

# Vertical Interoperability and the Digital Markets Act: A Critical Analysis

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The European Commission has identified the lack of interoperability as a major barrier to a successful digital economy. Additionally, EU policymakers have recognized that digital markets evolve too quickly for regulation to be effective if it relies solely on ex-post measures. This has led to a shift towards adopting ex-ante measures for more proactive regulation, exemplified by the Digital Markets Act (DMA). This essay supports the need for vertical interoperability in digital markets, arguing that concerns about potential drawbacks—such as efficiency losses, privacy risks, and reduced incentives for gatekeepers to innovate—are exaggerated. It explores how the DMA promotes vertical interoperability from both theoretical and practical viewpoints. While acknowledging the strengths of the DMA's provisions, the essay contends that its impact is limited by narrow drafting on a theoretical level. On a practical level, the effectiveness is further constrained by the excessive discretionary power granted to gatekeepers and the unreasonable fee structures.

*Keywords:* interoperability, DMA, digital market, competition rules

## Introduction

Generally, interoperability is the possibility for different services and products to cooperate together (Bourreau, Krämer, & Buiten, 2022, p. 13). Recently, vertical interoperability has become a buzzword in European policy debates. EU Commission has identified a lack of interoperability as one of the significant obstacles to a thriving digital economy (EU Commission, 2010, Para. 15). Dominant undertakings start to build data ecosystem, in which their core platform service and complementary service are intrinsically tied through data and functionality (van de Waerdt, 2023b, p. 218). Typically, Apple has adopted “walled garden” business models, limiting third-party access to its services (Sharma, 2020, p. 456). Since orchestrators of the ecosystem, usually defined as gatekeepers, control a critical bottleneck, they can make other firms harder to compete in the ecosystem, and at the same time make it easier for their own services (Hornung, 2023, p. 11).

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Funding: This article was supported by the funding of Minzu University of China “Research on the Improvement of the Civil and Commercial Legal System for Common Prosperity in Ethnic Minority Areas Under the Background of Strengthening the Sense of Community of the Chinese Nation” (2024ZLQN25) and the 2024 Key Project of the China Youth Research Association “Research on the Protection and Development of Adolescents’ Digital Rights and Interests in the Algorithm Era (2024A03)”.

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In this context, authorities such as Morton argue that interoperability could act as a “super tool” to reestablish competition in the digital market (Scott et al., 2023, p. 1027). However, there are also warnings about the negative effect of vertical interoperability and suggestions for a careful trade-off.

Interoperability concerns have been long targeted by competition law enforcement; however, EU policymakers have noted that digital markets evolve too rapidly for effective regulation solely through ex-post measures. Consequently, there’s a shift towards incorporating ex-ante measures for more proactive regulation (Colangelo, 2023, p. 122). In this regard, Digital Markets Act (DMA) entered into force on 1 November 2022. As the “first global big tech regulation”, DMA is undoubtedly a watershed development.

Against this backdrop, the contribution of this essay unfolds in two stages. Firstly, this essay advocates for vertical interoperability in digital markets and argues that the concerns about potential negative effects, such as efficiency losses, privacy risks, and reduction in gatekeepers’ incentives to innovate, are overstated. Secondly, this essay examines how DMA facilitates vertical interoperability from both theoretical and practical perspectives. It acknowledges the effectiveness of DMA provisions, yet argues that its impact is constrained by narrow drafting on a theoretical level. Practically, the effectiveness is further limited by the excessive discretionary power given to gatekeepers and the unreasonable fee structures. While interoperability could also apply to hardware, this essay mainly focuses on the digital platform context, since the greatest focus today is on software and services internet-connected layer, the world of apps and social networks (Riley, 2020, p. 95).

Accordingly, this essay proceeds as follows: Section 1 provides background on vertical interoperability. Section 2 assesses how vertical interoperability effectively addresses competition law issues in the digital market and will also reflect on the claimed negative effects posed by vertical interoperability. Section 3 compares the effect of ex-post competition enforcement with ex-ante DMA, ultimately concluding that DMA could facilitate vertical interoperability in the digital market. The limitations of DMA will also be analyzed. Section 4 analyzes the practical controversy on vertical interoperability under DMA. Section 5 comments on the recommendations that have been put forward on addressing limitations raised in Section 3 and Section 4.

### **Section 1: An Overview of Vertical Interoperability**

This section will provide an introduction to vertical interoperability, setting the stage for later arguments. Vertical interoperability is closely connected to the concept of “modularity” (Bourreau et al., 2022, p. 26). In the digital market, modularity refers to whether individual products inside of a larger platform can be swapped out for other competing products (Davies, 2020). It shows the degree to which consumers could “mix and match” system components. Specifically, highly modular platforms are referred to as “open”, while platforms that are not very modular are described as “closed” (Davies, 2020, p. 2). Interoperability is a key factor to realize highly modular platforms.

Technically, a modular design through access layers (known as the protocol stack) exists in the complex ecosystems that are constituted by platforms in the digital market. Access layers (known as the protocol stack) interoperate with each other through well-defined interfaces, and each layer offers an independent functionality that can be updated and replaced without affecting the integrity and functioning of the system as a whole, thus allowing mix-and-match and complementary innovation of different layers.

Interoperability can be categorized as horizontal interoperability and vertical interoperability. In contrast to horizontal interoperability, where the interoperable products or services operate at the same level of the value chain, vertical interoperability is the interoperability of a product, service, or platform with complementary products and services. This essay focuses on vertical interoperability.

## **Section 2: Vertical Interoperability: Effectiveness and Regulatory Concerns**

Vertical interoperability is a market intervention that requires a clear theory of harm and justification (Economides & Lianos, 2014). In this section, the theory of harm will be firstly examined, followed by an analysis of how vertical interoperability could effectively address the issues. Then, concerns regarding the risks posed by vertical interoperability will be thoroughly assessed.

### **The Effectiveness of Vertical Interoperability**

**Tipped digital market.** The high and non-transitory barriers to entry in the digital market inhibit effective competition, thereby necessitating market intervention. The high barrier primarily stems from at least two factors: inherent challenges within the digital market structure and gatekeeper self-preferencing strategies.

Firstly, the digital market structure creates a high entry barrier. As argued by Van de Waerd, the ecosystem structure itself could result in an anti-competitive effect (van de Waerd, 2023b, p. 218). In the digital ecosystem, dominant undertakings all complementary services and products are strongly interconnected through their shared data, granting them superior market power. In such a scenario, “competition on the market” has shifted into “competition for the market”, which means a critical mass of users tips the market to a (near)monopoly position. This is mainly caused by network effects (Prüfer & Schottmuller, 2020, p. 2). Network effects include direct network effects (a user’s utility increases in proportion to the number of other users, for example, in a social network platform) and indirect network effects (a user’s utility increases in proportion to the number of users on the other side of a market, for example, search engine). More data gained by the gatekeeper could reduce the marginal cost of innovation, and in consequence, an initial small market advantage can unravel, such that the market tips towards the firm who had that advantage (Krämer & Schnurr, 2022, p. 259). What’s worse, the tipping is persistent; once the market has tipped, the weaker firm is likely never to acquire more than a negligible market share in the future.

Moreover, gatekeepers’ self-preferencing strategies may further increase market entry barriers. Although the Chicago School posited the “one monopoly profit” theorem, arguing that a monopolist possesses the capability but lacks the incentive to exclude an efficient competitor in the downstream market (Brietzke & Bork, 1979), given gatekeepers dual role as both operators of marketplaces and participants in the digital market, their presence in adjacent markets where they offer their products or services creates an incentive for self-preferencing. This is because, within zero-price digital markets, gatekeepers do not directly profit from the core platform services they offer free to end-users (Motta, 2023, p. 2). Instead, they monetize user data and generate revenue in complementary markets. Thus, they may use their bottleneck position in the ecosystem, restricting the interoperability of the services of other firms with the central platform and thereby hamper the user experience of their product.

Interoperability has the potential to effectively reestablish the competition situation. The effectiveness lies in its potential to address the root of digital markets: the structure issues. Although vertical interoperability is a behavior remedy, it is structural in nature. Some might argue that structural remedies like divestiture are more

effective because they directly dismantle the vertical integration of gatekeepers. However, this approach is often criticized for lacking proportionality when a behavioral remedy could be equally effective (Economides & Lianos, 2014, p. 46). Vertical interoperability can impact the structure of digital markets at a lower cost, enabling a greater variety of complementary products or services to integrate with core platform services, thereby fostering a more competitive environment by lower entry barriers in complementary markets. Effective competition in complementary markets is important because complementary markets can also provide the basis for competition in the core platform market. When gatekeepers also operate in complementary markets, as is common in the digital market, ensuring interoperability becomes even more crucial for competition since it could counteract the gatekeepers' self-preferencing strategies.

Without interoperability, the only feasible competition is when another undertaking becomes the new dominant undertaking. However, data-driven network effects cannot be easily copied by competitors, because of all the necessary infrastructure and skills, plus the lack of the continuous inflow of user data to train algorithms in a way that would deliver a better product or service. Thus, vertical interoperability is necessary to address the structure issues in the digital market.

**Lack of consumer choice.** Competition authorities have long recognized the restriction of consumer choice as a theory of harm. For instance, in *Google Android*, behaviors that directly or indirectly lead to fewer choices for consumers regarding alternative services were deemed anti-competitive. The rationale behind this is that consumers, whether they are end users or intermediary buyers, have the power to reward or penalize firms through their purchasing decisions (Case C-377/20 *Servizio Elettrico Nazionale and Others*). A well-functioning market serves as a selective mechanism, granting consumers the power of choice, thereby endowing their preferred firms with market power, while concurrently penalizing inefficient and outdated firms by excluding them from the market (Case C-413/14 *Intel Corp. v. Commission*).

However, the current structure of a zero-priced digital market can hinder this selective mechanism by depriving consumers of genuine choices. In such ecosystems, products and services are bundled together into one choice for consumers (Davies & Georgieva, 2024). Considering the service quality in total, consumers often find themselves with no choice but to opt for gatekeeper-bundled services due to a lack of alternatives. The dimensionality of competition has diminished, resulting in the inadequate representation of the heterogeneity of consumer preferences through their consumption choices.

Vertical interoperability has the potential to change the situation. It could increase the range of consumer choice (Matutes & Regibeau, 1988, p. 232), allowing end-users who were locked into the gatekeeper's ecosystem to mix-and-match complementary products or services surrounding the core platform service. Such a market structure would better allow consumers to express their preferences in different dimensions of competition, such as the quality of the online service, the price they are willing to pay for it, the level of privacy protection, etc. Additionally, the empowerment of consumer choices can stimulate innovation of both gatekeepers and competitors since they will have a chance to compete to win consumer preferences in the complementary market.

### **Potential Risks**

Despite the potential of vertical interoperability to enhance competition in digital markets, it remains a controversial remedy. There are several concerns in promoting mandated vertical interoperability.

**Efficiency concerns.** A concern over the openness of ecosystem is efficiency loss. It has long argued that vertical integration could enhance efficiency by inducing better coordination between various sides, thus avoiding double marginalization (Hovenkamp, 2014, p. 997). Breaking up vertical integration might lead to inefficiencies, resulting in lower-quality products or higher prices, ultimately harming end users (Whish & Bailey, 2015).

However, concerns about inefficiencies may not apply to vertical interoperability for two reasons. Firstly, in a market that lacks competition, which is the status quo of the digital market, a dominated undertaking may have little incentive to transfer these efficiency gains to end users. Since they cannot be passed on to consumers, the efficiency gains may not be justified. Moreover, it is usually structure remedies, such as divestitures lead to inefficiencies and reduced quality because separating parts of a business can incur significant costs. Interoperability, which this essay advocates, is a remedy that does not impose such high costs as divestiture does. Although interoperability grants end users the option to switch to competing products or services, they still retain the choice to continue using the gatekeeper's full suite of services. Therefore, it is unreasonable to claim that interoperability causes unacceptable efficiency losses.

**Privacy concerns.** Inevitably, vertical interoperability presents privacy challenges. As platforms grant access to third parties, the risk of data breaches and security vulnerabilities arises (Gal & Rubinfeld, 2019, p. 17). The impact of these breaches could be more severe if they affect multiple platforms and services. If interoperability covers core services of social media platforms, such as Facebook, business users then are allowed to read data from and write data to Facebook via Application Programming Interface (API). Data might include content produced by end users, such as posts, comments, like, which users may have strong objections to sharing (Barczentewicz, 2021). Thus, scholars such as Barczentewicz criticize that the mandated interoperability betrays a policy preference for privileging uncertain and speculative competition gains at the cost of introducing new and clear dangers to information privacy and security (Barczentewicz, 2023).

Nonetheless, this might not be an issue since GDPR could impose restrictions on business users who may attempt to use the interoperability to infringe the privacy of end users. Moreover, contrary to intuition, there is not necessarily a linear relationship between closed ecosystems and privacy protection (Meyers, 2024, p. 6). Tight security restrictions can prevent users from using a range of potentially security-enhancing software. Instead, when end users are empowered by interoperability to have a wide range of choices, they could choose the more privacy-friendly service rather than coerced to use the gatekeeper service.

**Innovation concerns.** Another concern is that vertical interoperability may be unfairly punitive toward gatekeepers' merits, stifling their incentives to innovate. It is undisputed that competition law upholds "competition on the merit". However, as Maggiolino highlights, in the digital market, the market power held by gatekeepers is not equitable, as gatekeepers and competitors do not all start from the same position due to the tipping effect and the first mover advantage, as well as the intrinsic features, like network effects and high economies of scale (Maggiolino, 2024, p. 5). It is not prudent to unquestionably assume that the market power gained by gatekeepers have not benefited from luck. Implementing interoperability can prevent the "winners" from becoming arrogant in believing they inherently deserve their top positions, while the "losers" are unjustly criticized for lacking sufficient talent and effort.

Furthermore, it may not be accurate to claim that vertical interoperability diminishes the innovation incentives of gatekeepers. In a tipped market, both the dominant and ousted firms typically have little incentive

to innovate. The tipped market enables the dominant firm to match any innovations from the ousted firm more cheaply, preserving its quality advantage. As a result, the smaller firm might stop innovating. In response, the dominant firm may also scale back its innovation efforts, yet still secure monopoly profits. Conversely, increased competitive pressure from easier switching between products could boost innovation incentives (Kades & Morton, 2024). If effective competition exists in the market, low-quality businesses will naturally be weeded out as users can choose not to use their products or services. Thus, incumbents will face greater competitive pressure in complementary markets, thereby maintaining innovation.

### **Section 3: Evaluating DMA’s Theoretical Facilitation for Vertical Interoperability**

As argued by Ünver, “EU competition law tools are not capable enough to cope with the digital era problems, particularly given the semi-structural, enduring gateway problems” (Ünver, 2021, p. 26). The desire to address these concerns and to push for a more straightforward regime has recently led to DMA. In this section, a comparison is drawn between the enforcement of competition law and DMA, aiming to argue that DMA plays a key role in facilitating vertical interoperability. The limitations of DMA will also be discussed, particularly its narrow scope of application, which constrains its influence across the broader digital market.

#### **Vertical Interoperability Under EU Rules**

**EU competition enforcement.** In competition law enforcement, refusal to interoperability may qualify as an abuse of dominance. A series of cases, including landmark judgement in *Magill*, *IMS Health*, and *Microsoft*, have shaped the essential facilities doctrines, setting a high standard for the burden of proof that the Commission must meet to prove the abuse of dominance.

Another application theory is tying. It can be categorized as a degradation of interoperability (Colangelo & Martínez, 2024). In the context of digital platforms, effective tying would mean that two different services offered by the same provider must be used together, and neither can be used in the same way with a functional competitor offered by another (Riley, 2020, p. 96). Thus, users do not have incentive to choose competitor service and are coerced to purchase the tying and tied service (*Google Android* case).

**DMA.** DMA is an ex-ante sector-specific regulatory instrument that complements the current ex-post competition law and policy of the EU. Through inspiration from EU competition cases, DMA imposes mandatory interoperability obligations on gatekeepers for two types of situations, targeting operating system (“OS”) and virtual assistant.

In particular, under DMA Article 6(4), gatekeepers must allow the sideloading of apps or app stores with their OS. In addition, Article 6(7) of DMA imposed an obligation on the gatekeeper to give free of charge access to providers of services or hardware “the same hardware and software features accessed or controlled via the operating system or virtual assistant (...) as are available to services or hardware provided by the gatekeeper”.

To ensure that these obligations are applied effectively and are not circumvented, gatekeepers are not allowed to engage in any behavior undermining interoperability, such as by using unjustified technical protection measures, discriminatory terms of service, unlawfully claiming copyright on APIs, or providing misleading information.

Nevertheless, gatekeepers retain some discretion. In both scenarios, they are allowed to take measures deemed strictly necessary and proportionate to ensure that interoperability does not compromise the integrity of

their operating systems, virtual assistants, hardware, or software features. However, the gatekeepers must provide adequate justification for the necessity and proportionality of these measures.

### **The Comparison of DMA and EU Competition Rules**

The comparison demonstrates how DMA effectively promotes vertical interoperability in digital markets by overcoming the limitations of traditional competition law.

Firstly, the approach to assess abuse of dominance in ex-post competition law faces significant challenges. Market definition traditionally emphasizes substitutability, with market share serving as the primary indicator of market power (Case 85/76 *Hoffmann-La Roche v. Commission*). However, market power in digital markets often stems from an ecosystem where a dominant player profits from complementary markets (Crane, 2019, p. 412). For example, it is hard for competition authorities to judge Apple dominance in smartphones based on market share, unless it chooses to focus on a bottleneck aspect of Apple's ecosystem, such as the OS or the app store (Jacobides & Lianos, 2021, p. 1211). Moreover, traditional foreclosure-based theories of harm lose much of their basis. For instance, tying and bundling may not be effectively applicable when evaluating a digital ecosystem since digital products may not be explicitly linked, but are inherently connected through the shared use of data. Consequently, traditional competition law might struggle to establish market power effectively. In contrast, DMA is better equipped to address these issues in digital ecosystems. Although the concept of an ecosystem is not explicitly reflected in the criteria for designating gatekeepers, gatekeeper still be identified by quantitative criteria in Article 3(2) of the DMA, qualitative criteria such as the scope effect, lock-in effect, and the structure involving conglomerates or vertical integration under Articles 3(1) and 3(8) which highlight characteristics of an ecosystem.

The second issue with ex-post competition law is that before effective intervention becomes possible, the market may have already tipped (Alexiadis & de Streel, 2024). Ex-post competition investigations and enforcement usually take a long time to be effectively implemented. By the time they are in place, competitors and the potential for current and future competition may have already been foreclosed (Kerber, 2021). In comparison, DMA can rapidly address structural issues in the digital market since it imposes obligations on gatekeepers, serving a preventative function. It's argued that DMA's ability to evaluate business models that are not yet fully understood may be limited if obligations are specifically outlined (Jenny, 2021, p. 1143). However, DMA retains the flexibility to tackle the change in the digital market. Article 6 DMA allows for further specification, which is a mechanism that DMA has to keep itself up to date. For instance, if gatekeepers engage in a practice that is unfair or that limits the contestability but without such practices being explicitly covered by the obligations laid down by DMA, the Commission should be able to update this DMA through delegated acts. Therefore, DMA can intervene promptly while maintaining flexibility.

The third limitation of ex-post private enforcement is its tendency to benefit only individual companies, rather than the broader digital industry. For example, a notable lawsuit in the United States has spotlighted the constraints within Apple's ecosystem, especially concerning cloud-based storage services for backups. Presently, iPhone users are compelled to only use Apple's iCloud for backing up certain data types, a restriction that limits consumer choice and hampers competition in the cloud storage sector (Scarcella, 2024). While this legal action is specific to the US, it highlights a wider concern of interoperability that DMA aims to tackle within the EU. However, EU may tackle this problem more effectively than the US since DMA's approach shifts the focus from

addressing specific abuses to tackling broader digital industry concentration issues. According to Article 6(7) of DMA, Apple, as a gatekeeper, should ensure that all third-party cloud storage providers meeting Apple's integrity requirements are effectively interoperable with Apple OS, just like Apple's iCloud. This approach benefits a broader scope of business users compared with competition lawsuits.

### **The Limitations of DMA**

Despite the advantages of DMA, it seems too cautious in intervention. The interoperability clauses in DMA mainly target gatekeepers operating systems and specific types of marketplaces, such as app stores. It seems that DMA has limited the application based on existing case law and ongoing investigations, rather than adopting forward-looking obligations regarding these practices more generally (Akman, 2020, p. 90). However, other types of vertically integrated service providers also necessitate regulatory attention (Budzinski & Mendelsohn, 2021). If other marketplaces and their related ecosystem become dominated by a vertically integrated service provider, business users face similar high entry barriers. Gatekeeper is very likely to engage in self-preferencing practices and foreclosure competitors.

For instance, interoperability should be justified to apply surrounding the social network core platform service, such as the Facebook ecosystem (Kades & Morton, 2024). Facebook was found to have acquired a series of rivals that threatened its monopoly in social networks, for example, Instagram and WhatsApp (CMA, 2019, p. 104). It was also found to engage in exclusionary conduct by denying interoperability to potential social network competitors that began as applications (complements) on its platform but which Facebook judged carried the risk of becoming substitutes. Facing the loss of competition, interoperability could be a part of the remedy, creating the opportunity for new competitors to quickly enter the market and provide alternatives for users. Since interoperability could eliminate the barrier to entry, and empower consumer choice, as a result, Facebook's exclusion strategy would be less protective of its dominance.

Vertical interoperability is also justified to apply surrounding the online advertising service, exemplified by Google. Google's ecosystem is sustained through a monetization model where, on one side, end users access services like Google Search, Google Maps, and YouTube for free, but monetize these services through behavioral advertising on the other side of the platform (Edelman, 2015, p. 365). Recently, the European Commission has preliminarily concluded that Google has abused its dominant position by favoring its advertising exchange (European Commission, 2023). Specifically, the investigation found that Google tied its advertising network with its popular online platforms, utilizing user data for profit while preventing other competitors enter the market. In this context, promoting vertical interoperability could be a more practical solution. Implementing interoperability could prevent anti-competitive tying and allow Google's competitors to enter the market, enabling competition on various dimensions such as quality, price, and privacy protection.

Unfortunately, the interoperability clause seems limited by a narrow drafting. Art. 6(7) applies only to hardware and software services that are controlled via the operating systems and virtual assistants; Art. 6(4) applies only to the app store. Other marketplaces are not impacted by the vertical interoperability obligation.

Hutchinson criticized DMA for its lack of flexibility and adaptability (Hutchinson & Treščáková, 2021, p. 567). However, some may argue that it might be wise to rush and push DMA towards a one-size-fits-all regulatory framework, given that different industries adopt various business models. While there is no existing case law



adopting interoperability remedies beyond operating systems and app marketplace, gatekeepers providing different core platform services can be characterized by similar monetized business models. Gatekeepers leverage their data advantages and bottleneck positions to favor their own monetized services and exclude competitors. Thus, the narrow scope may only cause DMA to fail to capture relevant anticompetitive conduct and arrangements.

#### **Section 4: Evaluating DMA's Practical Facilitation for Vertical Interoperability**

DMA mandates specific interoperability requirements, significantly affecting gatekeepers such as Microsoft, Google's Android, and Apple. Notably, Apple is considered the main target of these regulations because of its closed platform (Geradin & Katsifis, 2021, p. 510). Therefore, this essay will emphasize on Apple compliance practice when assessing the practical effectiveness of DMA.

##### **Gatekeeper Compliant Report**

The EU Commission required that designated gatekeepers must comply with all obligations and outline the measures undertaken in compliance reports by 7 March 2024 (EU Commission, 2024). These compliance reports are crucial for assessing whether gatekeepers truly comply with DMA. In the Apple Compliance Report, meaningful changes have been made. For DMA Art. 6(4), Apple formulated one of its major concessions: It would allow for the alternative distribution of apps at the upstream level (by allowing alternative marketplace apps to set up their own app stores on iOS) and at the downstream level (by allowing developers to distribute apps on iOS but not on the App Store) (Apple, 2024). Since Apple has entirely opened alternative app distribution on its ecosystem. Thus, business users now have up to three types of ways in which to download apps on their iPhone devices: (i) through an alternative app marketplace, which may distribute only proprietary apps or apps of third-party developers; (ii) directly via the web (sideloading); and (iii) via the proprietary app store.

DMA Art. 6(7) requires that gatekeepers provide free of charge interoperability to their hardware and software features accessed via the operating system. This Article relates to the *Apple NFC Chip* case, regarding Apple Pay's exclusive access to Near Field Communication (NFC) functionality, and the Statement of Objections was issued by the Commission after it entered into force on 2 May 2022 (European Commission, 2022). In response to regulatory scrutiny, Apple has made commitments to open up its NFC capabilities to third-party providers (Porter, 2024). This move towards interoperability represents a significant shift, potentially setting a precedent for further opening of Apple's ecosystem to competition.

##### **Practical Limitation: Exploring the Boundaries of Gatekeepers' Sole Discretion**

Although Apple's compliance reports suggest effectiveness, there are ongoing disputes about whether Apple's practices are de facto compliant. This essay argues that Apple may exploit the integrity justification and core technology fees to circumvent interoperability obligations.

**Gatekeeper power to say no.** Under DMA's original version of Article 6(4), the initial requirement was straightforward: Users should be allowed to "sideload" or download from new app stores. In the Act's final version, the text added notions of "security" and "privacy" as a reason for gatekeepers to deny or restrict sideloading (Lundqvist, 2024). This creates discretion for gatekeepers and grants them the power to say "no" to business users. Similarly, in Article 6(7) DMA, there are defense rooms for gatekeepers; DMA allows gatekeeper

takes strictly necessary and proportionate measures to protect the integrity of the operating system, virtual assistant, hardware, or software features.

Accordingly, Apple has established a dedicated process for DMA interoperability with iOS and iPhones where developers may make submissions to Apple so that the gatekeeper decides whether it can cater to those interoperability solutions individually. In principle, Apple adopts this “black box” approach because it cannot simply offer access to an API without compromising security; it argued throughout the workshop (Mart ínez, 2024).

On the one hand, the measures taken by Apple make sense. Interoperability scenarios may pose threats to consumer privacy. For example, business users could access the camera for an app that records video or photos, Bluetooth to interact with other devices, and gestures for apps that want to recognize and respond to the user swiping on the screen. Those may pose obvious risks to end users’ privacy. Some commentators argue DMA’s rules might also allow hackers to pose as legitimate app developers and produce “copycat” apps that steal users’ data, or allow them to include malicious code that subverts a device’s security (Lundqvist, 2023).

Another significant justification for Apple is that security and privacy are points of competitive differentiation. DMA clause may de facto force Apple to become more open like Google. This can reduce competition between different ecosystems, which may have a negative effect on competition in the market.

On the other hand, granting Apple sole discretion to determine potential harm to its ecosystem could create loopholes that weaken the enforcement of interoperability obligations. This discretion could serve as a pretext for maintaining their gatekeeper status. Apple has clear incentives to restrict new app marketplaces to preserve their revenue streams from app purchases and in-app transactions. They may limit third-party app functionality to protect their own commercial interests. Consequently, these gatekeepers might exploit technicalities to undermine the provisions’ purpose, creating barriers that make alternative products less appealing or viable, thus retaining excessive power in the digital market.

Many developers have complained about Apple’s arbitrary enforcement. For instance, Meta and Epic Games are finding it harder than they expected to offer competing app stores or payment services (Auer, 2024). Epic complained that Apple initially approved, and then terminated, Epic Games Sweden AB’s developer account (Epic Games, 2024). Given that developers reasonably fear they could be permanently cut off from their audience at any moment, many are likely to be deterred from utilizing third-party app stores. This arbitrary practice could significantly impact consumer choice by hindering the interoperability of other app stores within the Apple ecosystem. Thus, the application of DMA could lead to the transfer of issues surrounding competitiveness and fairness to the verification and authorization processes that gatekeepers can legally implement to protect their commercial interests.

Overall, balancing the gatekeepers’ objective justifications and commercial interests with competition among business users remains a persistent challenge.

**Fee structure.** Another controversial compliance measure introduced by Apple is the imposition of a new fee structure that developers may rely on when distributing their apps on iPhones. In particular, the new fee structure includes a core technology fee of 50 euro cents per user account per year that major app developers with over one million installs will have to pay even if they do not use any of Apple’s payment services.

This fee requirement has already been criticized by some practitioners and scholars. For instance, Vestager has expressed concerns that this fee structure may discourage the benefits of DMA, warranting further investigation (Chee, 2024); Cremer has pointed out that Apple's new fee structure could stifle the development of alternative app stores (Cremer et al., 2024). This is because developers of popular apps might find little incentive to switch to these new platforms if they incur additional fees, potentially limiting competition and the entry of new app stores into the market (Mart ínez, 2024). Thus, on 25 March 2024, the Commission initiated non-compliance investigations to determine whether Apple's new fee structure undermines its obligations under DMA Article 6(4). The outcome of this investigation remains to be seen.

Apple defends its fee structure by arguing that it reflects the many ways Apple creates value for developers' businesses, including Apple's trusted and secure mobile platform, and all the tools and technology to build and share innovative apps with users around the world (Apple, 2024). Apple's practices could potentially be deemed compliant with DMA Art. 6(4) if they do not directly impede multi-homing (Padilla, 2024, p. 3).

If this is the case, the Commission might need to assess whether the terms and conditions of the app store are fair, reasonable, and non-discriminatory (FRAND). Frand-license remedies have long been used in compulsory interoperability cases. In *Microsoft*, a FRAND-like obligation was imposed on Microsoft for providing API information for interoperability. Also, according to DMA Article 6(12), gatekeepers must apply fair, reasonable, and non-discriminatory general conditions of access for business users to its software application store.

However, there are still hurdles in assessing whether the fee is FRAND. In *Microsoft*, the court highlights that the FRAND rate depends on assessing the intrinsic value for the interoperability information, which is the technologies at issue, through an analysis of their innovative character and of the market value of comparable technologies. Recital 62 DMA also provides several benchmarks, whereby the FRAND value is determined by reference to comparable licenses. The problem is that there are not many comparable. Competing app stores are not gatekeepers themselves and therefore they are not similarly situated. Additionally, new entrants have low prices because they do not face the same risks as the gatekeepers when establishing their ecosystems. Only Apple and Google have the bottleneck position for app distribution, but unfortunately, their business model is not very similar. Therefore, an appropriate benchmark to assess the fairness of Commission fees is lacking and the question is left open to be answered.

## Section 5: Policy Recommendations

This section will propose recommendations to enhance the effectiveness of vertical interoperability under DMA, as a response to the limitations identified in Sections 3 and 4.

### How Can the Narrow Drafting in DMA Be Addressed?

In Section 3, the essay identifies the drawbacks of DMA's narrowly drafted clauses. To address this issue, recommendations have been made such as adopting alternative approaches or broadening the scope of vertical interoperability provisions. The essay argues that expanding the scope is the more appropriate solution.

**Alternative approach.** Although the vertical interoperability clause in DMA targets only specific core platform services and is subject to narrow drafting, it can be argued that other clauses within DMA could have a similar effect in opening up closed ecosystems; thus, it might not be necessary to modify the interoperability

clause. For instance, DMA imposes also obligations related to data access and sharing benefiting end-users (Art. 6.9) and business users (Art. 6.10). According to those clauses, DMA stipulates that gatekeepers must grant business users and end users the ability to access and use data—both aggregated and non-aggregated, including personal data—free of charge, continuous, and in real-time. Theoretically, the data access obligations have the potential to ensure that gatekeepers do not undermine the contestability of core platform services, or the innovation potential of the dynamic digital sector, by restricting switching or multihoming (DMA Recital 59). More importantly, the data access obligations apply generally to the whole digital industry. Therefore, these obligations have the potential to extend to sectors such as the advertising market and the social network market mentioned above in Section 3.

However, this essay contends that the effectiveness of those clauses may not fully mirror the effect of interoperability. This is because while accessing data helps business users develop innovative products, thereby mitigating the barrier of limited user data, and persistent network effects continue to obstruct competition, many users are hesitant to switch from a gatekeeper's core platform service. If consumers must choose between staying with a core platform service linked to a less competitive gatekeeper's complementary product or leaving for a superior complementary product offered by a business user, they are likely to remain with the gatekeeper's offerings. Moreover, there is doubt whether continuous and real-time data access and use can be realized, as gatekeepers hold the discretion to grant access. If this power is abused, competitors may struggle to truly obtain effective data. Any actions that create unreasonable doubt or uncertainty about the reliability of the process or the risks involved will tend to favor the gatekeeper and reduce the volume of transfers that occur.

Therefore, the data access obligations alone may not be sufficient to achieve DMA's goals; broadening the scope of vertical interoperability may be the ideal solution to achieve contestability in the digital market.

**Broaden the scope of vertical interoperability.** This essay argues that it is necessary to broaden the application scope of vertical interoperability provisions. The dilemma arises when more generalized provisions potentially compromise the clarity of DMA clauses. The obligations set out in DMA often require years of litigation to precisely determine their scope and extent as ex-ante obligations. Hastily moving towards a general provision necessitates case-by-case analyses of the competitive effects, which in turn could lead to increased litigation. This contradicts the primary rationale for choosing ex-ante regulation, which is to expedite resolutions regarding market outcomes and conditions, compared to enforcing competition law in digital markets.

Another challenge is DMA's absence of an efficiency defense, crucial for balancing pro-competitive and anti-competitive effects. This absence may be a key reason to avoid adopting a general clause, as it could result in unjust outcomes for gatekeepers. Several commentators have suggested that DMA should incorporate efficiency defense. However, efficiency defense could be a trap. Companies will likely use the efficiency defense to delay procedures and overwhelm competent authorities' capacities. Given that DMA aims to achieve timely changes to market practices, efficiency defense would run counter to its essential framework and objective of achieving speed.

In light of the aforementioned challenges, hastily extending interoperability to the whole industry seems unrealistic; a phased implementation strategy would be more practical. Given that the obligations under DMA Article 6 can be further specified, the Commission has the opportunity to broaden their application gradually without incurring excessive regulatory burdens, thereby ensuring practical implementation. Specifically, the

Commission could explore other ecosystem practices with anti-competitive effects through dialogues with gatekeepers and stakeholders. This method would allow for a gradual extension of the scope of ex-ante interoperability obligations, thus enhancing the impact of interoperability in the contemporary digital market.

### **How to Balance the Conflict Between Gatekeepers and Business Users?**

In Section 4, it is argued that Apple might use objective justification and Core Technology Fees (CTF) as pretexts to maintain a closed ecosystem. To address these potential issues, the following recommendations are proposed.

**Gatekeeper power to say no.** From a substantive perspective, there are at least two approaches to limit gatekeeper discretion. Firstly, the anti-circumvention clause (Art. 11) could prevent gatekeepers from circumventing the obligation to allow users to use or install third-party software application stores and software applications by purposefully abusing “the integrity of the hardware or operating system” as a justification.

Secondly, the proportionality test could also play a role. Proportionality typically requires that the objective of a measure is legitimate, and that the measure is suitable to achieve that objective, and “shall not exceed what is necessary to achieve the objective”. The Commission needs to take a critical approach to ensure the least restrictive measures are used. For instance, it’s not justified for Apple to refuse apps that might drain a device’s battery or use excessive system resources since there are less restrictive measures than outright refusal.

However, proportionality should not simply mean that there are no less-restrictive means to ensure security, as this would make security a trump card for gatekeeper (Möller, 2012, p. 714). The Commission should adopt a more rigorous approach to assessing proportionality. This would involve gatekeepers evaluating the likelihood and severity of specific security risks, the effectiveness of their restrictive measures in addressing these risks, and the extent to which these measures limit the goals of Articles 6(4) and 6(7), such as restricting the ability of end users and app developers to bypass gatekeepers’ app stores or compete with Apple and Google by offering similar functionalities. This thorough assessment could restrict gatekeepers’ discretion, preventing them from harming market contestability.

From a procedural perspective, scholars have also made several suggestions to help DMA function more effectively by providing more certainty. DMA Arts. 20 and 29 allow the Commission to commence the normal enforcement process in DMA to determine whether there has been noncompliance. However, this approach may be less likely to be employed because these proceedings tend to be highly confrontational and resource-intensive, and gatekeepers are likely to strongly resist any findings of non-compliance due to the severe penalties imposed by DMA.

A preferable approach is that the Commission publishes guidelines detailing how gatekeepers should demonstrate they have taken all reasonable steps to ensure these measures do not undermine DMA’s effectiveness (Mantzari, 2024, p. 7). This approach could benefit both the Commission and the gatekeepers. For the Commission, it would likely reduce the number of disputes, as guidelines are less likely to be met with strong resistance. For gatekeepers, guidelines provide a more flexible option compared to more rigid enforcement methods.

**Fee structure.** From the substantive perspective, regarding whether the core technology fee would de facto violate DMA Art. 6(4), it is advised to contemplate whether the fee truly reflects the investment and technology

as Apple argued, or just reflects the network externalities (Mantzari, 2024, p. 7). It is argued that in the case of application stores, remuneration is not justified and Apple's defense fails to withstand scrutiny (Padilla, 2024, p. 4). This is because the value of the gatekeeper platform may not necessarily be informed solely by its superior technology, but by the network effects generated by the market in question. This viewpoint could be a reference for the commission when assessing the compliance of DMA Art. 6(4).

From the enforcement perspective, *Huawei* has laid down a procedural framework for negotiation aimed at reaching a consensus between the parties on a FRAND license. However, the problem is that in *Huawei* the Court of Justice of the European Union (CJEU) did not provide any help on how to determine FRAND terms; thus, relating to the threshold of FRAND, there are still many issues unresolved. Thus, there is a strong risk that a wide reliance on this expedient would trigger never-ending litigation.

Some may argue that considering the ambiguous meaning of FRAND, it seems justified for the commission to set out a detailed methodology on how to calculate what is fair and reasonable compensation. However, the problem is that it may unnecessarily limit the flexibility of the parties involved and, due to the nature of the online environment, such a methodology is unlikely to be future-proof.

The more preferable approach is that the Commission could provide some guidance on the principles for assessing FRAND. The guidance could provide principles and benchmarks, such as, the appropriate price is the price it would have charged in the presence of effective competition. Under the guidance, the stakeholders could settle down the fee price themselves.

### Conclusion

Overall, this essay has first established the effectiveness of vertical interoperability in addressing structural issues within the digital market and enhancing user choice. It also responds to criticisms of mandated vertical interoperability.

This essay then analyzes the effectiveness and scope of vertical interoperability under DMA in the digital market. It examines how specific provisions, particularly Art. 6(4) and 6(7), support vertical interoperability and address limitations in competition enforcement. While acknowledging DMA's focus on operating systems as essential, the essay argues that this focus is too narrow. It proposes expanding interoperability requirements to encompass additional ecosystem practices, aiming to prevent anti-competitive behaviors by gatekeepers.

The essay also evaluates the practical effectiveness of DMA, discussing the ongoing disputes over the actual impact of gatekeeper (e.g. Apple) compliance measures. It points out that significant challenges stem from the discretionary powers of gatekeepers and potentially unreasonable fee structures. The essay recommends employing the proportionality test to balance the interests of gatekeepers and business users from both substantive and enforcement angles. Additionally, it offers suggestions on ensuring that CTF does not impede the effectiveness of interoperability, also from both substantive and enforcement perspectives.

According to Article 53 of DMA, the Commission is required to assess if the obligations stipulated in Articles 5, 6, and 7 and their enforcement require modification. Thus, this essay's analysis of the interoperability obligation and subsequent policy recommendations may contribute to the refinement of the interoperability obligation.

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