cross-side externalities deeply affect platforms' pricing and product design decisions on all sides. The price structure, which determines how total revenues are generated by the different sides, may be asymmetric, with one side potentially paying a zero price or being subsidized. Asymmetric business models may arise in the attempt to relax price competition on the same side. Moreover, business models may be changed relatively cheaply and quickly, enhancing supply-side substitutability. This flexibility may allow potential rivals to enter a market served by a platform and, at the same time, give a merged entity the possibility to change its business model after the acquisition. Finally, data is a fundamental input to design services and profile users, far beyond the specific business in which they are generated, introducing a vertical dimension of a merger. All these elements make identifying the key competitors of the undertakings an exercise much more complex than in traditional one-sided markets, in which the task is to find for each of the products offered the close substitutes and the firms that offer them.

Therefore, we believe that the more traditional techniques to establish the relevant markets should be applied as a first step to identify the set of products offered by the undertakings and their close substitutes offered by the relevant competitors. Hence, we suggest starting from the set of products a platform provides its customers on each side served. This analysis can be based on the tools and criteria we inherit from analyzing the relevant one-sided markets, including the assessment of multi-product firms and network goods. The additional analysis of the impact of cross-side

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<sup>114</sup> See De Cornière A., Taylor G. (2024b), Data-Driven Mergers, *Management Science*, forthcoming.

<sup>115</sup> See Chen Z., Choe C., Cong C., Matsushima N. (2022), Data-Driven Mergers and Personalization, *The RAND Journal of Economics*, 53, 3-31.

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externalities, in turn, makes the distinction between the definition of the relevant market and the competitive assessment of the practices unclear, blurred, and unnecessary. The analysis should focus on understanding the competitive dynamics that characterize the interaction of the undertakings with the different competitors they face. In the next section, we discuss the main elements that should be considered when assessing competitive dynamics and the exercise of market power in digital markets.

#### THE ASSESSMENT OF DIGITAL MERGERS

According to the established practice, the definition of relevant markets sets the stage for the measurement of market power and of the likely effects of the merger, based first of all on market shares and concentration indexes. In the US, this procedure is based on structural presumptions that lead to a closer inspection to see if explicit thresholds in concentration and in its increase due to the merger are met. In the 2023 US Merger Guidelines, a Herfindahl-Hirschman Index (HHI) larger than 1800 and an increase in its value larger than 100 triggers the presumption of a merger lessening competition.<sup>116</sup> The European Commission does not adopt explicit thresholds and measures of concentration to identify anti-competitive mergers, but a more concentrated market justifies the concern of anticompetitive effects and requires a more careful analysis.

The assessment of a merger is usually organized by looking in parallel at the degree of competition in the market and the likely effects that a merger may exert on the exercise of market power of the new entity and on competition in the market. We examine these two elements in the following sections.

#### The Assessment of Competition

The relationship between concentration and market shares on the one hand, and welfare and consumers' surplus on the other, is rooted in a well-established result in Industrial Organization that dates back to the Cournotian paradigm. According to this view, there is a direct link, through the equilibrium level of activity and mark-up, between measures of concentration, in particular the HHI index, consumers' surplus, and welfare. A more concentrated market, leading to a restriction on output, reduces the surplus of consumers and the economy.

Moreover, digital markets are characterized by huge, fixed costs, usually related to R&D expenditure in a broad sense, and very low marginal costs. Furthermore, the improvement in the quality of the services is connected to the fixed R&D costs (in a rich mechanism that we shall discuss later on). These features remind us of the

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<sup>116</sup> These thresholds have been tightened relative to those adopted in the 2010 HMG in the US, where the thresholds were 2500 and 200. Moreover, the 2023 HMG introduces a second threshold when the market share of the merged entity is larger than 30% with an increase of 100 in the HHI. Shapiro (2024) argues, however, that the new thresholds may end up being ineffective since the criteria for market definition have been relaxed in the new Guidelines. For reference see: Shapiro C. (2024), Evolution of the Merger Guidelines: Is This Fox Too Clever by Half?, *Review of Industrial Organization*, 65:147–175.

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characteristics of natural oligopolies, in which the market tends to have a high level of concentration, asymmetric structures, and winner-takes-all competition.

The key question in digital mergers refers to whether these approaches can be plainly applied to platform markets, justifying the adoption of formal or informal structural presumptions of an anticompetitive effect based on measures of concentration.

We have argued that in these environments, the price structure may be very asymmetric, with one side receiving the service for free (or even being subsidized) and the platform raising money on the other. This pricing strategy is designed to enhance the surplus of one side's agents through a low or zero/negative price and significant quality of the service provided, maximizing their participation and engagement. In this way, the platform pushes up the willingness to pay the agents on the other side and increases the price charged on them (and possibly degrades the quality of their service to save on costs). As long as market power refers to price-cost margins, the platform does not exert it in the first market despite the high market share, while margins are collected in the other market. At the same time, margins on the paying side depend not only on the market share on that side but also on the other through its enhanced willingness to pay. In other words, the relationship between market shares, concentration and the exercise of market power cannot be assessed separately on each relevant market, coming out to be more complex than in one-sided markets, with cross-side externalities determining the side on which margins are predominantly realized and the size of the rents extracted.

### **Factors Enhancing the Exercise of Market Power**

As we are going to discuss, digital markets are characterized by several factors that push towards concentration, market tipping, and barriers to entry, together with some mitigating factors. Moreover, even in market environments in which a tendency to concentration and market tipping tends to prevail, competition for the market may still exert competitive constraints on the exercise of market power.<sup>117</sup> In this sense, the elements that tend to reinforce incumbency advantage quite often reduce both competition in the market and for the market, while mitigating factors may enhance competition in the market and its contestability.

First of all, quite often digital services are characterized by large developing costs and negligible duplication and distribution costs, giving rise to a cost structure with huge fixed and very low variable costs that are often conducive to concentration.

Secondly, own-side network effects play an important role in many services that platforms offer. If we distinguish the gross utility of a given network good into its stand-alone value ("quality") and the additional benefit from the network effect, the latter may derive from a richer interaction through the platform, as in the case of social networks. Furthermore, the platform may improve these network effects by using the

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<sup>117</sup> See Calvano E., Polo M. (2021), Market power, competition and innovation in digital markets: A survey, *Information Economics and Policy*, vol. 54, pp. 1-18.

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data agents release through their usage, as it is the case with navigation apps.<sup>118</sup> More generally, the data collected are a key driver to personalizing the service and increasing its quality for each individual user, affecting both the stand-alone value and the intensity of network effects if more data allows to improve the functioning of the algorithm, or, for given features of the algorithm, may allow more precise forecast of the user's preferences. Then, a larger database comes with a wider community of participants on a given side.

Data is also a key input to develop and train new algorithms, as the generative AI case has shown, giving an advantage to established incumbents in the development of new products.

Own-side network effects may trigger market dynamics toward concentration and market tipping, even when rival products provide a higher stand-alone value, if the network effect component prevails in users' utility. In this case, competition in the market progressively dries up, and network effects also reduce market contestability, creating a strong barrier to entry.

As is often the case with network effects, agents' expectations of their peers' choices pose a problem of coordination that may shield an incumbent product even when the rival is offering one of higher stand-alone value. Focality<sup>119</sup>, that is, the shared expectation that the leading product will be patronized even in the future, has been proposed as a feature of expectations that enhances incumbency advantage.

Other factors that sustain incumbency advantage include switching costs, which may prevent users from moving to rival (and potentially better) products to save on costs. Similar effects may arise when the services provided by a platform benefit from complementarity and interoperability, as happens with ecosystems. One cost that customers may want to avoid pertains to the loss of data that is recorded within an ecosystem, and that would be lost moving to a rival one. Lack of data portability and interoperability, in this sense, may enhance switching costs.

We observe that these factors, characterizing the relationship between a firm and its customers on a given side, may be relevant even in more traditional one-sided markets. Despite this claim being correct, what often features digital markets is the intensity and coexistence of all these factors.

Moreover, in multi-sided markets, the effects arising from cross-side network effects may involve back-and-forth dynamics across sides, often called rich-gets-richer. Consider the market for search engines as an example. If a large number of customers uses a search engine, the data collected allows the algorithm to be trained, improving

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<sup>118</sup> More precisely, a navigation app may give more complete and updated information on the traffic, for given features of the algorithm, if more agents use it.

<sup>119</sup> See Caillaud B., Jullien B. (2003), Chicken & Egg: Competition among Intermediation Service Providers, *the RAND Journal of Economics*, 34, 309-28, and, more recently, Halaburda H., Jullien B., Yehezkel Y. (2016), Dynamic Competition with Network Externalities: How History Matters, *The RAND Journal of Economics*, Vol. 51, pp. 3-31, and Halaburda H., Yehezkel Y. (2019), Focality Advantage in Platform Competition, *Journal of Economics and Management Strategy*, Vol. 28, pp. 49-59.

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the ability to profile consumers' tastes, thereby allowing the engine to offer advertisers very effective tools to reach potential customers through personalized selection, increasing the money on the advertising side. Large revenues, in turn, finance investment in the improvement of the search algorithm as well as in the design of additional services offered for free to the customers, increasing their participation and usage. Enhanced engagement further fuels the loop. Notably, proprietary and exclusive data is crucial in the multi-sided mechanisms described.

Hence, multi-sidedness significantly increases the tendency to concentration and the emergence of market leaders. At the same time, concentration may combine the exercise of market power, particularly on the paying side, with an enhanced surplus, specifically on the other side. The impact of concentration, therefore, may pose delicate issues of comparability and balance in the surplus of the different sides.<sup>120</sup>

Concentration may also be maintained or increased through practices that weaken independent competitors. Self-preferencing may create an anticompetitive advantage for the platform's in-house services when competing with third-party ones, as in the Google Shopping case. Monopolizing certain apps may eliminate independent versions, reducing the ability of competing platforms to compose a rich bundle of services, thereby creating what is called an application barrier to entry.

### Mitigating Factors

Competition in platform markets is further affected by several factors that mitigate the exercise of market power. Some are familiar from the analysis of one-sided markets, while others are more specific to multi-sidedness.

Product differentiation, since Armstrong (2006)<sup>121</sup> pioneering work, may allow several platforms to operate in the same market, serving on each side a subset of agents who have a stronger preference for their horizontal characteristics. Similarly, network effects may be local, referring to subsets of agents that are closer to each other. These features may relax price competition and limit the tendency to market tipping that arises from competition on a given side, replicating similar effects established in one-sided markets.

Differentiation by business models, with platforms concentrating their revenues on different sides, is instead specific to multi-sided markets. Taking the broadcasting market as an illustrative example, Calvano and Polo (2019)<sup>122</sup> show that when one platform (e.g. a free-to-air TV) reduces the subscription fee on users (e.g. viewers), increasing its audience, it becomes more attractive for the agents on the other side (advertisers). At the same time, it increases the rents that the other platform (e.g. a

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<sup>120</sup> Moreover, concerning attention platforms, concentration in the advertising market may affect competition in the product markets served by advertisers. See Prat A., Valletti T. (2022), Attention Oligopoly, *American Economic Journal: Microeconomics*, 14, 530-57.

<sup>121</sup> See Armstrong M. (2006), Competition in Two-Sided Markets, *The RAND Journal of Economics*, 37, 668-91.

<sup>122</sup> See Calvano E., Polo M. (2019), Strategic Differentiation By Business Models: Free-To-Air And Pay-TV, *Economic Journal*, 130, 50-64.



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Pay-TV) may raise from viewers who are willing to pay more for content without commercials. Conversely, when the latter platform reduces the space for ads, it moves advertisers to spend on the other platform, increasing the value of generating a large audience by cutting the fee on viewers. The paper shows that when these effects are sufficiently strong, the platforms have an incentive to adopt opposite business models, avoiding neck-to-neck competition on the same side.

This result puts in the spotlight another feature of multi-sided markets that is pervasive in digital markets: multi-homing, when agents patronize several platforms simultaneously. When a platform does not control exclusive access to (single-homing) agents, losing its role as a competitive bottleneck, the exercise of market power on the other side is reduced.<sup>123</sup> Multi-homing does not depend only on the customers' attitude to visit and use multiple platforms and can be limited through specific policies by dominant operators. For instance, exclusivity clauses may limit the possibility of using multiple outlets, while price-parity clauses may reduce the attractiveness of using alternative sources.

A final and important factor that may limit the exercise of market power and the tendency to concentration pertains to the role of data. As long as the advantage of a large database derived from a strong market position of an incumbent is weakened, the rich-gets-richer dynamics may slow down. Several situations may lead to this outcome. The improvements in the algorithm's performance due to a larger dataset may be exhausted at a size that can also be reached by smaller competitors. Data sourced from different activities may be complementary in profiling agents. Data brokers may supply the data to smaller firms, filling the gap with larger competitors.

How relevant these factors are in reducing the incumbency advantage is an empirical matter that may vary across market environments and requires the enforcer to carefully analyze. At the same time, the key role of data in digital markets suggests that intervening in data access, portability, and interoperability may be a very effective ground for the enforcer to design remedies and commitments.

Summing up, the assessment of competition in digital markets may use as a first screen an evaluation of market shares, adapting the techniques to the monetary or non-monetary measures that fit the exercise. However, the analysis requires entering more in-depth into the nature of multi-sided strategies that characterize the exercise of market power in platform markets and that may be further affected by the merger. Network effects, focality of expectations, switching costs, and back-and-forth dynamics may sustain incumbency advantage, reducing both competition in the market and the ability of competitors to challenge established positions. Mitigating factors, instead, may alleviate competitive concerns of a merger when differentiation

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<sup>123</sup> More precisely, multi-homing may emerge also in one-sided markets when customers choose more than one product. In platform markets, however, the effects of multi-homing are enriched. When a platform serves a group of single-homers on a given side, it is the gatekeeper to reaching those agents for those belonging to the other side, being able to charge a high price on these latter. Multi-homing reduces these rents, since the maximum price that the platform can charge is the incremental (and not the absolute) value of reaching the agents on the other side through that platform in addition to the rival one.

and multi-homing play a key role in the market. Finally, data plays a key role in rich-gets-richer dynamics.

### The Effects of Mergers in Digital Markets

In the previous section, we reviewed the main elements that contribute to restricting competition in digital markets, looking at the parallel perspectives of competition in and for the market. Therefore, we can address now the impact on competition of mergers between digital platforms.

A robust result in traditional one-sided markets shows that a merger affects the market equilibrium. If cost efficiencies do not materialize, a merger increases the price(s) and reduces output, consumers' surplus, and total welfare. How large these effects are depends on the pre-merger market structure, the intensity of competition, and the size of the firms involved; with stronger effects the larger the merger-induced increase in concentration. These predictions apply to the impact of a merger on competition in the market and hold in a variety of oligopoly models, including Cournot with homogeneous products (competition in strategic substitutes) and Bertrand with differentiated products (competition in strategic complements). The change in market outcomes is driven by the insiders internalizing the externalities that characterize strategic interaction in the market and by the outsiders further adjusting their market strategies. Finally, cost efficiencies, particularly when related to variable costs, may revert the impact of a merger, which may become pro-competitive.

These robust analytical results justify the approach followed in the enforcement practice, which starts by assessing the impact of a merger absent synergies and, in case of a significant detrimental effect, further qualifies the competitive concerns, potentially leading to a prohibition or the imposition of remedies. The screening on the size of the detrimental effects, in turn, can be rationalized considering that modest efficiencies, able to correct a limited anti-competitive effect of the merger, are more likely than large ones, those needed to turn a severely detrimental merger into a competitive one.

When we look at mergers and acquisitions in digital markets, a useful starting point is, therefore, whether this body of presumptions also applies to high-tech industries where the main actors are platforms. This issue, moreover, can be further qualified by looking at the impact of digital mergers on competition in and for the market. In the former case, the focus is on the non-exclusionary effects of a merger that affects competition in the market and allows the merged entity to extract rents to the detriment of consumers. In the latter case, instead, we look for exclusionary effects of the merger that hurt and marginalize or even exclude rivals, restricting competition for the market.

### **Non-Exclusionary Effects: The Impact of Digital Mergers on Competition in the Market.**

The building blocks of merger analysis in one-sided markets immediately appear more complex when moving to multi-sided industries. Indeed, strategic interaction among

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market players occurs not only when supplying a given side but also across sides. For example, a contraction in output on one side by the merged entity, reflecting the internalization of externalities on that side, triggers a change in the willingness to pay of the agents on the other side, propagating these adjustments across platforms and sides. Consequently, the adjustments the insiders implement after a merger involve changing their choices on all sides, and the reactions of the outsiders feature similarly. Moreover, a merged entity affects the gross surplus of all sides through cross-side network externalities, part of which is monetized.

When we look at the impact of a merger on competition in the market, it is analytically convenient to consider a fairly symmetric pre-merger setting, in which the key driver of the adjustment in the market equilibrium is the reduction in the number of firms and the emergence of a new entity endowed with a larger set of assets. In this framework, therefore, we can investigate whether the merged entity increases price(s) and restricts output(s), the standard result in one-sided markets.

In the literature on mergers in two-sided markets, we find results that confirm the traditional predictions and others that appear non-standard instead. The variability in results quite often depends on particular features that are relevant in platform markets. In this sense, the usual predictions appear to be less robust.

For instance, looking at attention platforms, several papers have studied the impact of media mergers on the price and quantity of advertising. Single- or multi-homing of users and advertisers play a key role in affecting differently the impact of media mergers. An early result in Anderson and Coate (2005)<sup>124</sup> shows that when users single-home, each platform represents an exclusive channel for advertisers to reach its captive users, and competition for viewers is intense. Since advertising is a nuisance for users, competition limits the amount of advertising, raising its price. A merger, by reducing competition for viewers, allows the merged entity to increase advertising and reduce the advertising price, a non-standard result. One may, however, argue that the quantity of ads represents an implicit "price" on viewers to access free content. Therefore, the impact of the merger reduces the price paid by advertisers and increases the "nuisance price" for viewers. In platform markets, therefore, the merger may have opposite effects on the two sides.

The literature on the impact of media mergers has addressed many issues starting from the seminal paper just mentioned. Anderson, Foros and Kind (2016)<sup>125</sup> show that the above outcome is crucially driven by the assumption of single-homing agents. When at least some of the users and advertisers visit multiple outlets, these shared users, by patronizing an additional platform, derive an incremental benefit compared with sticking only to the original one. Each platform sets a price that reflects the composition of its exclusive and shared users. In particular, a platform can price to advertisers the full value of its exclusive users plus the incremental value of the shared

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<sup>124</sup> See Anderson S., Coate S., (2005), Market Provision of Broadcasting: A Welfare Analysis, *The Review of Economic Studies*, 72, 947–972.

<sup>125</sup> See Anderson S., Foros Ø, Kind H., (2018), Competition For Advertisers and for Viewers in Media Markets, *Economic Journal*, 128, 34–54.

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ones. After a merger, those users that were previously patronizing the insiders move from shared to exclusive of the merged entity, changing the mix of served users. With an increase in the fraction of exclusive users, the merged entity can raise the price. These results suggest that a very common feature of platform markets, multi-homing, may dramatically change the predictions on the impact of mergers on the different sides.

Cross-side network externalities are another element that affects the impact of a merger. Correia-da-Silva, Jullien, Lefouili and Pinho (2019)<sup>126</sup> analyze mergers when platforms follow Cournot quantity-setting strategies and agents on both sides single-home. Since the quantity provided to each side affects the utility of the users on the other side, the latter make their choices based on the prices net of the externality benefit, that is, on externality-adjusted prices. Prices, then, equate demand and supply for each platform on each side. The logic of Cournot competition, such that committing to quantities leads the prices to clear the market, is therefore maintained, although enriched by the interaction across sides.

The authors show that if the pre-merger adjusted prices are above the (average) marginal costs, a merger harms consumers; the opposite occurs if these prices are below marginal costs. When prices on both sides are large enough for the externality-adjusted price to be above average marginal cost, the market power effect of mergers dominates potential efficiency gains stemming from larger participation on each platform, reproducing the standard result in one-sided markets. When both pre-merger externality-adjusted prices are instead below average marginal cost, the reverse holds. Hence, cross-side network externalities, when significant, may revert the standard result in one-sided markets.

Moreover, after a merger, the new entity may change those pricing strategies that were previously induced by the attempt to relax price competition on the same side, adopting more similar business models. Similar adjustments may be implemented regarding platform differentiation and the positioning of horizontal characteristics, for instance, in terms of content provided. In the assessment of media mergers, there is a recurrent concern about homogenizing individual outlets toward mainstream content.

Digital platforms and ecosystems usually offer a wide range of complementary products providing a smooth interoperability among them. Consequently, purchasing and using these services together generates “consumption synergies” across consumers that are, instead, not realized by mix-and-match purchasing patterns. Chen and Rey (2023)<sup>127</sup> analyze how a merger that widens the perimeter of this ecosystem when consumption synergies are heterogeneous affects rent extraction and consumers’ surplus. The merged entity, by offering (or enlarging) a bundle, adds a new purchasing option to consumers, creating a portfolio differentiation that relaxes price

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<sup>126</sup> See Correia-da-Silva J., Jullien B. Lefouili Y., Pinho J. (2019), Horizontal Mergers Between Multisided Platforms: Insights from Cournot competition, *Journal of Economics and Management Strategy*, 28, 109-24.

<sup>127</sup> See Chen Z., Rey P. (2023), A Theory of Conglomerate Mergers, TSE working papers.

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competition and allows the platform to raise price, capturing some of the consumption synergies but still benefiting its customers. The effect of the merger on consumers who opt for stand-alone products, in turn, depends on whether the merger reduces competition in these individual markets. If the platform adopts a mixed bundling, selling both the bundle and the stand-alone products, competition in the latter markets is unaffected, whereas a choice of pure bundling may restrict competition and hurt mix-and-matchers. Hence, Chen and Rey offer a useful analytical framework to look at non-exclusionary anti-competitive portfolio effects stemming from conglomerate mergers, a concern shared by the European Commission since the General Electric-Honeywell case.

Data are often the real target of acquisitions, and gaining control of them may affect both competition in the market through a change in the equilibrium prices and quantities, and competition for the market, creating barriers to entry. Data-driven mergers are frequent in digital markets in which the level of activity and intensity of usage of a given product generate data that are useful for the provision of other products.

De Cornière and Taylor (2024b)<sup>128</sup> develop a general framework to study the effects of data-driven mergers, enabling the analysis of pro- and anti-competitive effects of mergers for a variety of data collection technologies. A data-driven merger may be unilaterally competitive if, for a given surplus provided by rivals, it induces a firm to provide more surplus to consumers, whereas a unilaterally anticompetitive merger works in the opposite direction. The prevalence of one or the other adjustments, in turn, depends on the interaction of two effects. According to the markup effect, since data increases a firm's markup, it induces it to compete more fiercely to attract consumers. The surplus extraction effect has a less clearcut impact, since it may induce to provide or extract more surplus from consumers.

When assessing a merger, it is also important to evaluate whether data trade would occur in a counterfactual scenario in which the merger is prohibited. Indeed, unlike many inputs, data is subject to trade frictions, and the value of data depends on the continuity of its update. Hence, there may be cases where a merger is the only way to transfer valuable data in a market different from the originating one. These features suggest that a data-driven merger may generate pro-competitive effects (personalization of products and recommendations, quality improvements), but also anti-competitive effects (users' exploitation).

When trade frictions are substantial, after the merger, the data-originating firm, which is now also active in the data-receiving sector, has an incentive to produce more data by increasing output and cutting the price. More data, in turn, increases the quality of the data-receiving product, with a fall in the quality-adjuster price. A similar impact of data-driven mergers is shown in Chen et al. (2023)<sup>129</sup>. When, instead, data can be

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<sup>128</sup> See De Cornière A., Taylor G. (2024b), Data-Driven Mergers, *Management Science*, forthcoming.

<sup>129</sup> See Chen Z., Rey P. (2023), A Theory of Conglomerate Mergers, TSE working paper.

exchanged even without a merger, the concentration gives anti-competitive adjustments of the opposite sign.

We have just mentioned some relevant results in the literature on mergers in platform markets, which includes other contributions that explore several extensions and enrichments. The references described above suggest that when the market features significant departures from the usual setting of one-sided markets, such as multi-homing, strong cross-side network externalities, ecosystems, and the role of data, the impact of mergers becomes richer and may entail non-conventional features. Strong cross-side externalities may enhance the advantages of increasing output on a given side to improve the willingness to pay on the other, while multi-homing may limit the ability to monetize this advantage, and mergers may affect the allocation of exclusive and shared users on the different sides. A conglomerate merger may create consumption synergies, benefiting the customers of the ecosystem while drying up stand-alone markets with a restriction in competition. Data-driven mergers may allow the new entity to improve the quality and personalization of its products, benefiting consumers, but also a stronger rent extraction by increasing prices. These features imply that the assessment of a merger should identify a proper Theory of Harm that fits the case.

### **Exclusionary Effects: The Effect of Mergers on Competition for the Market.**

A common characteristic of the results just discussed is the assumption of a relatively symmetric pre-merger equilibrium, where multiple platforms operate with balanced market shares. In some instances, this framework is close to the facts of the case, particularly when sufficient horizontal differentiation (or capacity constraints, as in the Cournot case) is a distinguished feature of the market, as in some segments of the media industry.

However, our discussion of market power in digital environments suggested that, quite often, winner-takes-all and tipping dynamics make the market structure extremely asymmetric and concentrated. In this case, an incumbent already dominant in a given market may try to extend through a merger its dominance in other markets, for instance, through a vertical or conglomerate merger. The key issue in merger assessment is whether the acquisition creates or reinforces the incentives of the merged entity to leverage its dominant position in the core market to exclude rivals from the vertically related or adjacent market or to protect its core market from future competitive threats of competitors.

We can build on the vast literature on exclusionary practices<sup>130</sup> to understand under which conditions, within the new market structure created by the merger, there exists an incentive to exclude.

Consider a platform that dominates a core service and, following the merger, is also active in a complementary market. By engaging in tying, the dominant platform could

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<sup>130</sup> For an extensive review see Fumagalli C., Motta M., Calcagno C., (2018), *Exclusionary Practices: The Economics of Monopolization and Abuse of Dominance*, Cambridge UP.

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exclude rivals from the complementary market. Exclusion, though, is not necessarily in the interest of the dominant firm, the major claim of the “so-called” Chicago school, because control of the core service should enable it to extract enough profits from independent suppliers of the complementary service. The literature on the exclusionary role of tying has identified two main reasons why the incentive to exclude (fully or partially) rivals from the complementary market instead exists.

First, the dominant firm may be unable to extract sufficient rents from the complementary market through the control of the core service. Imperfect rent extraction may be due to the business model (the core service, for instance, may be offered to users for free). Other sources of imperfect rent extraction are frictions in contracting (Greenlee et al. 2008<sup>131</sup>, Carlton and Waldman 2002<sup>132</sup>, Chambolle and Molina 2023<sup>133</sup>, de Cornière and Taylor 2021, 2024c<sup>134</sup>), non-negative price constraints (Choi and Jeon 2021)<sup>135</sup>, downstream competition between distributors (Ide and Montero 2023)<sup>136</sup> and limited price discrimination (Choi, Jeon and Whinston, 2024)<sup>137</sup>.

Second, the incentive to exclude may not exist if one considers the current market structure, with a safe dominant position in the core market, to persist over time. Instead, if the core market may become contestable in the future, a dynamic theory of harm may be proposed. When the complementary market features significant scale economies, either from the supply or demand side, tying may allow the dominant firm to prevent existing or potential rivals from achieving a critical scale, thereby excluding them from the tied market. Exclusion from the tied market allows the dominant firm to discourage future entry in the core market (Carlton and Waldman 2002)<sup>138</sup> or, when the latter is unavoidable, to extract rents from more efficient entrants in that market (Fumagalli and Motta 2020)<sup>139</sup>.

The economic mechanisms underlying the incentive to exclude are similar when the merger creates a vertically integrated firm that dominates, say, an upstream market and faces competition downstream. The concern may be that the vertically integrated

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<sup>131</sup> See Greenlee P., Reitman R., Sibley D., (2008), An Antitrust Analysis of Bundled Loyalty Discounts, *International Journal of Industrial Organization*, 26, 1132-52.

<sup>132</sup> See Carlton D., Waldman M. (2002), The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries, *The RAND Journal of Economics*, 33, 193-202.

<sup>133</sup> See Chambolle C., Molina H., (2023), A Buyer Power Theory of Exclusive Dealing and Exclusionary Bundling, *American Economic Journal: Microeconomics*, 15, 166-200.

<sup>134</sup> See De Cornière A., Taylor G. (2021), Upstream Bundling and Leverage of Market Power, *The Economic Journal*, 131, 3122-3144 and De Cornière A., Taylor G. (2024c), Anticompetitive Bundling When Buyers Compete, *American Economic Journal: Microeconomics*, 16, 293-328.

<sup>135</sup> See Choi, J.P., and Jeon D. (2021), A Leverage Theory of Tying in Two-Sided Markets with Nonnegative Price Constraints, *American Economic Journal: Microeconomics*, 13 (1), pp. 283–337.

<sup>136</sup> See Ide E., Montero J. (2023), Monopolization with Must-Haves, *American Economic Journal: Microeconomics*, 15, 284-320.

<sup>137</sup> See Choi J., Jeon D., Whinston M. (2024), Tying with Network Effects, CEPR dp 19076.

<sup>138</sup> See Carlton D., Waldman M. (2002), The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries, *The RAND Journal of Economics*, 33, 193-202.

<sup>139</sup> See Fumagalli C., Motta M. (2020), Dynamic Vertical Foreclosure, *Journal of Law and Economics*, 63: 763-812

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firm engages in vertical foreclosure by refusing to supply a crucial input, by degrading its quality/interoperability, or by engaging in margin squeeze. The dominant platform could also favor its own services over the ones of its rivals, a practice known as self-preferencing (and that can be considered a form of vertical foreclosure). For instance, the theory of harm proposed by the CMA in its decision to block the acquisition of Giphy by Facebook, in 2022, is precisely one of vertical foreclosure. Giphy is the market leader in the global market for searchable GIF libraries. Social media platforms use GIFs and GIF stickers as a way to improve users' experience and engagement. Therefore, the concern is that, following the acquisition, Facebook would foreclose access to Giphy's services to rival social media platforms, thereby harming their ability to compete in the social media market.

Control of the crucial input should, in principle, allow the vertically integrated firm to extract sufficient rents from downstream rivals, eliminating the incentive to exclude, the Chicago School's proposition of one monopoly profit. The literature has shown that, instead, the incentive to exclude (fully or partially) exists when the scope for rent extraction is restricted by regulation of the input price (Jullien et al. 2014)<sup>140</sup> or by contractual frictions that give rise to opportunistic behavior (Hart and Tirole 1990)<sup>141</sup>. The incentive to engage in vertical foreclosure may also arise in a dynamic perspective where exclusion from the downstream market allows the vertically integrated firm to protect its dominant position in the input market from future entry threats or, when the latter are unavoidable, to transfer its dominant position to the downstream market (Fumagalli and Motta 2020b)<sup>142</sup>.

Contractual frictions may be due to the quality of the input being unverifiable. When this is the case, Allain, Chambolle, and Rey (2016)<sup>143</sup> show that vertical integration gives rise to an incentive for the integrated supplier to degrade the input provided to its rival so as to confer a competitive advantage to its own downstream subsidiary, thereby creating hold-up problems for the independent rival.

In Allain, Chambolle and Rey (2016) it is vertical integration that alters the incentives of the input supplier and gives rise to vertical foreclosure in the form of quality degradation. This highlights an important aspect in merger assessment, i.e. the understanding of whether exclusion is not an issue in a counterfactual no-merger scenario where the dominant firm does not directly participate in the vertically related/adjacent market, whereas it becomes a central concern following the merger.

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<sup>140</sup> See Jullien B., Rey P., Saavedra C. (2014), The Economics of Margin Squeeze, CEPR dp n.9905.

<sup>141</sup> See Hart O., Tirole J. (1990), Vertical Integration and Market Foreclosure, *Brookings Papers: Microeconomics*, 205-86.

<sup>142</sup> See Fumagalli C., Motta M. (2020b), Tying in Evolving Industries, When Future Entry Cannot be Deterred, *International Journal of Industrial Organization*, 73, 1-23.

<sup>143</sup> See Allain M., Chambolle C., Rey P., (2016), Vertical Integration as a Source of Hold-up, *The Review of Economic Studies*, 83, 1-25.



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Making this comparison requires to understand to what extent the merger: (i) extends the set of assets controlled by the same organization; (ii) strengthens the governance structure, i.e. extends the possibility to exert authority within the same organization to achieve a given outcome, on top of using explicit but imperfect contracts; (iii) reduces the transparency and visibility of the practices adopted by the merged entity for external agents, including a competition authority. The enforcer should therefore explore whether the feasibility and profitability of exclusion benefits from some of these elements.

For instance, the same exclusionary outcome that, following a vertical merger, is achieved by engaging in refusal to supply could be implemented, in the no-merger scenario, by exclusive dealing between the dominant supplier input and the downstream buyer. Hence, one should try to understand whether and why exclusive dealing was not agreed upon absent the merger, while following the merger the incentive to engage in vertical foreclosure exists.

Incentives to engage in exclusionary practices may also arise following cross-market data-driven mergers. Condorelli and Padilla (2024)<sup>144</sup> show that, following the acquisition of a company that operates in a data-rich secondary market, the acquirer may have an incentive to adopt exclusionary strategies (for instance, predation) in such a market so as to protect its dominant position in the data-intensive primary market, i.e. in the market where those data can be exploited. The idea is that data harvested in the data-rich market increases the profitability of operating in the data-intensive market, for instance, by increasing the quality of the offered products or by reducing the cost-of-service provision. This converts firms operating in the data-rich secondary market into potential entrants/effective competitors in the data-intensive primary market. Exclusion, by allowing the acquirer to gain control of data, not only builds a data advantage for the acquirer but also prevents rivals from obtaining such an advantage, thereby entrenching the dominant firm's position in the data-intensive primary market and protecting it from entry.

Summing up, the literature on tying, exclusive dealing, loyalty rebates, and similar practices shows that an incumbent already dominant in one market may extend its dominance in adjacent or vertically related markets. This issue is of central concern in the enforcement of competition policy in digital markets and plays a central role in the DMA.

Mergers in very concentrated markets may lead not only to further entrenching dominant positions and monopolization of additional markets, but also to the elimination of potential competitors. This issue has attracted the attention of enforcers, commentators, and academics since acquisitions of start-ups, often in their early phase, are a common phenomenon in digital markets.

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<sup>144</sup> See Condorelli D., Padilla J. (2024), Data-Driven Envelopment with Privacy-Policy Tying , *The Economic Journal*, 72, 515-537.

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A crucial distinction in this perspective is the nature of the target firm's products or services. If the competitor supplies products that are substitutes for the incumbent's, the acquisition may eliminate the threat of displacement of the dominant firm by newcomers, entrenching its monopoly. This concern applies to products already marketed by the acquirers as well as to the effect on the innovative effort and the direction of research of start-ups in the first place, where this latter issue is discussed in the next Section.

However, acquiring start-ups in digital markets more often involves products that are complements to those already offered in the incumbent ecosystem, contributing to its enlargement and renewal through additional services. This class of acquisitions may deserve a more favorable assessment since creating large ecosystems provides users efficiency. However, even when the acquisition does not eliminate a direct competitor of the dominant platform, it may enhance its market power by depriving competing platforms of access to independent apps that may improve the overall attractiveness of their ecosystems, thereby creating an application barrier-to-entry.

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#### THE EFFECTS OF MERGERS AND ACQUISITIONS ON INNOVATION

The impact of mergers on innovation has drawn significant attention from both enforcers and academics over the past decade, largely due to high-profile mergers in sectors such as telecommunications, pharmaceuticals, agricultural products, and the digital industry. A landmark case in this context is the 2017 merger between Dow and Dupont, which led the European Commission to apply a comprehensive innovation theory of harm and impose extensive remedies including the divestiture of substantial parts of Dupont's global R&D organization.

The debate about the effects of mergers on innovation is closely related to the broader issue of how competition affects innovation, a subject that has given rise to a rich literature based on two seminal contributions. On the one hand, Schumpeter (1942)<sup>145</sup> argued that market power can stimulate innovation by enhancing the ability of firms to capture private returns from their R&D investments. On the other hand, Arrow (1962)<sup>146</sup> contended that monopoly power can hinder innovation because the substantial profits that monopolies derive from their existing products make their incentives to innovate lower than those of firms in competitive markets, a phenomenon known as the "replacement effect." The two economic mechanisms highlighted by these pioneering contributions show that competition can have conflicting effects on innovation.

The general literature on the impact of competition on innovation building on Schumpeter and Arrow provides valuable insights into the effects of mergers on firms' incentives to innovate. However, it has been argued that this literature is not directly applicable to merger analysis because it does not address a key aspect of mergers: the ability of merging firms to coordinate their decisions. This led to the emergence of a new literature specifically examining the impact of mergers on innovation. This literature can be broadly divided into two strands, each addressing a distinct concern for policymakers and enforcers. The first strand explores the impact of horizontal mergers between established firms on their incentives to innovate and, to a lesser extent, on those of their rivals. The second strand examines the effects of acquisitions of start-ups by incumbents on the innovation incentives of both the acquiring and acquired firms. Below, we present key findings from each of these two bodies of literature.

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<sup>145</sup> See Schumpeter J. (1942), *Capitalism, Socialism and Democracy*, Harper and Brothers.

<sup>146</sup> See Arrow K. (1962), *Economic Welfare and the Allocation of Resources for Invention*, in: NBER *The Rate and Direction of Inventive Activity: Economic and Social Factors*.

### Mergers Between Established Firms

The literature studying the effects of mergers between established firms on innovation has largely focused on two channels through which mergers affect incentives to innovate (see e.g., Federico et al., 2018)<sup>147</sup>:

- **Cannibalization:** This channel relates to the effect of one firm's innovation on the expected sales of the other merging firm(s).
- **Market power:** This channel relates to the impact of increased market power on a firm's ability to appropriate the returns from its investment in innovation and the resulting effect on the firm's incentives to innovate.

Let us first consider the issue of cannibalization. When a firm introduces a new or improved product, it negatively affects the sales of other firms selling substitutes. For instance, in the case of new products, an increase in one firm's innovation efforts raises the probability that its (successful) rivals face competition, thereby reducing their expected sales. A merger between two firms allows the merged entity to internalize this negative externality. An early contribution to the new literature on mergers and innovation concludes that this internalization leads the merged entity to reduce the R&D efforts of both merging firms (Federico et al., 2017)<sup>148</sup>. According to this reasoning, mergers are expected to decrease the innovation incentives of merging firms. For example, in a scenario where two companies independently develop products to meet the same market demand, a merger might lead the new entity to scale back its innovation efforts. This is because the negative impact on one product's sales resulting from the success of another product within the same company is now internalized.

This line of reasoning can be seen as the extension of the Arrow replacement effect to the case of a multi-product firm. However, the overall effect on innovation is not always straightforward, as it depends on various factors, including the R&D technology and the nature of the products.

For instance, if the decreasing returns to R&D are not large and the value of the innovation is substantial, it may be profitable after the merger to concentrate all research resources on one firm and to shut down the research lab of the other firm, thereby avoiding the cost of wasteful duplication. In this case, the merger can lead to an increase in innovation (Denicolò and Polo, 2018)<sup>149</sup>.

Moreover, when the innovative products of the merging firms are only imperfect substitutes, coordination of marketing decisions, such as prices or product positioning, allows the merged entity to reduce cannibalization. The ex-post internalization of sales

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<sup>147</sup> See Federico G., Langus G., Valletti T. (2018), Horizontal Mergers and Product Innovation: An Economic Framework, *International Journal of Industrial Organization*. 59, 1-23.

<sup>148</sup> See Federico G., Langus G., Valletti T. (2017), A Simple Model of Mergers and Innovation, *Economics Letters*, 157, 136-140.

<sup>149</sup> See Denicolò V., Polo M. (2018), Duplicative Research, Merger and Innovation, *Economics Letters* 166, 56-59.

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externalities resulting from a merger raises appropriability of multiple innovations and may boost incentives to innovate (Jullien and Lefouili, 2020)<sup>150</sup>.

This leads us to consider the second channel, namely the increased market power induced by the merger. The literature on the relationship between concentration and market power has highlighted that ex-post market power enhances incentives to innovate because it increases the innovator's ability to capture the social value of an innovation, while ex-ante market power may reduce incentives to innovate due to a lack of competitive pressure (Aghion et al., 2005)<sup>151</sup>. Given that a merger raises both ex-ante and ex-post market power, the implications for innovation in merger cases are not straightforward. In fact, the literature has struggled with this issue and few clear conclusions have emerged.

Setting aside the cannibalization channel, one argument is that a merger can decrease incentives to innovate because it leads to a reduction in output. This is true when incentives to innovate are positively related to the output levels of the firms, such as in the case of process innovations (i.e., innovations that lower production costs). In this scenario, a merger lowers the incentive to innovate if it leads to higher prices and lower demand, as this reduces the marginal benefit of cost reductions (Motta and Tarantino, 2021)<sup>152</sup>. However, it should be noted that, with the same reasoning, the impact on competitors may be the opposite: they may have higher incentives to innovate in response to a merger, as they grow their market share against a less aggressive entity.

Determining the impact of a merger on innovations that improve existing products rather than lead to the development of entirely new products requires analyzing not only the effect of the merger on post-innovation revenues but also on pre-innovation revenues, which complicates the analysis. Merging parties often argue that, by inducing larger margins, the merger increases the incremental gains from innovation of the merged entity, thereby boosting innovation. This contrasts with the view that reduced output due to the exercise of market power lowers incentive to innovate. Disentangling the two effects and assessing which one dominates is a difficult exercise, and there is currently a lack of empirical results on this. Recent theoretical progress on this issue can be found in Bourreau, Jullien and Lefouili (2024)<sup>153</sup>. These authors show that, absent efficiencies, the effect of a merger on innovation is likely to be negative if the innovation externality between merging firms is large relative to the price externality. If the reverse holds, the impact of the merger on innovation is ambiguous. Specifically, they establish that the comparison between the price diversion and innovation diversion ratios plays a key role in determining the effect of a merger on

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<sup>150</sup> See Jullien B., Lefouili Y., (2020), Mergers and Investments in New Products, TSE working paper.

<sup>151</sup> See Aghion P., Bloom N., Blundell R., Griffith R., Howitt P., (2005), Competition and Innovation: An Inverted-U Relationship, *The Quarterly Journal of Economics*, 120, 701–728.

<sup>152</sup> See Motta M., Tarantino E., (2021), The Effect of Horizontal Mergers, When Firms Compete In Prices And Investments, *International Journal of Industrial Organization*, 78, 1-20.

<sup>153</sup> See Bourreau M., Jullien B., Lefouili Y. (2024), Mergers and Demand-Enhancing Innovation, *The RAND Journal of Economics*, forthcoming.

quality-enhancing innovation.<sup>154</sup> If the innovation diversion ratio is larger, a merger is likely to negatively impact innovation, thus exacerbating the standard adverse effect of a merger on prices. In this case, larger merger-specific efficiencies would be required for the merger to be considered beneficial to consumers (compared to a scenario with fixed innovation). Conversely, if the price diversion ratio is larger, achieving sufficient production efficiency gains to eliminate concerns about the merger's impact on prices (holding innovation fixed) also addresses concerns about adverse effects of the merger on innovation.

### **Mergers Between Suppliers of Zero-Price Services**

A distinctive feature of the digital economy has been the significant increase in offers of free services. These services operate under business models that rely either on advertising or on monetization of collected user data, allowing the value generated by consumers to cover the costs of acquiring them. Typically, these services would find it profitable to charge negative prices but are constrained by a price floor of zero. The analysis of the impact of a merger on innovation in this context depends on the nature of competition. If competition is primarily driven by innovation, the key question is whether the negative effect on innovation through the cannibalization channel is outweighed by potential merger-induced efficiencies. This scenario is discussed in Salinger (2019),<sup>155</sup> who introduced the concept of "Net Innovation Pressure (NIP)," analogous to the "Upward Pricing Pressure (UPP)" for pricing. However, in many cases, competition among firms offering free services revolves around factors other than innovation. For example, firms may adjust the intensity and intrusiveness of advertising, which affects the level of nuisance experienced by users. In this case, the "price" can be understood as the monetary equivalent of the nuisance. With this interpretation, the insights from the analysis of mergers in settings with monetary prices and innovation apply to settings with zero prices and innovation.

### **Portfolio Choice**

Mergers may affect not only the amount of R&D spending by firms but also their choice of R&D portfolios. When selecting R&D projects, firms may benefit from diversifying and differentiating their portfolios. This can create a tension as some projects may be more appealing to all firms because they are easier and cheaper to complete. Therefore, firms must balance the risk of duplication with the likelihood of success, which leads to complex externalities among them. A merged entity will internalize these externalities by coordinating the R&D portfolios of the merged firms. By removing a motive for differentiation, a merger may reduce the diversity of R&D. Furthermore, the merger induces a reallocation of resources across R&D projects,

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<sup>154</sup> The price diversion is the percentage of sales that is diverted to the other product when the price of a given product increases. The innovation diversion ratio is the percentage of sales that is diverted from the other product when the innovation level of a given product increases.

<sup>155</sup> See Salinger M.A. (2019), Net Innovation Pressure in Merger Analysis. mimeo.

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which can either raise or reduce consumer welfare (Moraga-González, Motchenkova, and Nevrekar, 2022)<sup>156</sup>.

#### Spillovers

Technological spillovers refer to the phenomenon where improvements made by one company can benefit other companies by enhancing their technological capabilities. Through mechanisms such as licensing, imitation, or the exchange of researchers, knowledge generated by one firm can be partially appropriated by others, enhancing overall market efficiency. Spillovers are well-documented in the literature, and empirical studies show that their impact may be larger than the negative "business stealing" effect of innovation (Bloom et al., 2013)<sup>157</sup>.

A key feature of spillovers is that they represent positive innovation externalities. Therefore, their internalization by a merged entity leads to an increase in incentives to invest in R&D. This effect, along with other potential benefits, should be considered alongside any possible negative impacts of a merger on firms' incentives to innovate when evaluating merger cases (Katz and Shelanski, 2007)<sup>158</sup>. In mergers involving two innovative firms, the merged entity not only internalizes existing spillovers but also typically increases the level of spillovers between the merging firms. This results from the nature of the knowledge generated or used during the R&D process: it can often be shared, though it may be protected by intellectual property rights or confidentiality. From an economic perspective, this type of knowledge is considered as an excludable public good. By eliminating a motive for exclusion, a merger between two firms allows each one to make greater use of the knowledge produced by the other one. For instance, positive effects arise when a (process) innovation can be applied after the merger to the production units of both merging firms, increasing its value and thereby the incentives to innovate (Denicolò and Polo, 2021)<sup>159</sup>.

#### Acquisition of Start-ups

We now discuss how acquisitions of start-ups by incumbents affect the innovation incentives of both the acquired and acquiring firms. A central concept in this context is "innovation for buyout", which describes situations where start-ups develop innovations with the objective of being acquired. The prospect of an acquisition increases a start-up's incentives to invest in innovation whenever an incumbent is willing to pay a buyout price higher than what the start-up could gain on its own. This occurs for instance if the acquirer is better positioned to realize the market potential of the innovation. Additionally, the possibility of start-ups being acquired can stimulate innovation by attracting venture capital funding, as investors often view acquisitions

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<sup>156</sup> See Moraga-González J., Motchenkova E., Nevrekar S. (2022), Mergers and Innovation Portfolios, *The RAND Journal of Economics*, 53, 641-77."

<sup>157</sup> See Bloom N., Eifert B., Mahajan A., McKenzie D., Roberts J., (2013), Does Management Matter? Evidence from India, *The Quarterly Journal of Economics*, 128, 1–51.

<sup>158</sup> See Katz M., Schelanski H. (2006), Mergers and Innovation, *Antitrust Law Journal*, 1-99.

<sup>159</sup> See Denicolò V., Polo M., (2021), Mergers and Innovation Sharing, *Economics Letters*, 202, 1-4.

as a primary exit strategy<sup>160</sup>. Finally, start-up acquisitions can promote the diffusion of innovation by facilitating technology transfer in sectors, such as digital industries, where licensing intellectual property is particularly challenging (Cabral, 2021)<sup>161</sup>.

However, the acquisition of start-ups can also negatively impact innovation. A key concern is that incumbents may acquire emerging competitors and discontinue their innovative projects – a practice known as "killer acquisition" (Cunningham et al., 2021)<sup>162</sup>. Recent research suggests that a significant share of products developed by start-ups acquired by Big Tech companies are indeed discontinued<sup>163</sup>. Note that such discontinuation may occur either because the start-up's innovation would benefit the incumbent, but the cost of developing it turns out to be higher than the potential gain, or because the acquisition offers no direct benefit to the incumbent but allows it to prevent a rival from acquiring the start-up (Bryan and Hovenkamp, 2020)<sup>164</sup>. A different, but related, concern is that the acquisition of a start-up by an incumbent may give the latter incentives to halt its own innovation efforts to avoid duplication, a phenomenon called "reverse killer acquisition" by Caffarra et al. (2020). Finally, the acquisition of a start-up can strengthen the dominance of the acquirer, which may affect *future* market entry. Specifically, as the acquirer's dominance grows, the returns to innovation for new entrants decrease (whether they are acquired or not). This reduces start-ups' incentives to invest in innovation (Denicolò and Polo, 2023)<sup>165</sup>. In extreme cases, this may lead to the creation of a 'kill zone,' where market entry becomes unprofitable (Kamepalli, Rajan, and Zingales, 2021).<sup>166</sup>

Some acquired start-ups may not be direct or potential competitors to incumbents, but they provide inputs that may give to some incumbents a competitive advantage over others, thereby affecting the dynamics of competition. In such cases, start-ups may shift their innovation efforts toward leading incumbents rather than lagging ones to secure higher acquisition prices (Bryan and Hovenkamp, 2020)<sup>167</sup>. This suggests that the acquisition of start-ups can impact not only the pace of innovation but also its direction. The prospect of an acquisition may also influence the direction of innovation by incentivizing a start-up to develop a product that serves as a substitute, rather than a complement, to an incumbent's product, with the aim of being acquired and thereby

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<sup>160</sup> See Crémer J., de Montjoye Y-A., Schweitzer H. (2019) and Eisfeld, (2024).

<sup>161</sup> See Cabral L. (2021), Merger Policy in Digital Industries, *Information Economics and Policy*, 54, 1-7.

<sup>162</sup> See Cunningham C., Ederer F., Ma S. (2021), Killer Acquisitions, *Journal of Political Economy*, 129, 649-702.

<sup>163</sup> See Gautier A., Maitry R. (2024), Big Tech Acquisitions and Product Discontinuation, *Journal of Competition Law and Economics*, 20, 246–263.

<sup>164</sup> See Bryan, K. A., Hovenkamp E., (2020), Antitrust limits on startup acquisitions. *Review of Industrial Organization*, 56, 615–636.

<sup>165</sup> See Denicolò V. Polo M. (2023), Innovation, Acquisitions and the Entrenchment of Monopoly, *The Rand Journal of Economics*, forthcoming.

<sup>166</sup> See Kamepalli S., Rajan R., Zingales L. (2020), Kill Zone, NBER wp 27146.

<sup>167</sup> See Bryan, K. A., Hovenkamp E., (2020), Antitrust limits on startup acquisitions. *Review of Industrial Organization*, 56, 615–636.



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capturing some of the incumbent's gains from removing competition (Motta and Shelegia, 2022)<sup>168</sup>.

Start-ups are sometimes acquired for the sole purpose of hiring their specialized employees, a practice known as "acqui-hiring". In this case, the acquirer prefers to buy the start-up rather than engage in direct individual hiring. Such acquisitions raise additional issues related to competition in the labor market. Recent research studying their rationale and implications has highlighted the risk that they may grant the acquirer monopsony power over specialized talent, resulting in lower wages for workers (Bar-Isaac, Johnson, and Nocke, 2024).<sup>169</sup>

Recent research has highlighted the benefits of accounting for new factors when evaluating acquisitions of start-ups. One factor competition authorities could consider is the history of past acquisitions made by a dominant firm (Denicolò and Polo, 2023)<sup>170</sup>. The more acquisitions the firm has made, the more dominant it becomes. Therefore, competition authorities may want to commit to a stricter stance on mergers when one of the merging parties has a history of numerous acquisitions.<sup>171</sup>

Fumagalli, Motta, and Tarantino (2024) suggest that the acquisition price should also be included among the factors considered in merger review. A low price may indicate that the acquired start-up is not viable on its own (and thus has low bargaining power), while a high price may reflect the start-up's potential to enter the market and compete effectively with the acquiring firm. The challenge lies in distinguishing between cases where the high price reflects the value of the acquired firm's innovation and those where it reflects the threat posed to the acquirer's market power.

### CONCLUDING REMARKS, SUGGESTIONS AND INSIGHTS FOR THE ASSESSMENT OF DIGITAL MERGERS

This concluding section aims to summarize the main insights and policy suggestions that may enhance the ability of the enforcer to assess the short and long-run effects of digital mergers and design a coherent policy approach.

#### Relevant Market and Business Models

In Section C we have discussed in detail the hurdles of defining the relevant market in digital mergers. We present below the main insights from this discussion.

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<sup>168</sup> See Motta M., Shelegia S. (2024), The "Kill Zone": When a Platform Copies to Eliminate a Potential Threat, *The Journal of Economics and Management Strategy*, forthcoming.

<sup>169</sup> See Bar-Isaac H., Johnson J., Nocke V., (2024), Acquiring for Monopsony Power, *Management Science*, forthcoming.

<sup>170</sup> See Denicolò V. Polo M. (2023), Innovation, Acquisitions and the Entrenchment of Monopoly, *The Rand Journal of Economics*, forthcoming.

<sup>171</sup> This issue is specifically addressed in the new US Horizontal Merger Guidelines, namely Guideline 8 (When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series).

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In digital markets, the sequence of steps that are usually followed in traditional one-sided markets, from the definition of the relevant market to the assessment of the competitive conditions and the effects of the merger, is not feasible. Since a platform offers multiple products and services that are connected through cross-side externalities, it is necessary to highlight these linkages across products and markets and the competitive constraints that arise from them, looking at the business models and strategies of the platform to capture the relevant interactions. Hence, the definition of the relevant markets, the identification of the business models, and the assessment of competitive conditions must be developed together in a holistic analysis.

A starting point is the list of products and services the platform supplies, with a crucial distinction between the core service(s) and the ancillary ones offered within the platform ecosystem. Moreover, it is important to identify the pricing strategy for each service, whether it is distributed for free (or even subsidized) or monetized. To understand the underlying logic of the price structure, the assessment has to identify the network externalities and their intensity and relevance.

The outcome of this first phase is, therefore, to move from the list of products/services to the identification of the business model of the platform, that is, the hierarchy among products, the own-side and cross-side network effects, the pricing strategies, and the price structure adopted.

For instance, if the merger involves a platform whose core service is acting as a marketplace, it is important to look at the product categories that are traded, the ancillary services that are provided with the purchase, the pure or mixed bundling of some of them, the fees charged to sellers and buyers, special conditions and exclusivity, discounts for repeated purchases and other commercial clauses. The review, then, carries on by identifying the other products provided out of the core services, the complementarities and consumers' synergies that the platform provides, and the pricing of these other offers. Finally, a special focus must be devoted to the data gathered by the platform and the privacy restrictions applied. The ultimate task of this first phase is to capture the logic sustaining the joint supply of the products and services, how the externalities across them shape the pricing structure and monetization, and how the data provide key information in the development of the business.

If, instead, the merger is promoted by an attention platform, the core service involves distributing content (from search results to entertainment) and monetizing on the advertising side. In this case, the focus is, on the one hand, on the types of content, its differentiation, the pricing and packages applied to users; on the other, the pricing and allocation mechanisms of advertising. As in the case of marketplaces, the review then proceeds with other services provided, their pricing and interoperability, and the role of the data collected in business development.

The second step looks at the actual and potential competitors. They may exert competitive constraints on the overall business of the platform if, for instance, they replicate the same business model, or on specific products and sides, affecting the

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monetization strategy of the platform. The overlapping may come from particular product categories, such as in the case of general purpose and specialized marketplaces, or in particular markets, as in the case of attention platforms that compete on the advertising side but much less on users' attention, offering complementary content.

A particularly complex exercise refers to the flexibility of the business models and the possibility that the platform, after the merger, enriches its portfolio of services by entering new activities. Relatedly, attention must be paid to the potential uses of the data in other businesses that are not yet in the platform's portfolio. This forecasting exercise is challenging but is often crucial in anticipating new market developments that are not yet in place. Requirements to describe business developments may be helpful in this perspective.

#### POLICY RECOMMENDATION

Follow a holistic approach to analyzing digital mergers. Traditional methods, starting with market definition, are inadequate due to platforms' interconnected services and cross-side externalities. Instead, the analysis should integrate market definitions, business models, and competitive conditions. This involves mapping core and ancillary services, pricing strategies, network effects, and data usage to understand the platform's business logic. Additionally, the review must consider competitors, potential market overlaps, and future business developments, including data's role in new markets. This comprehensive framework ensures a nuanced assessment of digital mergers' competitive impact.

#### COMPETITIVE CONDITIONS

The next step in the merger review requires ascertaining the competitive conditions of the markets where the platform operates. In Section D.1, we have discussed the main features that matter in detail. The first screen may be the analysis of concentration and market shares. It is important to stress that cross-side externalities require maintaining a holistic approach, even in this phase when measuring market power, as it cannot be assessed separately for each product or service. Moreover, distinguishing between dominance in core services and ancillary ones is crucial.

Market shares and concentration indexes run into additional hurdles in digital environments compared with more traditional ones. Once the relevant market is identified, the first issue refers to measurement. Usually, market shares and concentration indexes are computed in monetary terms of value added or turnover of the undertakings and the other market participants. When, instead, a side receives the product for free, we must rely on non-monetary measures. For instance, search

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engine's market shares may be measured through queries, clicks, or other usage measures for customers who do not pay for searches. And social network participation can be measured through the time spent on apps, etc. The different measures available may be non-neutral in generating market shares and concentration measures.

Moreover, a platform may charge a membership and a usage fee, setting one or both at zero. In this case, we may have monetary (fees) and non-monetary measures related to users' choices. It is not obvious which is the more appropriate way to compute market shares, a choice that can be made only by looking at the specificities of a case.

A third measurement issue pertains to multi-homing. If agents on a given side use the same service on multiple platforms, non-exclusive participation and usage must be considered. The measure of market size must include the total numbers arising from the choices of multi-homers. Moreover, if participation and usage are very different, a case that naturally arises when participation is for free, measuring market shares on participation or usage may give very different pictures, with usage more concentrated than participation. Indeed, a customer may download several apps offered for free that provide the same service but then use mostly just one.

Moreover, ecosystems are characterized by a bundle of complementary services integrated around a core service. Understanding the role of the different services and the crucial importance of the core ones is needed to understand the overall market power of the platform. For example, Google has its core service in the search engine, where it is dominant, and it has very large market shares in e-mail services, map and navigation services, online advertising, etc. Although market power may arise in each of these relevant markets, the interaction among them is crucial to understanding the overall dominance of the platform.

Hence, although market shares in the different relevant markets served by a platform remain a useful initial screen, a more articulated analysis is required, going in-depth into the factors that enable constructing and entrenching incumbency advantage through the full deployment of multi-sided strategies.

In Section D.1, we have discussed in detail the factors that enhance the exercise of market power and concentration in digital markets, as well as those that act as mitigating factors. Our discussion offers a useful set of features to be reviewed, from the cost structure and the importance of fixed costs to the advantages of focality and brand recognition, from own-side network effects and switching costs to cross-side externalities, complementarity, and interoperability. In parallel, the review should evaluate the relevance of mitigating factors, such as product differentiation, multi-homing, or easy access to data.

All these elements may constitute an avenue to entrenchment and incumbency advantage or a softening of dominance. It is important to stress, however, that the assessment of competitive conditions of the relevant markets has the objective of selecting, in each merger case, a combination of relevant elements and combining them in a coherent story and a Theory of Harm. Instead, a mechanical check of yes and

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no in a list of items should be avoided, a procedure that would preclude a deep comprehension of the market's competitive dynamics.

#### POLICY RECOMMENDATION

Follow a nuanced approach to assessing competitive conditions in digital merger reviews. While market shares and concentration indexes serve as an initial screen, they must account for digital-specific complexities, such as cross-side externalities, multi-homing, and non-monetary measures for free services. Dominance in core versus ancillary services must be distinguished, and ecosystems' integrated nature requires evaluating interactions among services. The review should consider factors like network effects, switching costs, and brand recognition, alongside mitigating elements like multi-homing and product differentiation. A holistic, case-specific analysis, rather than a checklist approach, is crucial to crafting a coherent Theory of Harm.

### The Effects of the Merger on Competition

In Section D.2 we have discussed several insights that the economic literature has recently developed to analyze the effects of mergers in digital platforms. We have distinguished non-exclusionary effects, driven by the increase in market power when competition in the market, although distorted, still survives after a merger, and exclusionary effects of the merger, that lead to the marginalization or exit of competitors. Hence, when reviewing a digital merger, the enforcer should first assess whether the market features some form of competition sustained beyond the undertakings promoting the merger by active competitors of significant size or, instead, whether the undertakings are in a dominant position. In the latter case, the competitive concern should shift from the distortion of the market outcomes due to an increased market power to the threat that the merger may reduce or eliminate competition for the market. Although useful for setting up a case, the distinction between non-exclusionary and exclusionary mergers may become less clear-cut in practice if considering medium-term dynamic issues. Indeed, a merger may initially reinforce the market power of the undertakings to the detriment of competitors, therefore distorting competition in the market, and then it may lead in the medium term to the weakening of competitors until the market is monopolized. The latter outcome may be particularly relevant if network effects play an important role.

If some form of competition in the market survives even post-merger, the enforcer has to figure out possible anti-competitive distortions. In digital mergers, the traditional effects of price increase and output restriction may arise, but this adjustment may also be reverted in some or all the markets in which the platform is active. In this sense, the robust predictions that apply in more traditional one-sided markets are only sometimes respected. Several key features of digital markets, discussed in Section D.2, contribute to generating non-conventional effects, such as multi-homing, cross-side network externalities, consumption synergies in ecosystems, or the role of data.

Absent a general robust prediction on the non-exclusionary effects of digital mergers, the task of the merger review is to identify a coherent Theory of Harm<sup>172</sup> that fits the case's key features, selecting those explanations that correspond to the market's characteristics and the platforms involved.

For instance, if the enforcer has to review a media merger, it is important to assess whether advertisers and users tend to single or multi-home and in which proportion,<sup>173</sup> if the content offered by platforms is differentiated or tends to converge to the one patronized by the larger audience, whether the platforms follow similar or divergent business models, to what extent the mix of services offered and the characterization of the content may be easily changed. Interpreting all these factors to find the rationale and motivation for the merger is a complex exercise. Comments and explanations from

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<sup>172</sup> For a discussion of the Theories of Harm adopted by the UK competition authority and the European Commission in digital mergers see Argentesi E., Buccirossi P., Calvano E., Duso T., Marrazzo A., Nava S., (2019) Merger Policy in Digital Markets: an Ex-Post Assessment, DIW Discussion paper n. 1836.

<sup>173</sup> The role of multi-homing to mitigate the anticompetitive effects of network externalities has been a fundamental component of the Theory of Harm adopted by the European Commission on the merger Microsoft/Skype.

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the proponents and the competitors in a market test may bring useful elements. Similar concerns have been raised in the Facebook/WhatsApp merger, in which the two firms adopted different business models. For example, WhatsApp did not participate in the advertising market, unlike Facebook. One complex issue regarded the design of post-merger scenarios in which WhatsApp might shift to participating in the advertising market by offering bundled services with Facebook or sticking to its traditional no-ads policy.

The complexity of figuring out post-merger scenarios to understand whether the undertakings might become competitors in case of rejection of the proposal is well illustrated in the Google/DoubleClick case before the European Commission involving services in the online advertising markets. The Commission analyzed several alternative scenarios in which Google and DoubleClick might have developed services similar to the rival, assessing the potential and hurdles of such evolution. Moreover, the Commission argued that a sufficient number of competitors would have remained in the market, mitigating the merger's anticompetitive effects.

Turning to the impact of the merger on the competition for the market, the key starting point is to review, in the pre-merger situation, the practices adopted by insiders regarding tying, vertical contractual clauses, rebates, exclusivity, and other practices that, in the case law, have been considered an infringement of antitrust law. The review may identify that insiders already adopted some of these conducts pre-merger, or, instead, abstain from them. Both acting and abstaining pre-merger may bring useful insights into forecasting the potential exclusionary effects of a merger.

More precisely, observing that any of these practices are adopted pre-merger may be instructive of the absence in the marketplace of those frictions that may reduce their profitability or feasibility. At the same time, the small size of individual insiders pre-merger may shield them from antitrust intervention under an abuse of dominance allegation. In contrast, the larger size of the newly merged entity may motivate a competitive concern when these same practices are adopted post-merger. Additionally, the enforcer should figure out whether certain practices that are not adopted pre-merger would become feasible and profitable once the new merged entity materializes.

Overall, looking at the pre-merger strategies of the insiders on this set of conducts allows the enforcer to refine which enabling or preventing factors characterize the pre-merger market, offering a benchmark to assess whether any of these elements may change or persist after the merger, enhancing the risk of foreclosure.

We already mentioned the three sets of elements to consider. First, the merger enlarges the set of assets that the new firm controls, which may make post-merger an exclusionary strategy more effective; second, the governance over these assets changes, allowing managing them out of the limitations that formal contracts might have required pre-merger, exploiting the enhanced flexibility anti-competitively; third, post-merger the management of these assets through organizational chains, the exercise of authority and the adaptation to unforeseen contingencies is less transparent to an external observer, making the enforcer's ex-post monitoring of

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abusive conducts less effective. By considering these features, the enforcer may refine its prediction of whether certain practices already in place would carry on with stronger exclusionary effects or whether other practices presently not adopted might become feasible and profitable after the merger.

For instance, consider a market with network effects and some kind of compatibility among users' groups. Interoperability of networks may be the preferable outcome when no firm has a dominant position, but merging insiders' communities of users when network effects are in place may boost the ability of the new entity to overcome the rivals and foreclose the market. This migration may entail the degradation of interoperability for rivals. The latter, in turn, may not be easily observable by the enforcer, particularly when twined with the offer of new services that make the comparison with the pre-merger case not so evident.

Similarly, while exclusive dealing might be, in some cases, a practice hard to contractually enforce pre-merger due to non-observable contingencies, a vertical merger may allow the new entity to deal on better terms with its downstream affiliate rather than with its downstream competitors, claiming that the governance of these vertical transactions is feasible when managed within the same organization.

Finally, reviewing practices that may limit competition for the market offers a useful reference in the design of structural and behavioral remedies. Certain practices that may lead to the entrenchment of the merged entity may be prohibited, either when they were already adopted separately by the insiders that, in the new entity, would gain a dominant position or because they might be freshly introduced after the merger due to the new competitive environment that is created.

The design of remedies offers competition authorities the possibility of coordinating with the regulation introduced by the DMA for gatekeepers. Art. 5 and 6 list a number of practices that the incumbent tech giants have to adopt or abstain from adopting, and this derives from the recent antitrust experience in digital cases. Hence, it is natural to use these prescriptions as a reference in the design of behavioral remedies, ensuring consistency with the case law and coherence with the new digital regulation.



#### POLICY RECOMMENDATION

Distinguish between non-exclusionary mergers, where competition survives but is distorted, and exclusionary mergers, which may marginalize competitors or monopolize markets, especially with network effects. The analysis requires examining pre-merger practices, post-merger scenarios, and market dynamics, focusing on issues like tying, exclusivity, interoperability, and network effects. Analyzing the potentially exclusionary practices adopted or not adopted by insiders pre-merger offers useful insights to the enforcer on whether, after a merger, exclusionary effects may be expected. Remedies should align with practices regulated under the DMA to ensure consistency and address potential foreclosure risks effectively. The goal is to craft a coherent Theory of Harm and tailor structural or behavioral remedies to prevent market entrenchment.

#### **The Effects of the Mergers on Innovation**

Section E has reviewed recent contributions on the effects of mergers and acquisitions on the incentives to innovate. Several insights can be figured out from this new literature.

#### **Alternative Factors to be Considered in Merger Review**

A key challenge for competition authorities in assessing the impact of start-up acquisitions on innovation and competition is the uncertainty surrounding the counterfactual scenario where the acquisition does not occur. For instance, a start-up that is not currently a close competitor of the potential acquirer may become one in the future. This calls for considering a wide range of observable factors when evaluating start-up acquisitions. As discussed in Section E, recent literature suggests accounting for the history of past acquisitions and the acquisition price.

This calls for two potential modifications in merger control. First, when the acquirer is a large firm, notification and investigation rules for mergers should include conditions on the acquisition price as an alternative to conditions on the market share of the target. Second, merger analysis should be revised to more effectively account for potential competition. The latter goal is challenging because it is forward-looking and may not meet the current standard of proof required in merger control. One potential approach would be to design a process that allows reverting the burden of proof when there is a significant suspicion of potential competition (as proposed by Crémer, de Montjoye and Schweitzer, 2019)<sup>174</sup>

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<sup>174</sup> See Crémer J., de Montjoye Y-A., Schweitzer H. (2019), *Competition Policy for the Digital Era*, Report for the European Commission.

### **The Role of Diversion Ratios**

A key takeaway from the discussion on the role of diversion ratios in Section E is that if an analysis of the merger's unilateral price effects (assuming fixed innovation) shows a negative impact and the innovation diversion ratio exceeds the price diversion ratio, this should be enough to block the merger. Conversely, if the analysis shows no adverse price effects and the price diversion ratio is larger than the innovation diversion ratio, this should be sufficient to approve the merger.

The main challenge in applying these insights in practice lies in measuring the relevant diversion ratios. While many competition authorities have gained experience in calculating and using price diversion ratios in merger control, the innovation diversion ratio is a relatively new concept, and expertise in its measurement is still to be developed. Recent empirical research offers guidance on how to measure the innovation diversion ratio in practice. Notably, Conlon and Mortimer (2021)<sup>175</sup> have developed a methodology using a class of discrete choice models that can empirically assess diversion ratios for both prices and non-price factors such as quality.

### **The Relevance of the Way Innovation is Monetized**

A quality-enhancing innovation can be monetized through an increase in margin, an increase in demand, or both. If the innovation is solely (or primarily) monetized through an increase in margins, then the merging firms' incentives to innovate crucially depend on their output: if output is lower, the incentive to innovate is lower because the increase in margin resulting from innovation applies to a small number of units. As a merger reduces output in the absence of efficiencies, there is a force that makes a merger reduce incentives to innovate if the innovation is solely (or primarily) monetized through an increase in margins. By contrast, if innovation is solely (or primarily) monetized through an increase in demand, there is a force that makes a merger increase incentives to innovate. To see why, note that in this case, the merging firms' incentives to innovate depend on their margins: if margins are higher, incentives to innovate are higher, too, because the increase in demand resulting from the merger is multiplied by a larger margin.

This implies that empirically assessing how firms tend to monetize their investments in quality-enhancing innovation in a given industry can shed light on the expected effect of a merger on innovation in this industry. Everything else held equal, a merger is more likely to have a negative (resp. positive) effect on the merging firms' incentives to innovate in industries where firms derive profits from their innovations primarily by increasing their margins (resp. their sales).

### **R&D Spillovers and Efficiencies**

A distinctive aspect of R&D and knowledge production is that they generate spillovers for other market participants. In merger analysis, it is useful to distinguish between involuntary spillovers (those beyond the firms' control) and voluntary spillovers (those

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<sup>175</sup> See Conlon C., Mortimer J. (2021), Empirical Properties Of Diversion Ratios, *The RAND Journal of Economics*, 52, 693.726.

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managed by the firms), as the latter are likely to be substantially affected by the merger. In particular, each firm in a merger is likely to voluntarily share knowledge with its partner – knowledge it would withhold from a competitor. Regardless of the type of spillovers, merging firms will take them into account when shaping their R&D strategies, internalizing both the positive and negative effects, including externalities between the merging entities.

A lack of involuntary spillovers often results from a firm's ability to prevent its innovations from being imitated. In such cases, there is room for knowledge sharing between the merging firms, which further boosts the returns on R&D and increases incentives to invest in it (see Denicolò and Polo, 2021). Therefore, it is highly unlikely that real-world mergers would lead to neither involuntary R&D spillovers nor voluntary ones, and the sharing of knowledge should be viewed as a natural efficiency to be considered in merger review.

#### POLICY RECOMMENDATION

Integrate innovation-focused insights into merger review. Key considerations include assessing the impact of start-up acquisitions on future competition and innovation, with recommendations to incorporate acquisition price thresholds and potentially shift the burden of proof in cases of suspected potential competition. Diversion ratios, particularly innovation diversion ratios, could provide valuable guidance, though advancements in measurement techniques are necessary. The method of monetizing innovation – whether through margins or demand – plays a key role in determining whether mergers spur or hinder innovation. R&D spillovers, both voluntary and involuntary, should be considered in merger review, and it should be acknowledged that mergers often facilitate knowledge sharing.

# IV. A NEW MODEL OF SUSTAINABLE DIGITAL DEVELOPMENT FOR EUROPEAN BUSINESS NETWORKS

**This chapter** presents the opportunities offered by Web 3.0 as a decentralized economic model alternative to the current model of large, centralized platforms. It outlines several policy proposals to support the development and adoption of Web 3.0 application in the EU.

**Claudio Tebaldi** (Bocconi University)

## IV. A NEW MODEL OF SUSTAINABLE DIGITAL DEVELOPMENT FOR EUROPEAN BUSINESS NETWORKS

### INTRODUCTION

Digital transformation drives global economic growth, reshapes value chains and everyday consumer experience. Meanwhile, the sector of Information services and Computer Technologies (ICT hereafter) is witnessing unprecedented levels of industrial and financial concentration. None of the world's top 10 largest tech companies is European and only one EU-based company is currently designated as a gatekeeper<sup>176</sup> under the Digital Markets Act. Additionally, only four of the twenty global Very Large Online Platforms currently designated by the Digital Services Act are EU companies.<sup>177</sup> The widening of the digital innovation gap may result in generalized productivity losses threatening future economic growth and competitiveness.

**Table IV.1**  
**World's Largest Tech Companies in 2023**

<b>Company</b>	<b>Revenue (2023)</b>	<b>Market Cap (2023)</b>
<b>Alphabet</b>	\$283 billion	\$1.3 trillion
<b>Microsoft</b>	\$208 billion	\$2.3 trillion
<b>Apple</b>	\$385 billion	\$2.7 trillion
<b>Samsung</b>	\$220 billion	\$334 billion
<b>Meta</b>	\$117 billion	\$600 billion
<b>Tencent</b>	\$82 billion	\$415 billion
<b>Taiwan Semiconductor Manufacturing (TSM)</b>	\$75 billion	\$423 billion
<b>Sony</b>	\$85 billion	\$115 billion
<b>Oracle</b>	\$48 billion	\$261 billion
<b>Cisco</b>	\$53 billion	\$189 billion

<sup>176</sup> As defined by DMA, an undertaking shall be designated as a gatekeeper if: (a) it has a significant impact on the internal market; (b) it provides a core platform service which is an important gateway for business users to reach end users; and (c) it enjoys an entrenched and durable position, in its operations, or it is foreseeable that it will enjoy such a position in the near future.

<sup>177</sup> Currently, the European companies designated as Very Large Online Platforms under the DSA are: Booking.com B.V. (Netherlands), Zalando SE (Germany), WebGroup Czech Republic a.s. (Czechia), and NKL Associates s.r.o. (Czechia).

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Notes: Ranking of top 10 tech companies in 2023. The ranking is based on revenue, profits, assets and stock market value. Source: [Forbes](#)

While European countries have largely been left behind in the race to the Web 2.0 economy, we argue that the EU is well positioned to play a more significant role in the Web 3.0 – the web applications based on Blockchain protocols and Distributed Ledger Technologies (hereafter B&DLT) – and that this opportunity must not be lost. A key element of next-generation digital platforms – those that are developed relying on B&DLT – is that their control and ownership can be decentralized. This decentralization allows platforms to be governed by network-based hybrid organizations which have the potential to attract investments and establish technology-driven business models that are competitive with, yet distinct from the big tech paradigm and offer a potential resolution of the conflict between exploitation of digital economies of scale and concentration of power. In addition, thanks to their distributed nodes architecture, decentralized infrastructures well-integrated within the European industrial texture may improve supply-chain resilience and reduce vulnerability to cybersecurity attacks.

**Table IV.2**  
**Blockchain Market in EU**

Category	2020	2022	2023
<b>Blockchain Companies Number</b>	11,097	13,014	16,065
<b>Total Funds Raised by Blockchain Companies (Billion EUR)</b>	2.59	12.22	44.89
<b>Funds Raised Per Capita (EUR)</b>	379	511	498
<b>Funds Raised Per Startup (Million EUR)</b>	1	3.7	12.2

Source: EU Blockchain Observatory and Forum (EU Commission Directorate-General for Communications Networks, Content and Technology), [EU Blockchain Ecosystem Developments 3. May 2024](#)

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In light of this technological opportunity, an institutional and legal framework that extends and modernizes the existing discipline of the European Economic Interest Grouping (EEIG)<sup>178</sup> could help consolidating digital value-chains and accelerate the sustainability transition of the business networks that populate the European landscape.

In this chapter, we re-examine the nexus between digital development and financial and industrial concentration. A key finding of the analysis is that a policy action promoting the development of *decentralized* digital infrastructures which consolidate *European production networks* could provide a new sustainable model of digital development. Rather than creating a few dominating giants, B&DLT offers the opportunity to strengthen the production network by empowering its members and fostering trust and collaboration. The discussion offers specific policy recommendations aimed at fostering this new model of sustainable digital development and promoting greater competition in the digital space in Europe.

This Chapter is structured as follows: Section 2 introduces the concept of the Web 3.0 digital space and reviews the salient features of decentralized computing infrastructures. Section 3 analyzes economic benefits that may result from a consolidation of these alternative, technology-based governance models of firm networks in Europe. Sections 4 discusses the challenges that have to be overcome to introduce a common European legal status for decentralized organizations and its impact on competition law and antitrust regulation.

### BLOCKCHAIN, DISTRIBUTED LEDGER TECHNOLOGIES AND DECENTRALIZED COMPUTING INFRASTRUCTURES

Historically, several kinds of transactions have been recorded by central authorities or other trusted intermediaries. Some examples are real estate ownership, which is normally recorded by a central authority in publicly available ledgers, and financial transactions, in which we intermediaries are trusted to keep a record of a vast array of information, such as the amount of money in a bank account and the ownership of financial assets. In general, intermediaries have been indispensable for introducing trust and certainty in transactions among parts with contrasting interests, for example by keeping ledgers in central digital databases and enforcing contracts. However, the systems also have some flaws. Central digital databases, for example, can be vulnerable to cyber-attacks in which a single point of failure can be exploited to compromise the whole record of transactions. Furthermore, the presence of third parties is usually expensive since they must be compensated for their work and can lead to transaction delays due to processing times – international money transfers, for example, can require several days to be executed.

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<sup>178</sup> The EEIG is an EU legal entity created to facilitate cross-border cooperation between businesses or professionals from different EU member states. It enables entities to collaborate on joint projects or share resources without forming a new corporation, while members retain individual liability for debts. An EEIG's purpose is to assist its members' economic activities, not to generate profits for itself. Profits or losses are allocated directly to members, who report them in their own countries for tax purposes.

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Decentralized Ledger Technologies (DLTs) enable data to be securely shared and recorded across multiple locations – called “nodes” – in a network without a central authority. A consensus mechanism is used to verify each new transaction, which is then recorded in all the shared copied of the ledger. Such a system can foster transparency, resilience and efficiency of transactions.

Among the various applications of Digital Ledger Technologies, blockchain is probably the most impactful. Blockchain consists of an algorithm – many of different versions of this algorithms have been developed – storing data in a series of linked “blocks” that form an immutable chain of records.

Decentralized computing infrastructures leverage both DLTs and blockchain to create systems where control and processing are distributed across a network rather than centralized. For example, Ethereum offers a decentralized platform where developers can build and deploy applications managed by “smart contracts” – self-executing agreements that run on a peer-to-peer network without reliance on a central server.

Together, these technologies are laying the groundwork for Web 3.0, a new phase of the internet that emphasizes decentralization, user control, and transparent governance.

### Web 2.0: the Risks of Extreme Concentration

To set the stage and illustrate the new opportunities and challenges created by the development of B&DLT, it is useful to recap the basic development framework of a traditional web platform aimed at offering consumers new access points to products and services, including those powered by AI.

Digital platforms serve as hubs for networks of customers, suppliers, and providers of complementary goods and services that are onboarded and act as intermediaries in a multi-sided market, where success is determined by the creation of an ecosystem of users and producers who are connected by mobile apps, participate in and derive value from the platform.<sup>179</sup> Then the success of a new digital venture is largely driven by the onboarding process. When interest in platform services becomes viral, the platform experiences non-linear, disruptive growth in the number of users, which amplifies and stabilizes the positive network externalities offered to participants.

In the Web 2.0 industrial organization, there is an inherent tension between the network effects created by the platform and the centralized, hierarchical structure of a corporation that manages the development of the platform itself and defines the financial investment and stake-holders compensation policies. Network effects rely on the active participation of users to generate value, creating a decentralized dynamic where contributors drive growth. However, corporations centralize decision-making and control to maximize profits and define financial structures, often prioritizing shareholder returns over equitable distribution of value. This tension has often led to

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<sup>179</sup> See the seminal contribution by Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European economic association*, 1(4), 990-1029.



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concentration of market power in few firms, harming consumers, incentivizing anticompetitive practices, and reducing the resilience of the productive system. Antitrust authorities are facing significant challenges in protecting consumers and reducing market concentration within this winner-take-all environment.

A multi-country regulation and the disincentives to consolidation created by EU competition policies have shaped a completely different dynamic in the internal market. In a market characterized by high concentration, large EU players have struggled to emerge. Indeed, as underlined by the Draghi Report<sup>180</sup> the Union has few pan-European digital platforms, has lost the cloud market to US players, is struggling to develop major AI players and is not on the path to winning the quantum computing race. Moreover, the EU fragmented telecommunications market is unable to invest the sums required to maintain its infrastructure up to date with the latest innovations.

#### **Web 3.0 Solutions: Breaking the Nexus Between Digitalization and Concentration.**

In 2014, Gavin Wood introduced the term Web 3.0 to describe the development of a web where the technological stack is extended to include B&DLT, enabling decentralized management of the digital space. Information and transaction validation are 'disintermediated', i.e. these tasks are managed by a decentralized peer-to-peer network of nodes that are coordinated through cryptographically enhanced consensus protocols.

These protocols oversee the validation of the cryptocurrency transactions. Web 3.0 initiative explores the potential of using B&DLT to establish technologically mediated organizations that exercise ownership and control of digital platforms. At the center of Web 3.0 there are new organizational forms, originally referred to as decentralized autonomous corporations, where tasks traditionally performed by a company – such as raising capital, setting provisions, or coordinating target-based activities across different units – are delegated to automated software programs, also known as 'smart contracts.' Smart contracts operate across a distributed network of entities, each of which could be an individual or a company. The distribution of information and control is key to the concept of 'decentralization:' it facilitates better coordination within the organization, enabling participants to contribute to its functioning and operations rather than having control vested in a single, central authority.

The prototypes of organizations created using smart contracts executed on existing blockchain networks are known as Decentralized Autonomous Organizations (hereafter, DAO). In these organizations, members express their preferences through votes, with voting rights distributed among stakeholders through the allocation of tokens. The voting process in a DAO is directly connected to the formation and execution of smart contracts. Once members cast their votes, the results determine the actions that the smart contracts will execute, such as allocating resources, initiating

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<sup>180</sup> Mario Draghi, [The Future of European Competitiveness: A Competitiveness Strategy for Europe](#), European Commission, September 9, 2024

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specific processes, or modifying governance rules. This ensures that the organization operates transparently. Most notable examples are the public blockchain organizations underlying the issuance and management of cryptocurrencies.

Over the past decade, decentralized organizations have proliferated in the digital space<sup>181</sup> but the potential of these technologies in a non-financial context is largely unexploited because the public attention has been captured by the speculative opportunities offered by decentralized finance ecosystems. This new space, free from regulatory frictions and fiscal rules, is often described as an "*alegal*" context, where the underlying institutional framework is, at best, controversial and, in many cases, incorporated outside EU boundaries. For example, the Ethereum Foundation supporting Ethereum and related technologies is incorporated as a non-profit Swiss foundation.<sup>182</sup>

The recently introduced Markets in Crypto-Assets Regulation (MiCAR) provides a comprehensive legal framework for the regulation of crypto-assets, aiming to create a secure and regulated investment environment that ensures financial consumer protection. However, MiCAR does not address the challenges posed by the unclear legal status of technology-mediated organizations.

As a result, a paradoxical situation is emerging: the strict financial regulations in place also act as a barrier to investment in a technology whose production efficiency remains largely untapped, despite its potential to restore competitiveness in the digital space. In other words, while the costs of the regulation are widely recognized, its benefits are still not well understood and hard to internalize given the lack of fundamental regulation which is necessary to provide a legal consolidation for decentralized organizations whose focus is different from crypto assets.

A policy initiative is urgently needed to fully leverage the Web 3.0 innovation potential, extending beyond its current focus on the payments sector and in the crypto economy. It is essential to create conditions that encourage active participation from real economic players who are ready to explore the opportunities offered by the decentralized digital technologies.

These opportunities lie ahead of us. European Union's intellectual and organizational forces do not face any innovation lag on the conceptual development of decentralized computing infrastructures. Europe is well positioned in the global arena and is prepared to engage in active experimentation at private and public levels. At the institutional level, the EU Blockchain strategy initiative,<sup>183</sup> part of the Digital Decade

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<sup>181</sup> [DeepDAO](#) presents financial and governance DAO data. DAO treasuries peaked a total of \$42.5 billion capitalization in March 2024 and, as of December 2024 their capitalization is around \$36B\$. It is very easy to create a DAO relying on no code apps that are freely available on the web.

<sup>182</sup> As of December 2024, the Total Value Locked in Ethereum, representing the total capital deposited in its decentralized finance (DeFi) protocols, amounts to 71.1B\$

<sup>183</sup> Extensive info on the EU Blockchain strategy initiative can be found on the [EU Digital Strategy webpage](#)

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Policy Programme,<sup>184</sup> represents a coordinated effort in this area. Indeed, the initiative is a comprehensive strategy for the development and adoption of blockchain at the EU level, as well as for funding blockchain startups. The European Blockchain Services Infrastructure,<sup>185</sup> a public sector blockchain infrastructure promoted by the EU commission to foster cross-border services, is active and promotes a number of interesting use cases such as SME Financing, Document Traceability, Self-sovereign Identity, Social Security and Trusted Data Sharing.<sup>186</sup>

In this report we will adopt a 'technology neutral approach' focusing exclusively on the opportunities of financial and economic development that are offered by the integration of B&DLT within the EU industrial organization landscape.

In fact, while the ability of 'alegal' decentralized organizations to collect capital is well established – with major decentralized computing infrastructures or digital platforms like Ethereum or Uniswap capitalizing billions of Euros – the scale of investment flows into Web3 ecosystems created to provide digital services to traditional public institutions and private corporations is significantly lower.

There exists a substantial segmentation between investment flows directed toward innovation in the traditional corporation-based economy and those in the decentralized crypto-economy. One cause of this divide is the inherent uncertainty surrounding the institutional nature of technology-mediated governance, which raises fundamental questions about the roles and functions of various stakeholders. The flexibility that characterized producer-consumer relationships in Web 2.0 has now extended to control and ownership within decentralized organizations, resulting in a diverse range of possible relationships among Web 3.0 platform stakeholders. The consensus mechanisms – driven by algorithmic processes, financial incentives, and voting rules – create an almost limitless variety of governance configurations. As a result, it is challenging, if not impossible, to fit decentralized organizations into existing legal frameworks that govern the control and ownership of public and private entities.

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<sup>184</sup> The EU Digital Decade Policy Programme is a strategic initiative which main goals include promoting digital skills, enhancing secure digital infrastructure, supporting businesses in digital transformation, and advancing public services online. The program outlines a roadmap for member states, emphasizing targets like internet access, cybersecurity, and innovation. It also includes mechanisms for monitoring progress and collaboration to ensure Europe remains competitive in a global digital economy.

<sup>185</sup> Extensive information on the European Blockchain Services Infrastructure is available on the [European Commission website](#)

<sup>186</sup> Further improvements can be achieved by a close collaboration with the private sectors. For example, the European Blockchain Association recently published an Open Letter to EU representatives outlining proposals focusing on the growth of digital finance ecosystem and the introduction of new financial instruments enabled by tokenization."

### POLICY RECOMMENDATION

Design a roadmap to promote the development of decentralized platforms with an explicit focus on digitalization of non-financial SME integrated in production networks.

In Section 4 we delve further into the ongoing debate on potential policy actions targeting these regulatory challenges.

#### **CONSOLIDATION OF DECENTRALIZED ORGANIZATIONS AND BUSINESS NETWORKS IN EUROPE.**

Standard economic arguments suggest that technology-mediated decentralized organizations can play a pivotal role in shaping the European digital landscape. These organizations have the potential to complement the role of multinational corporations in orchestrating global innovation networks without the need to centralize control.

In simple terms, decentralized organizations in the digital space can serve as the 'digital twins' of the supranational business networks created by the economic integration of the free movement area. These informal production networks, which primarily consist of Small and Medium-sized Enterprises (SMEs hereafter) integrate firms of all sizes and provide a valuable reservoir of knowledge capital that can be easily and efficiently reorganized to meet production demand. While these networks form the backbone of the European production system, they remain financially and productively fragile, due to their over-reliance on intermediate financial services, limited coordination capabilities, and an inability to adapt quickly enough to the demands of modern organization of production and logistics.<sup>187</sup>

In recent years, an increasing number of traditional firms have adopted DLT technologies in various forms. Logistics is a particularly promising field of applications for DLT because the technology has the ability of increasing traceability, reducing disputes, lowering costs, and increasing resilience of the production network through an improved and highly efficient supply chain management. Companies can leverage blockchain technology to streamline their supply chain operations and strengthen relationships with suppliers. By using a blockchain platform, the company can maintain a transparent, immutable record of transactions, including order placements,

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<sup>187</sup> A simple and interesting explanation of the endogenous fragility of value chains is proposed in Moran, J., Romeijnders, M., Doussal, P. L., Pijpers, F. P., Weitzel, U., Panja, D., & Bouchaud, J. P. (2024). Timeliness criticality in complex systems. *Nature Physics*, 1-7.

#### IV. A NEW MODEL OF SUSTAINABLE DIGITAL DEVELOPMENT FOR EUROPEAN BUSINESS NETWORKS

deliveries, and payment processes. This shared ledger helps improve dispute resolution, as all parties can access a single source of truth. This reduces errors and inefficiencies. Furthermore, the shared ledger increases transparency and trust among production network participants, laying the foundations for further collaboration among business partners.<sup>188</sup>

Trust and transparency are indeed the two elements that make collaboration possible, as shown by the case of Airbus SE, a prime example of successful international consolidation within the European aerospace industry. It traces back to the formation of the *Airbus Industrie Groupement d'Intérêt Économique* (Economic Interest Group or GIE) on 18 December 1970. An analysis of the Airbus Value Chain<sup>189</sup> reveals that the corporation outsources approximately 80% of its components to suppliers, while its production team focuses on maintaining trust, ensuring transparency, setting rigorous tests, and verifying supplier's compliance.

From an economic perspective, B&DLT are designed to facilitate these tasks without requiring control to be centralized within a corporate hierarchy. Decentralized corporations designed to rely on B&DLT can improve coordination and information sharing within a production network. They expand the range of contingent contracts that participating firms can engage in, reducing contractual incompleteness without compromising their financial and organizational independence. For example, a platform designed to manage AI infrastructures or a marketplace with decentralized control shared among a network of firms could strike a better balance between protecting individual firms' intellectual property and customer privacy while sharing the costs of management and maintenance across the network. As the GIE discipline was instrumental to the consolidation of a cross-country productive network in the aerospace sector, a pan-European legislation in support of the consolidation of digitally supported European production networks might boost economic growth.

Digital services are naturally delocalized since they are created and live on the web. Hence the relevant legislation would be optimally placed within a so-called 28th regime<sup>190</sup>, to remove undue internal regulatory fragmentation and promote the integration of internal markets for digital services and intermediate goods.<sup>191</sup>

There are obvious concerns about anticompetitive practices that might derive from the legal consolidation of production networks. These concerns and potential solutions will be extensively discussed in the next section.

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<sup>188</sup> The Home Depot is a [case study](#) for the use of B&DLT to improve the efficiency of company operations and the management of supply chain

<sup>189</sup> See [SCM Insight](#)

<sup>190</sup> A "28th regime" in the EU refers to a proposed optional, harmonized legal framework that would exist alongside the national legal systems of the EU's member states. A 28th regime would create an additional, separate legal regime that businesses and consumers could opt into if they wished.

<sup>191</sup> This proposal fits well within the more general scheme of a unified European Code of Business Law which appears in the Letta report on Capital Market Union 'Much more than a Market' April 2024.

### Sustainability and Business Networks

Digital and legal consolidation of business networks is also a key step to accelerating the implementation of the ESG transition. To promote sustainable and responsible corporate behavior, the Directive on Corporate Sustainability Due Diligence<sup>192</sup> which entered into force on 25 July 2024 imposes accounting duties and legal liabilities of individual corporations depending on the actions of their partners along the value-chain. As a matter of fact, individual corporations are required to monitor the activity of their partners within the production networks. For example, *Scope 3* emissions accounting encompasses reporting of *emissions* that are not produced by the company itself and are not the result of activities from assets owned or controlled. In other words, the regulator acknowledges that greenhouse gases reduction activities require a shift from a firm-based to a network-based monitoring process.

DLT&B provides a foundational infrastructure for assessing the materiality of value chains. Many projects selected for the first cohort of the European Blockchain Sandbox, an EU-led initiative to test blockchain solutions in a regulatory-safe environment, focus on developing decentralized accounting systems and reporting frameworks essential to the green transition and the resulting reorganization of value chains. These developments are crucial for ensuring oversight of global value chains both within and beyond Europe.

The capability to streamline and consolidate accounting information across value chains will be a significant competitive factor in global trade. B&DLT allows enhancing supply chain transparency by, among other things, tracking the provenience of goods. Tracking, in turn, allows companies to monitor their partners, to ensure regulatory compliance, and to share verifiable information with customers. For instance, in the US, the Intercontinental Commodity Exchange is implementing a digital platform<sup>193</sup> to enhance the traceability of traded commodities. Furthermore, an advanced accounting and data collection system will support the creation of new credit and investment products that the banking sector can offer to digitalized SME networks.

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<sup>192</sup> See EU [Directive 2024/1760](#)

<sup>193</sup> The ICE Platform will be used to [trace cocoa and coffee deforestation from space](#)

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### POLICY RECOMMENDATION

The EU can create a common framework for monitoring and developing the value-chains within its production system. To achieve this, it is necessary to: 1. Identify the business networks that stand to benefit the most from the implementation of Web 3.0 decentralized digital infrastructures; 2. Promote standards and regulations useful to increase the transparency and accountability of the strategic value-chains emerging in the free movement area; 3. Develop public databases that track the evolution of the European production networks at the firm level and create indicators assessing their resilience and their sustainability.

#### Decentralized Organizations and Digital Capital Markets

Segmentation and fragmentation have long challenged the internal capital market. Decentralized organizations can play a pivotal role in completing the capital supply chain, connecting vehicles that gather capital from savers directly to producers. Notably, SMEs often face substantial segmentation, with limited or no direct access to global public capital markets, relying instead on bank loans, trade credit, and factoring. Properly regulated decentralized organizations could expand the financing options available to SMEs, bridging them to global markets.

Trading opportunities of private illiquid assets could be expanded through tokenization<sup>194</sup>, the process of converting physical or digital assets into digital tokens on a blockchain. Tokenization is currently being explored in depth by the European Union, as shown in a recent report of the *Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs* of the European Commission<sup>195</sup>. However, seamless integration of tokenized assets into the financial system requires the adoption of digital money.

As international trade increasingly relies on digital solutions, the introduction of a digital Euro will play a pivotal role in enabling secure, efficient, and privacy-conscious transactions, promoting a more resilient and interconnected global marketplace. The ECB advanced plans for a Digital Euro will be essential for protecting financial sovereignty and supporting the growth of decentralized digital infrastructures.<sup>196</sup>

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<sup>194</sup> For more complete information on tokenization see Dahlbor et al. (2023). [Tokenization of Assets and Blockchain](#)

<sup>195</sup> Report available at Publications [Office of the European Union](#)

<sup>196</sup> Keynote speech by Mr. Piero Cipollone, Member of the Executive Board of the European Central Bank, at the Bundesbank Symposium on the Future of Payments, Frankfurt am Main, 7 October 2024. [‘Towards a Digital Capital Market’](#)

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In addition to regulating digital payments, the ECB is uniquely positioned to address the enforcement challenges posed by smart contracts. These automated agreements, integral to B&DLT, offer significant opportunities but also present unique regulatory challenges. The ECB is well-placed to coordinate and oversee regulatory actions aimed at establishing a robust institutional rulebook that aligns the use of smart contracts with EU legal framework.

### REGULATION OF DECENTRALIZED ORGANIZATIONS AND COMPETITION POLICY IN EUROPE.

Considering the previous considerations, the emergence of a "capital-friendly" regulatory framework for decentralized organizations is widely recognized as a key factor in global competition. Only a comprehensive legal structure that clearly defines the roles, rights, and duties of various stakeholders – while minimizing conflicts of interest – can stimulate competition and drive growth in the Web 3.0 digital space. A broader competitive landscape with common rules for digital ownership will also attract specialized investors, such as venture capital and private equity firms, whose expertise and development experience could accelerate innovation and the construction of a decentralized web.

Recent initiatives underscore the importance of this regulatory approach. For example, the UK Government has requested that the Law Commission undertake a scoping paper on DAOs, and in particular *'to explain what a DAO is, and how a DAO might be categorized in law and to identify the main options for legal reforms or innovations that might be required to existing company law [...] to clarify the status of DAOs and facilitate their uptake'*.<sup>197</sup> Similarly, in August 2024, a Hong Kong lawmaker suggested that *'the government should explore creating a legal framework to regulate decentralized autonomous organizations to enhance Hong Kong's stability in the Web3 investment landscape, thereby attracting significant overseas talent and capital'*. The request followed a legal dispute centering on the ownership, management and control of the MantraDAO cryptocurrency project.

The considerations in the previous Sections provide valuable insights for framing a regulatory context that is perceived as investor- and developer-friendly.

A key takeaway of this policy paper is that the regulation of decentralized organizations in EU should be part of a broader policy action aimed at fostering digital development and the consolidation of the value-chains at the core of its production system.

This policy action would necessarily require two initiatives: on one side it is necessary a legal consolidation of scope-based multilateral agreements, which are collaborative arrangements where independent entities align their activities within a clearly defined purpose or scope, governed through shared contractual frameworks. On the other

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<sup>197</sup> The resulting [scoping paper](#) has been released in July 2024



#### IV. A NEW MODEL OF SUSTAINABLE DIGITAL DEVELOPMENT FOR EUROPEAN BUSINESS NETWORKS

hand, the competition and antitrust law standards must be updated to consider the emergence of new players controlled by decentralized organizations.

##### **A European Legal Status for Decentralized Organizations**

To capitalize on the economies of scale emerging within a unified European digital space, it is imperative to establish a common European contractual framework that governs the new forms of digital platform governance, with specific attention to decentralized organizations. This need is driven by structural economic efficiency considerations and stands apart from the ongoing technical debate about the regulation of decentralized organizations in different jurisdictions.<sup>198</sup>

Beyond the regulation of the potential conflicts among stakeholders, the introduction of new decentralized legal entities should also address two main concerns. First, it should include an extension of liability law tailored to provide a precise attribution of legal responsibility in case of financial distress or default of a decentralized organization. Second, it should safeguard the compliance of these organizations with the basic pillars of competition law. In fact, without proper regulation, the technological capabilities offered by B&DLT could potentially be used to collude.

Hence, a regulation imposing a transparent definition of the scope underlying the creation of a decentralized organization and a precise definition of the information shared among participants would improve accountability of the business network and prevent anticompetitive practices. Such a regulation would be easily implementable since B&DLT technologies grants accessibility and immutability of the information stored and exchanged across the network.

To preserve the flexibility enabled by technological advancements, it is essential to maintain a distinction between forms of ownership and control governed by conventional company law and the scope-based, digitally coordinated aggregations that underlie decentralized organizations. These organizations typically emerge from the need to formalize contractual relationships that consolidate and regulate value creation processes *outside* traditional firm boundaries, without infringing on individual firm property rights. This necessitates the design of governance mechanisms that prevent the concentration of control while preserving open participation and a flexible body of developers and participants.

An existing example of a legal scheme to regulate networks is the *Contratto di Rete* (Network Contract), introduced into Italian Civil Law in 2009<sup>199</sup> and updated in 2012.<sup>200</sup> This multilateral agreement, aimed at fostering cooperation among firms, can be considered an early precursor to the current framework, predating the introduction of

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<sup>198</sup> For an interesting review of the current approaches, see Perestrelo de Oliveira and Garcia Rolo (2024) '[Decentralised Autonomous Organisations \(DAOs\) in Various Jurisdictions: from Old Rules to Innovative Approaches](#)'

<sup>199</sup> See Law 33/2009

<sup>200</sup> See Law 134/2012

decentralized computing infrastructures. Under the *Contratto di Rete*, businesses can create collaborative networks, sharing resources, expertise, and goals without needing to form a new legal entity. It allows companies to pool capabilities to pursue shared projects, drive innovation, and enhance competitiveness. The Italian Government has already proposed<sup>201</sup> its promotion to a European Common Framework to overcome the rigidities posed by the older legal entity, Economic Group of Economic Interest introduced in 1985.<sup>202 203</sup>

These forms of organization have been defined by Ménard (2013) as “*arrangements in which two or more partners pool strategic decision rights as well as property rights, while simultaneously keeping distinct ownership over key assets*”<sup>204 205</sup>. The variety of arrangements of hybrid organizations that can be regulated by this contractual form are all characterized by a non-standard mode of organization that refers neither to the pure market, nor to the pure hierarchy. In this way, through the adoption of hybrid organizations it is possible to maintain a proper alignment of transactions with the governance structure. The unprecedented flexibility and scalability of decentralized organization created by the new consensus-based digital infrastructures increase substantially the possibilities offered and the challenges posed by legally regulated European firm networks and their ability in channeling investment from global capital markets into a real economy populated by Small and Medium Enterprises.

In addition, the Italian case shows that networks regulated by the *Contratto di Rete* offer an effective policy tool to consolidate the emerging innovation clusters growing around public research institutions. Indeed, since their introduction in 2010, more than 50,000 hybrid contracts have been signed in Italy, involving over 9,500 enterprises.<sup>206</sup> They might promote the definition of newly designed, more effective research funding vehicles as advocated by the EU Innovation policy report<sup>207</sup>. Legal enforcement of these network aggregations can boost a faster and more effective development of the so-called decentralized science models<sup>208</sup> for research funding that are already growing, unregulated, in the crypto space. Public-private partnerships and targeted fiscal policies dedicated to decentralized organizations might be designed with great

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<sup>201</sup> See DPEF 2015 Sec. III p. 26

<sup>202</sup> The European Economic Interest Grouping (EEIG) has been introduced under European Community [Regulation 2137/85](#)

<sup>203</sup> Mazzei (2016) discusses the legal challenges that should be addressed to extend the scheme used in the ‘*Contratto di Rete*’ at European Community level.

<sup>204</sup> Claude Ménard. Hybrid modes of Organization: Alliances, Joint Ventures, Networks, and other ‘strange’ animals. Robert Gibbons, John Roberts. *The Handbook of Organizational Economics*, Princeton University Press, pp.902-941, 2013, 9781400845354.hal-01315470

<sup>205</sup> Details on the structural reasons that led to the introduction of these hybrid forms of organisations can be found in can be found in [Leoncini Vecchiato and Zamparini \(2020\)](#)

<sup>206</sup> Data can be found at on the [Contratti di Rete website](#)

<sup>207</sup> See the [EU Innovation Policy report](#)

<sup>208</sup> Decentralized science aims to apply distributed ledger technologies to fund, enhance and publish scientific research. In particular, it is used to provide funding for research through transparent methods such as crowdfunding and to enable open access, transparent data sharing, and collaborative research without traditional gatekeepers, like publishers or funding agencies.

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accuracy, exploiting all the potential of a unique European digital space not cannibalized by big-tech giants.

### POLICY RECOMMENDATION

It is essential to establish a common European contractual framework that facilitates a legal consolidation of scope-based network aggregations, including those where ownership, control and management are technology mediated.

#### **Business Networks and Antitrust Discipline**

The preceding considerations highlight that a legal consolidation of scope-based network aggregations, potentially facilitated by Blockchain and Distributed Ledger Technology (B&DLT), could have substantial implications for both competition law theory and antitrust policy practice. Evaluating the network effects resulting from the consolidation of decentralized organizations, alongside their impact on consumers, is a crucial policy concern. This assessment depends significantly on the specific regulatory framework applied and necessitates a detailed technical discussion beyond the scope of this document.

From an economic perspective, such consolidation requires careful balancing of key trade-offs. On one hand, legally consolidating network relationships could expand competition within the final goods market, increase production possibilities, and improve coordination among intermediate goods producers. On the other hand, these agreements might be leveraged to establish preferential relationships, potentially securing rents for participating firms. A defining characteristic of a scope-based decentralized organization is that each partner must remain an independent, autonomous undertaking under EU competition law. This requires that the commercial and strategic decisions of each individual partner are made independently, ensuring compliance with regulatory frameworks.

The direction set in the Draghi report for a reform of the antitrust approach in Europe points toward features that would be particularly useful to promote the development of fertile soil for the B&DLT development. In particular, the recommendation contained in that report's chapter concerning "agreements and coordination between competitors in strategic sectors" recalls the horizontal cooperation agreements. Moreover, cooperative practices are allowed under both article 101(1) and article 101(3) whenever necessary to achieve R&D investment, sustainability transitions, and other initiatives that require standardization and coordination of solutions across

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players, but greatly benefit European consumers. Additionally, it is specifically recommended to the DG COMP to provide clear guidance on how groups of companies can work together to develop and promote EU-wide standards.

The key role of providing the market with this type of guidance cannot be understated. For instance, regarding the Italian case of the *Contratto di Rete* discussed earlier, its effective utilization has required the release by the Italian Antitrust Authority (AGCM) of a notice (*comunicazione 16/05/2011 AGCM*) regarding "network contracts" (*contratti di rete*) for companies. The AGCM clarified that while network contracts aim to support competitiveness and innovation, they must not infringe antitrust principles. The authority warned that network contracts, if improperly used, could lead to anti-competitive behaviors, such as price-fixing or market division, undermining free market dynamics. For these collaborations to be acceptable under competition law, they should enhance market efficiency, reduce redundant research, and stimulate innovation, ultimately benefiting consumers and market development. Overall, AGCM stipulated that network contracts should strictly serve pro-competitive purposes and respect antitrust regulations to be a valid tool for economic recovery and industrial competitiveness. The details of this AGCM notice strongly influenced the subsequent adoption of network contracts and their success in achieving their intended goals.

From a technological standpoint, the adoption of B&DLT could have adverse effects on consumers if it enables price coordination among producers. However, these technologies could also function as tools for transparency and accountability, empowering regulators to enforce compliance and ensure ex-post verifiability of information exchanges and production practices. Ultimately, the design of exclusion and inclusion rights within legally enforced organizations will influence the balance of power within these networks, impacting the trade-off between cooperation and competition.

It is noteworthy that, beyond preserving competition in final goods markets, competition among suppliers of critical intermediate goods also holds significant welfare implications. A business network that relies on a single supplier for a critical intermediate good is vulnerable to monopolistic practices by that supplier. Therefore, upholding minimum competition standards within the network enhances resilience, mitigates exposure to idiosyncratic risks, and fosters diversification opportunities.

The competitive impact of network agreements will also depend on the configuration of the network itself. A network concentrated around a few dominant firms could obscure implicit control by a hierarchical, corporate-based entity over the entire network. These challenges already exist – albeit often overlooked – in decentralized organizations within the crypto space. In many cases, the granularity of token ownership conceals potential stakeholder conflicts that shape ecosystem development. For instance, governance in crypto foundations may be influenced by conflicts between founding members. In summary, these considerations highlight that the effectiveness of decentralization in the governance of blockchain-based organizations, a long-debated issue, has direct implications also in relation to the preservation of a fair competition space. A fortiori, a new regulatory framework that

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safeguards competition within and between business networks could yield immediate benefits.

#### **POLICY RECOMMENDATION**

Review the theory and practice of competition and antitrust policies as needed to account for the network effects generated by the legal consolidation of scope-based network aggregations and decentralized organization.

In summary, the above considerations suggest that well-designed regulations and timely policy actions could foster new models of governance, investment, and development for production networks – paving a uniquely European path for the development of production organizations supported by decentralized digital infrastructures. These organizations have the potential to extend the economies of scale created by the common market into the digital realm, while maintaining the diversity and heterogeneity of the existing production system.

