Term paper - Regulation of Internet Edge Platforms

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Interoperability Fundamentals: A Playbook for US Regulators

Context

In the last few decades, internet companies have avoided regulation by claiming that "digital is different". The particularities of digital markets require novel approaches to foster competition and alleviate bottlenecks. This paper offers a non-comprehensive review of the literature on interoperability as a possible solution and reflects on the lessons learned from the EU's recent regulatory efforts to curb anti-competitive practices among major technology firms.

Network effects

One of the key disruptions brought by the internet is that it brought distribution and transaction costs to zero. A book writer no longer needs a book publisher and its distribution network to get their content out. What this means in practice is that competition is no longer about distributors maintaining exclusive ties with suppliers. Instead, the key to success now lies in providing a superior user experience. In this world, consumers gravitate toward web platforms with better experiences. This draws more suppliers, enhancing the user experience and attracting even more consumers. Known as "Aggregation Theory" by Ben Thompson, this virtuous cycle implies that the big players keep getting bigger. The equilibrium state in this type of market is monopoly, meaning that one web platform has all the content suppliers and all the consumers. The key difference with traditional monopolies is that web platforms are not limiting consumer choice by controlling supply. Instead, consumers are freely choosing to use the monopolist's web platform because of the superior user experience it provides. (Thompson, 2016)

Regulation Motivation

USA vs Europe

The real harm of this type of monopoly is a source of debate. Some argue that there is no real harm to consumers since they are self-selecting for the best web platforms. This interpretation has frozen US antitrust law, which is based on proving a real harm to consumers. (Thompson, 2016) On the other hand, promoters of regulation counter that internet companies wield their power to stifle competition. They argue that promoting competition will ultimately benefit consumers. This rationale underpins the EU's

creation of the Digital Markets Act (DMA). While these laws were seen in the US as a resurgence of EU interventionism and protectionism, US policymakers could draw valuable lessons from these efforts. (Michelle Cini, 2022)

Technological context and market power

The emergence of large digital firms, also called "big tech" sparked increasing worries about the lack of competition leading to possible effects on prices, innovation, privacy, consumer protection and data governance. (Marc Bourreau, 2022)

The European Union identified the following problems:

i. Bargaining power between large online platforms on the one hand and their users and rivals on the other. In other words, their ability to act independently of competitors and consumers. This trend was expected to increase in the future.
ii. Tech giants' ability to operate a platform while competing on it, "misusing their position as both player and referee".
iii. A "risk of reduced competition and dynamism" where platforms control the "ecosystem" within which competition occurs.
iv. Some large platforms' practice of "neutralizing threats from new entrants by means of pre-emptive acquisitions".
v. The ability of platforms to "benefit from the use of data gathered from one area of their activity to improve or develop new services in adjacent markets."

(McCann FitzGerald LLP, 2020)

The companies causing these problems are called "*gatekeepers*" under the DMA. They are defined as companies that have a significant impact on the market, provide a "*core platform service*" (CPS), and enjoy or are expected to enjoy a preponderant and stable position in their operations. Article 3(1) of the DMA also provides quantitative criteria, such as market valuation and monthly active users, to determine gatekeeper status. (Axel Gutermuth, 2022)

Table 1 and Table 2 below show the distinct categories for CPS and the gatekeepers identified by the DMA.

Table 1

Core Platform Services Categories
Online intermediation services
Online search engines
Online social networking services
Video sharing platform services
Number-independent interpersonal communications services

Operating systems
Web browsers
Virtual assistants,
Cloud computing services
Online advertising services that are linked to another CPS

(Axel Gutermuth, 2022)

Table 2

Gatekeepers	CPS
Alphabet	Google Maps, Google Play, Google Shopping, Google Ads, Google Search, Chrome, Android, Youtube
Amazon	Amazon Marketplace, Amazon (Ads)
Apple	App Store, Safari
ByteDance	TikTok
Meta	Facebook, Instagram, Whatsapp, Messenger, Meta (Ads),
Microsoft	LinkedIn, Windows
Booking	Booking.com

(European Comission, n.d.)

Experience using traditional competition instruments

The DMA came after a decade of competition enforcement in digital markets. Some cases were very controversial, and some lasted for a very long time. A case concerning Google Shopping, for example, began in 2010 and didn't receive a final decision until seven years later, in June 2017. Additionally, some Commission Decisions did not have any effect on the platform's behavior. The illegal practices continued with impunity and appeals dragged on for a very long time. (Michelle Cini, 2022)

Antitrust authorities were also ill-equipped to handle mergers between different technology sectors, such as the one between Facebook, a social network, and WhatsApp, a messaging service. Traditional tools focused primarily on horizontal mergers and competition within a single market segment. (Competition through interoperability, 2017)

A new type of digital market regulation

The primary advantage of competition law lies in its flexibility and its ability to target specific companies within defined markets. Its main characteristic is that it only addresses issues after they have occurred "*ex-post*". In well-ordered markets, where companies can systematically organize their activities to comply with competition regulations, this retrospective approach poses no significant challenge. However, in rapidly evolving markets, such as digital markets, the regulatory landscape often lags behind technological advancements, resulting in regulatory uncertainty and protracted

legal proceedings. Therefore, the EU decided that a new approach was needed. They concluded that an "*ex-ante*" regulation would provide a framework that companies could follow without the need for after-the-fact corrections. This could have the advantage of being faster and more preventative than competition law. It would also be less time-consuming for recurring issues. This would also compel gatekeepers to cooperate with the European Commission. (Marc Bourreau, 2022)

The EU Digital Markets Act

To address the previously described issues, the EU drafted the Digital Markets Act, which focused on three key areas:

i. The use of data gathered by web platforms
ii. Interoperability: to address platforms only working with their own services
iii. Self-preferencing: to avoid preferential treatment for services provided by the platform over their competitors' services

(Michelle Cini, 2022)

Interoperability

Our attention will be directed towards one of the three areas outlined by the DMA: interoperability. Marc Bourreau et. al define interoperability as:

"the ability of different products or services to 'work together,' meaning that some common functionalities can be used indifferently across them, typically via appropriate information exchange" (Marc Bourreau, 2022)

Previous success

Hopes that interoperability will improve competition are not unfounded, as demonstrated by a case involving Microsoft's work group servers. As a result of an antitrust investigation, Windows was mandated to document interoperability protocols. This initiative greatly empowered the Samba project, which enabled non-Windows PCs and servers to seamlessly integrate with Windows-based networks. This significantly weakened the monopoly that Windows had held over the industry and facilitated the use of Mac or Linux in corporate settings and data centers. (Thompson, 2016)

Types of interoperability

From an economic perspective, it is very important to differentiate between two types of interoperability, namely vertical and horizontal interoperability.

Horizontal interoperability

Horizontal interoperability is the ability of products or services from the same level in the value chain to exchange information or provide services amongst them. This allows services to share network effects. One example is the ability to send a text message from one messaging service to another. (Marc Bourreau, 2022)

Vertical interoperability

On the other hand, vertical interoperability refers to the ability of products or services from different levels in the value chain to exchange information or provide services between them. This requires platforms to be able to interact with different components. One example is the ability to run different app stores on the same operating system. (Marc Bourreau, 2022)

When is it useful

Traditionally, there have been two types of situations where denying interoperability is considered anticompetitive behavior.

The first one is the essential facilities doctrine. According to this doctrine, a dominant company is considered anti-competitive if it exploits a service it controls, mainly through network effects or some other bottleneck in the market, to create an entry barrier. This is relevant in digital markets where services are reliant on their competing platforms. (Marc Bourreau, 2022) This doctrine has declined in popularity due to the argument that such situations are rare and that the primary example, Aspen Skiing, was an exception. (Riley, 2020)

The second type of behavior that is considered anti-competitive is tying. Tying occurs when a dominant provider bundles two distinct services together, making them inseparable and unusable in the same way by competitors. Microsoft was blamed for tying over its connections between Windows and Windows Server that were not available to competitors. Competitors urged regulators to force Microsoft to disclose information on their interfaces that would allow them to interoperate with Windows. (Riley, 2020)

Another way to assess the effectiveness of interoperability in enhancing competition is to examine the nature of the relationship between the services to be made interoperable.

Horizontal interoperability might be useful if both services are homogenous and have a stable set of features that don't change often. It might also help if the cost of multi-homing (the cost of using multiple competing services) is too high for consumers. One

example is mobile phone companies, where services are very similar and maintaining more than one phone line would be expensive for consumers. It is usually not recommended for digital platforms, which compete by innovating on new features.

Vertical interoperability, on the other hand, can be a powerful tool for enhancing competition in digital markets. It can significantly boost competition by enabling competitors to access markets they otherwise couldn't enter. It is recommended for platforms that are vertically integrated and have engaged in discriminatory practices or restricted competitor access. It is also recommended that a clear harm is demonstrated, and the case specifics are considered before imposing interoperability requirements.

Interoperability in practice

After deeming a market favorable for interoperability mandates, new questions arise regarding their actual implementation.

How should data be exposed

One question is how data should be exposed. Interoperability can ran range from data portability, which is the ability to transfer your data from one service to another, to complete standardization of interfaces so that consumers can seamlessly cross the boundaries between different services. (Marc Bourreau, 2022)

Protocol interoperability

Protocol interoperability requires services to be able to interact with each other. This could mean third party services running complimentary services on a platform. (Marc Bourreau, 2022)

Data interoperability

Data interoperability allows competing services to exchange data between them in real time. It usually relies on open APIs (Application Programming Interfaces). It differs from protocol interoperability in that it limits the exchange to real-time data. (Marc Bourreau, 2022) For example, with data interoperability users may port their social network information to a different social network, but they would no longer be able to interact with members of their original social network. (Riley, 2020)

Full protocol interoperability

Full protocol interoperability allows platforms to fully substitute services with which they interoperate. Messaging systems operating under full protocol interoperability would enable users to exchange messages with any other user of any other messaging

system. This is a good way for competitors to share network effects and level the playing field. (Marc Bourreau, 2022)

Who decides how data is exposed

Another question is who decides what to expose. Regardless of who makes the decision, all interoperability mechanisms should adhere to the principle of "equivalence of input," ensuring that all competitors have access to the same functionalities under the same conditions as the gatekeeper. (Riley, 2020)

Full autonomy

Under the full autonomy approach, the gatekeeper is in charge of defining interfaces. They must comply with non-discrimination clauses, be transparent about access conditions, and promptly notify about any interface changes. The gatekeeper has full discretion and flexibility. The risk is that gatekeepers may engage in actions of "sabotage" like changing the interfaces too frequently. (Marc Bourreau, 2022)

Multi-stakeholder process

This approach involves balancing the interests of multiple parties to define interfaces and standards. This can be done through standardization organizations or some other regulator that defines the standards and monitors compliance. It might not be desirable in a fast-moving environment like digital markets, where regulators may lack the technical expertise and technical access conditions to quickly adapt to platforms' needs. It also imposes a one-size-fits-all solution for diverse competitors, which might not be optimal. (Marc Bourreau, 2022)

Mixed approach

This approach provides full autonomy for gatekeepers to decide which functionalities to expose to competitors, while also setting standards for data formats and APIs. (Marc Bourreau, 2022)

Access policies

Privacy and security concerns could be addressed with licensing conditions and other policies that would allow the revocation of access if misconduct were detected. Similar measures could address other objectives, like excluding certain business models, as long as these measures are applied on a non-discriminatory basis. (Marc Bourreau, 2022)

Who determines the access policies

The question then is: who makes the rules?

Full autonomy

One option is to grant full autonomy to gatekeepers for making the rules. One example is an app store choosing to deny apps that block ads. Under the non-discriminatory rule, the gatekeeper would not be allowed to provide any ad-blocking apps themselves. (Marc Bourreau, 2022)

Trusted third-party

Access policies would be determined by the gatekeeper directly, but there would be a trusted third-party to oversee these decisions and settle disputes. (Marc Bourreau, 2022)

Access pricing

Concerns about direct costs to gatekeepers for offering interoperability capabilities to competitors or third parties can be addressed through access pricing. One thing to keep in mind is that a low price may discourage innovation by gatekeepers, while a high price may discourage third parties and complementors from innovating and using the services exposed by the gatekeeper. It is recommended to consider the specifics of each case. (Marc Bourreau, 2022)

Exit conditions

Sometimes a gatekeeper might want to deprecate a certain functionality, perhaps due to a privacy concern. In turn, dependent services might complain and say they are disproportionally impacted by the measure and thus request that the functionality be maintained. In this case, exit provisions must be set in place.

On the flip side, a bottleneck might become redundant if dependent services successfully replicate it, or if new technology makes the gatekeeper's service unnecessary. This scenario should be seen as a legitimate reason to discontinue a service. (Marc Bourreau, 2022)

Interoperability in the EU Digital Markets Act

The Digital Markets Act regulates gatekeepers and lays out new obligations for core platform providers to enhance competition. Most provisions mandating interoperability and data portability are listed in articles 6 and 7. They address previously mentioned anti-competitive behaviors such as bundling or tying and self-preferencing. (Marc Bourreau, 2022)

Table 3

Article	Provision	Example
6(1)(c)	Requires interoperability between third-party software applications, application stores and	Users should be able to install third party

	operating systems. Those applications must be accessible through other means other than the core platform service offered by the gatekeeper.	applications on their iPhone from an app store that is not owned by Apple.
6(1)(e)	Gatekeepers cannot create technical restrictions to prevent users from switching or multi-homing across apps or services.	Uber cannot restrict the use of its platform while Lyft is being used in the background.
6(1)(f)	Gatekeepers must allow third-party providers to access their ancillary services. This includes services offered in conjunction with core platform services, such as payment, identification, or advertising services. Access and interoperability with core services are not considered.	Technology such as the near-field communication chip that the Apple iPhone currently restricts for exclusive use by ApplePay should be opened for third-party use
6(1)(h)	Gatekeepers must facilitate data portability to prevent locking users into their platforms. They must also provide access to "performance measuring tools", this may include data on ad revenue.	Apple allows users to export their contacts so that they can be used in Android phones.
6(1)(i)	Obligation to enable end user data portability. Grants businesses the right to access gatekeeper's data.	Other search engines are able to retrieve Google's search data
Article 7	Gatekeepers that provide number independent interpersonal communications services (NIICS) should make their functionalities interoperable with full protocol interoperability	A user of Facebook Messenger should be able to message a user on Signal.

(Marc Bourreau, 2022)

Analysis

Shortcomings and risks in regulation

These regulations have provided great discomfort to gatekeepers who must now adopt interoperability measures. Some of them claim that their intellectual property rights are being violated when they're required to open up. (Lundqvist, 2021) Critics of Article 7 argue that requiring full protocol interoperability for messaging platforms compromises security. The argument is that interfacing between platforms makes it impossible to maintain full end-to-end encryption. In addition, Bourreau et al argue that horizontal interoperability mandates for messenger services and social networks don't enhance competition, as only limited functionality is shared across services, and the features

that provide the most value to consumers remains within the dominant service. In other words, interoperability does not considerably increase the propensity to switch. Another issue is that data interoperability could raise security and privacy concerns if users lose control over their data sharing and usage. In general, determining standards to ensure the effectiveness of interoperability is complex, as it involves multiple tradeoffs that could lead to many unforeseen circumstances in detriment to consumers. In the past, technology companies have shown great resiliency when dealing with regulations, which could be a compelling argument to leave them alone. (Thompson, 2016)

Recommendations

When designing interoperability rules for digital markets, experts have concluded that it is best suited for vertically integrated platforms, since horizontal integration might not always increase competition. Additionally, gatekeepers should have full autonomy over interface design, allowing regulators to focus on non-discrimination, transparency, and performance violations. Regulation through interoperability is still in its infancy so continuous discussion and examination is required. To mitigate the effects of ignorance and unintended consequences, systems should optimize for flexibility and self-correcting mechanisms. (Marc Bourreau, 2022)

Conclusion

Europe has taken the first step towards improving competition in digital markets through the Digital Markets Act. A crucial aspect of that legislation concerns interoperability of messaging platforms and search engines. While these policies are too new to evaluate their effectiveness, there are reasons to be optimistic. Previous experience mandating interoperability, the Microsoft case in particular, showed that success is possible, albeit limited. This paper has provided a brief characterization of situations where interoperability is advisable, as well as possible ways to implement such interoperability in accordance with specific market conditions. The United States has long been stuck on a legal impasse due to the difficulty of proving harm to consumers. The European union has taken a different approach with the belief that competition will, in the long run, protect consumers. The US should pay attention to what is happening on the other side of the Atlantic. It might find important lessons and inspiration for its own legislation in the best interest of consumers. While there might be risks, perhaps the greatest risk is doing nothing at all.

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