

CONTEXT

The impacts of the Digital Markets Act on European digital markets:

what the evidence from its first years shows

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Executive Summary

The Digital Markets Act (DMA), whose obligations have applied to the companies designated as gatekeepers since March 2024, has already led these companies to change their services in Europe. Whether those changes have delivered the outcomes the regulation intended is not yet known. This study brings together the evidence produced between 2022 and 2026 on the effects of the DMA on European digital markets. Each source was classified by the robustness of the publication and by research method, and each finding by the direction of the effect relative to the regulation's objective. Because the main obligations have applied for only about two and a half years, the literature is still recent and taking shape. The results are organized into five areas:

- **New entrants and startup investment:** the only causal study in this area finds a relative drop in startup investment and creation in the sectors covered by the DMA right after the regulation was adopted in 2022. The effect weakens in 2023 and is no longer visible in 2024, when the obligations start to apply. The study does not show whether the lost investment was recovered. Gatekeepers stopped acquiring European startups in 2023 and 2024, but this channel has always accounted for only about 2% of acquisitions, a very small share, and the study does not separate the effect of the DMA from heightened antitrust scrutiny in the United States. Entry by new competitors after March 2024 shows up only in descriptive records from the European Commission itself, which measure neither causality nor how much these services are used. In browsers, the best-documented case, the main competitors to benefit are also American.

- **Ex ante conduct rules:** this is the area with the most causal studies, four of the seven analyzed. They show that the rules changed company behavior, with uneven results. The choice screen increased the use of rival browsers. In the flights market, the changes shifted traffic to low-cost airlines and smaller comparison sites, and tickets bought in the final week before departure became 2% to 6% cheaper, an effect the authors themselves consider limited. Among small sellers on a large e-commerce platform, revenue did not improve and, in some cases, even got worse. The effects are clear in platform interfaces, smaller in user behavior, and absent from the revenue of the businesses that depend on these platforms. Much of this variation stems from how each company chose to comply.

- **Innovation incentives:** there are no causal studies in this area. The studies are theoretical or descriptive, and none has measured R&D spending, patents or product

launches since the obligations began to apply. The theoretical studies do not predict a single effect: the outcome depends on which obligation is examined and how the company complies with it. Opening up systems to complementary products would favor innovation by small firms and new entrants, but it may reduce the returns of those who have already innovated, because the regulation does not distinguish profits that come from innovation from profits that come from shutting out competitors. The only development observed, the entry of new competitors in AI, has not changed the gatekeepers' position and cannot be separated from the expansion of generative AI.

- **Interoperability obligations:** there are no causal studies in this area. The obligations have made room for new services, such as alternative app stores, services built on data portability and the first messaging apps interoperable with the gatekeepers' services, but there are no public data, not even from the European Commission, on how much they are used. On cross-app messaging, theory, a user survey and industry interviews all point the same way: the effect is likely to be smaller than intended and may even strengthen the gatekeepers' services, because people already use several apps at the same time. For the opening of app stores and operating systems, theory is more favorable, but a preliminary finding by the Commission and theoretical studies point to access fees and the lack of a common technical standard as barriers to uptake.
- **Consumer welfare:** the two causal studies in this area show that when a service loses prominence in search results, the outcome depends on the alternatives available. Where established competitors already existed, as in the flights market, the gatekeeper's service lost visits and smaller competitors gained traffic. Where they did not, as in maps, users incurred additional navigation friction (an extra step) to reach the same service. Descriptive studies record more choices for consumers, such as being able to refuse to let platforms combine their data across services, and also more steps to use services, as perceived by some users. Part of this friction stems from how companies comply with the regulation. On prices, the only causal evidence is the drop in airfares reported under conduct rules. No study measures the net outcome for users.

Similar obligations produced different results. The evidence points to three factors behind this variation: the design of each obligation, the way each company complied with it, and the conditions in each market, especially whether there were established competitors for users to switch to. In almost every area, data are missing on how many people use the new options the regulation created. Because the obligations have applied for only about two and a half years and few studies isolate the regulation's effect, it is still too early for a definitive assessment.

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1. Introduction

Search engines, app stores, marketplaces, social networks and operating systems now act as key intermediaries in most interactions between businesses and consumers. These markets tend to become concentrated in a few companies, because serving one more user costs little, services become more valuable as more people use them, and access to data reinforces the advantage of market leaders (Crémer; De Montjoye; Schweitzer, 2019). Against this backdrop, jurisdictions around the world have begun to debate whether existing competition rules are adequate for digital markets.

The European Union was one of the first to answer this question with a dedicated set of rules: the Digital Markets Act (DMA). Proposed by the European Commission in December 2020, the regulation was adopted by the Parliament and the Council in July 2022 and entered into force in November of that year. The rules began to apply in May 2023, and the regulated companies had until March 2024 to comply (European Parliament, 2026; European Commission, 2026c). **The DMA has therefore been effectively applied for about two and a half years.**

> In this report, "adoption" refers to the 2022 milestone and "start of application" refers to March 2024, the date from which the designated companies were required to comply with the rules.

The stated aim of the legislation is to make digital markets more **contestable**, that is, open to entry by competitors, and **fairer** in the relationship between platforms and their users, who may be other businesses that sell through the platform, such as a seller on Amazon, or consumers, that is, people who buy or use these products and services (European Union, 2022).

The DMA does not apply to the entire digital sector, only to *gatekeepers*: large companies that provide at least one of the ten "core platform services" listed in the regulation, such as search engines, app stores, social networks, messaging, operating systems and online advertising. At the time of writing, the European Commission had designated seven *gatekeepers*: Alphabet, Amazon, Apple, Booking, ByteDance, Meta and Microsoft, covering 23 core platform services.

The European law imposes a fixed list of obligations on these companies. For example: a designated operating system must allow the installation of third-party apps and app stores; a *gatekeeper* cannot require users to sign up for another of its core services as a condition for

using one of them; a designated search engine cannot give its own services more prominence than those of competitors; and user data cannot be combined across services of the same company without consent. Non-compliance can lead to fines of up to 10% of the company's worldwide turnover, or up to 20% for repeat infringements.

Why look for evidence on the impacts of the DMA?

The DMA takes an *ex ante* approach to competition regulation. In conduct enforcement, the general rule is *ex post* analysis: the authority investigates a practice after it has occurred, must show that it harms or may harm competition, and the company may justify it on the grounds of its benefits (European Union, 2022). There are exceptions, such as cartels, which under Brazilian law are considered per se unlawful (Brazil, 2011). The DMA extends this logic to a set of practices by large digital platforms. Companies designated as gatekeepers start out with defined obligations, which apply "independently from the actual, potential or presumed effects" of the conduct and, save for narrow exceptions, cannot be justified by their benefits (Recital 11).

In practice, if an integration between services, such as displaying maps or local reviews in search results or building features into the operating system, falls under an obligation, the company cannot keep it by demonstrating gains in convenience, security or privacy for users, as it could in an *ex post* analysis. The exceptions are limited to measures that are strictly necessary and proportionate to protect the integrity and security of operating systems and devices (Articles 6(4) and 6(7)). The expected advantage is faster, more predictable action that does not depend on case-by-case investigations. The risk is prohibiting practices that might also benefit consumers and businesses.

Brazil has also begun to discuss a similar (*ex ante*) regulatory model for digital markets. In 2024, the Ministry of Finance launched a public consultation to assess whether the country should adopt *ex ante* rules for digital platforms, strengthen *ex post* enforcement, or combine the two (Brazil, 2024). In September 2025, the federal government introduced Bill No. 4,675/2025, known as the Digital Markets Bill, which amends Law No. 12,529/2011 (the Brazilian Competition Law) and has been undergoing fast-track legislative processing in the Chamber of Deputies since March 2026 (Brazil, 2025).

The bill creates a Digital Markets Superintendence within the Administrative Council for Economic Defense (CADE), tasked with proposing the designation of systemically important economic actors in digital markets. Designation applies to economic groups and takes into account criteria such as operating in multi-sided markets, network effects, vertical integration, access to large volumes of data, and number of users. The bill allows CADE to impose special obligations, such as transparency rules, data portability, interoperability and non-discriminatory access. These obligations are not predefined in the bill: they are set in a

separate administrative proceeding for each agent (Brazil, 2025). Since the content of the obligations will depend on these decisions, evidence on the effects of similar obligations in Europe can help inform them.

With just over two years of application, the DMA offers a first look at the effects of *ex ante* regulation in digital markets. This study brings that evidence together to support a Brazilian debate that is better informed by data. We do not compare the DMA with the Bill, nor do we analyze the Bill's text.

> *The aim of this study is to gather the scientific evidence produced between 2022 and 2026 on the impacts of the DMA on European digital markets, organized into five areas as below.*

(1) new entrants and startup investment; **(2)** *ex ante* conduct rules; **(3)** innovation incentives; **(4)** interoperability obligations; and **(5)** consumer welfare. Each study receives two classifications. The first is robustness, which depends on the type of publication: robust, moderate or limited. The second is methodology, which indicates whether the study is causal, correlational, descriptive or theoretical. Combining the two shows, for each finding, whether it comes from empirical measurement that attributes a change to the DMA (causally or by correlation), describes its effects based on data, or is a theory-based projection, and how much external review the source has undergone.

What do we mean by impacts of the DMA on digital markets?

In this study, we consider an impact of the DMA to be any change observed in digital markets, whether in prices, entry by new competitors, the traffic services receive, uptake of the options created by the regulation, or consumer welfare. Welfare here includes the variety of offerings, the quality of services and the protection of personal data. The change must have occurred after the companies were designated as gatekeepers or after the corresponding obligation started to apply, and the study must link it to an identifiable obligation in the regulation. We also consider impacts projected by theoretical work: economic models, simulations, studies on the feasibility of implementing the obligations, and legal analyses of their market effects.

2. Methodology

We gathered the evidence on the impacts of the DMA on European digital markets produced between 2022 and 2026 by compiling findings through a three-stage process: 1. data collection, 2. screening and 3. analysis. Our goal was to identify patterns and findings, highlight gaps and draw conclusions based on an assessment of the available studies. To define the sample, data collection followed a predefined search protocol, with search prompts organized and applied separately to each of the five areas that structure this work:

1. **New entrants and startup investment:** effects on entry by new competitors and on the volume of investment in regulated markets;
2. ***Ex ante* conduct rules:** effects of the rules prohibiting self-preferencing, anti-steering and tying;
3. **Innovation incentives:** effects on research and development, patents and product launches, both for designated companies and for their competitors;
4. **Interoperability obligations:** effects of the obligations on messaging interoperability, distribution of apps outside the official app stores, and data portability;
5. **Consumer welfare:** effects on the end-user experience, including price, choice, usage friction and data protection.

The search for findings was exploratory, meaning we did not presume the direction of the impact in any area. The inclusion criteria were as follows:

1. **Geographic scope:** we considered evidence on the effects of the DMA in European Union markets, whether in the bloc as a whole or in specific Member States. Studies on regulatory regimes in other jurisdictions were excluded, even when they address similar obligations.
2. **Time frame:** we considered the period from 2022 to 2026, using the DMA's entry into force as the starting point.
3. **Type of source:** peer-reviewed journal articles and conference papers; working papers from series maintained by research institutions that vet what they publish under their name; working papers and preprints with identifiable authors available in open repositories; reports by organizations with an identified team and a described method; official documents from the European Commission and the European Data Protection Board; commissioned studies, whether by the regulator or by regulated

companies, with the funder disclosed; and position papers with identifiable authors, provided they present data or analysis supporting the effects they claim. We excluded sources without identifiable authors, texts that state a method without presenting the corresponding results, and position papers that merely assert effects without data or analysis to back them up.

The search combined direct reading of primary documents, compliance reports from the designated companies and commissioned studies with AI-assisted research tools, all given explicit instructions on the inclusion and exclusion criteria. The initial search was run in Claude, in Deep Research mode, and the complementary searches in Consensus, Perplexity and ChatGPT, the latter also in Deep Research mode. Data collection yielded 37 records in total.

Before screening, the team set out what would count as an impact of the DMA, as described in Box 1. In addition to causal, correlational and descriptive empirical studies, we included theoretical studies that project the expected effects of an identifiable obligation, whether through economic models, simulations, feasibility studies on implementing the obligations, or legal analyses of their market impacts. Documents that merely describe how the rules are being implemented, without recording or projecting effects, or that only discuss the nature of the regulation or its compatibility with the legal system were excluded from the sample.

Screening took place in two rounds. The first, AI-assisted, applied the formal criteria and produced a summary sheet for each source, covering methodological design, main findings, geographic scope and declared funding. The second, carried out manually, checked each article and the information collected on it, and verified its fit with the overall objective of this study. **In the end, 27 sources were retained** out of the 37 records collected.

2.1. Reference classification scale

Each of the 27 retained sources was read and assigned to one or more of the five areas, since a single study may cover more than one topic. Each source then received two classifications, independent of each other: **robustness**, which considers the type of publication and whether the work underwent any external vetting, and **methodology**, which considers what the work measured and what kind of conclusion that measurement supports. As a result, a causal study may have limited robustness, and a descriptive study may have been published in a peer-reviewed journal. In addition, each finding was assigned a **direction** relative to the objective of the obligation in question. This is assigned per finding, not per source, as detailed below.

Robustness depends on the type of publication, because that is what shows whether the work was examined by anyone other than its authors. There are two types of examination, which yield three levels:

- **Robust:** a source published in a peer-reviewed scientific journal, that is, assessed by researchers in the field before publication.
- **Moderate:** a source published in a working paper series of a research institution that selects what is released under its name (for example, NBER, CEPR, Bruegel, the European Commission's Joint Research Centre and university department series). There is no peer review, but there is identifiable institutional vetting.
- **Limited:** a source that has undergone neither type of examination, such as preprints in open repositories, institutional reports, market studies, consultancy studies and position papers.

We use peer review as a criterion because it is external and verifiable. This makes it possible to compare sources of very different origins without relying on the judgment of the authors of this review. It does not mean that academic publication is the only indicator of a work's quality.

This choice has an important limitation. It usually takes more than a year to go from submission to publication in a scientific journal, and the DMA's obligations have only applied since March 2024. As a result, some of the most recent studies on the regulation have not yet had time to go through peer review and appear here with moderate or limited robustness. In these cases, the classification may reflect the publication timeline rather than the quality of the work.

The methodology classification indicates what the work measured and what kind of conclusion that measurement supports. There are four categories:

Method	What it means	Examples from the sample
Causal	The study compares what happened where the DMA applies with a similar group that the regulation did not reach. This group shows what would have happened without the rule (the counterfactual), which is what makes it possible to attribute the effect to the DMA.	Akesson et al. (2026) compare use of the Firefox browser in the 27 EU countries with 43 countries outside the scope of the obligation.
Correlational	The study uses observed data to show that something changed after the obligation took effect, but has no comparison group. It shows that a change occurred, without being able to attribute it to the regulation.	Choi (2025) observes that, after App Store commissions were reduced in the European Union, developers kept or raised the prices of 91% of apps, but does not compare these prices with those of apps that continued to pay the old commission.

Descriptive	The study reports figures, facts or survey results, without linking them to the obligation or seeking to explain their causes.	Woodward and Blosser (2026) count acquisitions of European startups by year and by acquirer.
Theoretical	The conclusion comes from reasoning about the regulation's expected effects, rather than from observing what happened after it. This includes economic models, simulations and legal analyses.	Lasio et al. (2025) simulate regulatory scenarios using a supply and demand model calibrated with data from hotel chains.

Direction is assigned relative to the DMA's stated objective, which is to make digital markets more contestable and fair (European Union, 2022). It is assigned per finding, not per study, because a single work may produce more than one result and appear in more than one area.

▲ **Intended direction.** The finding points to progress toward the objective, such as entry by competitors or users switching to rival services.

▼ **Contrary to intended.** The finding points to an effect opposite to the obligation's objective, such as greater reliance on the gatekeeper's service, or to the absence of the expected effect, when the situation remains as it was.

◆ **Mixed.** The finding shows effects both in the intended direction and against it, such as more choice accompanied by more steps to use services.

Direction alone does not indicate that the effect was caused by the DMA. That depends on the method: only causal studies allow the effect to be attributed to the regulation. In correlational studies, direction records what changed after the obligation, without attributing the cause. In descriptive studies, it records what was observed. In theoretical studies, it records a prediction. The symbols should therefore be read together with each study's method and robustness.

The full methodology is set out in the Methodology Annex at the end of the report.

What does this study analyze, and what does it not?

This study gathers and classifies evidence published between 2022 and 2026 on the impacts of the DMA on European digital markets across five areas: new entrants and startup investment, ex ante conduct rules, innovation incentives, interoperability obligations, and consumer welfare. The analysis covers empirical and theoretical studies that link effects, whether observed or projected, to an identifiable obligation in the regulation.

The study does not assess whether companies comply with the obligations, nor does it examine the legal compatibility of the DMA. Nor does it analyze regimes in other jurisdictions or compare the DMA with Bill No. 4,675/2025 on digital markets in Brazil. These topics appear in Section 4 only as context for the debate. The results show what the available literature allows us to say so far. They are neither a full cost-benefit assessment of the DMA nor a verdict on whether the regulation has achieved its objectives.

3. Results

The results are organized by the study's five areas. Each area begins with an overview of what was investigated, followed by a table with the main findings from each source, along with their robustness, method and direction. After the table, a synthesis compares the studies and indicates what the literature allows us to say, so far, about the effects of the DMA in that area.

3.1. New entrants and startup investment

This area brings together the evidence on the impacts of the DMA on entry by new competitors into regulated markets and on investment in European startups. Four questions are examined: whether new providers have emerged and who they are; whether the pace of company creation and the volume of venture capital have changed; whether gatekeepers have cut back on acquiring startups; and what adjustment costs small businesses that depend on these platforms have faced in adapting to the new rules.

Finding	Robustness	Method	Direction of effects
Starting in 2022, the year the DMA was adopted, startup investment and creation fell more in the sectors where the companies designated as gatekeepers operate than in sectors outside the regulation's scope. The effect weakened in 2023 and disappeared in 2024, when the obligations began to apply. **Yang, 2026**	Robust	Causal	▼ Contrary to intended
Alternative app stores have emerged, including some run by small and medium-sized enterprises, and they have been expanding their offerings. Under the interoperability obligation, rival messaging services can now communicate with WhatsApp and Facebook Messenger, and new providers have entered the market, including a small European company. **European Commission, 2026a**	Limited	Descriptive	▲ Intended direction

Finding	Robustness	Method	Direction of effects
More than 40 companies, most of them small and medium-sized, have adopted the new data portability solutions and used data access to launch new services. **European Commission, 2026a**	Limited	Descriptive	▲ Intended direction
The seven companies designated as gatekeepers made no acquisitions of European startups in 2023 or 2024, a period in which the United States also stepped up antitrust scrutiny. Between 2015 and 2024, these seven accounted for about 2% of European startup acquisitions and a similar share of the value paid. The change in their behavior is clear, but this exit channel has always been small. Total acquisitions fell in 2023 but remained above pre-2021 levels, and there was no increase in initial public offerings. **Woodward and Blosser, 2026**	Limited	Descriptive	◆ Mixed (intended and contrary)
According to the author, startups and small and medium-sized enterprises that rely on gatekeeper platforms to reach their customers are likely to bear adjustment costs in the first two years: new contract terms, changes to fee structures, more distribution channels to maintain, and new technical requirements. These costs arrive before they are able to benefit from the rights the regulation created for them. For the author, this is a transition cost of opening up the market, not a permanent disadvantage. **Ostojski, 2026**	Moderate	Theoretical	◆ Mixed (intended and contrary)
The main competitors to Chrome and Safari, Edge and Firefox, ranked third and fourth in the European Union, are also American, and Firefox gained millions of users from the browser choice screen. For this reason, according to the author, the competition opened up by the regulation does not reduce Europe's dependence on US companies. Even so, browsers are the service in which the DMA most clearly opens up the market and in which there is the most room for European alternatives to grow. **Blockx, 2026**	Moderate	Theoretical	▲ Intended direction

The studies in this area measure different things at different times, so they complement each other more than they disagree.

On investment and company creation, Yang (2026), the only causal study in this area, finds a decline in the sectors covered by the regulation from 2022, the year the DMA was adopted, when the obligations did not yet apply. The effect therefore captures the reaction to the anticipated rules, and it disappears in 2024, when the obligations take effect. This does not mean that the investment lost in the interim was recovered. On acquisitions, Woodward and Blosser (2026) show that gatekeepers stopped buying European startups in 2023 and 2024. This channel, however, has always been small, and the study does not separate the effect of the DMA from heightened antitrust scrutiny in the United States over the same period.

On new competitors, the European Commission's records (2026a), which postdate the start of application, point to alternative app stores, new messaging services and companies using data portability and data access, most of them small and medium-sized. Blockx (2026) adds nuance to this picture: in browsers, the best-documented case, the main competitors to Chrome and Safari are also American, although this is also where there is the most room for European alternatives. Finally, Ostojski (2026) argues that small businesses that depend on gatekeepers bear adjustment costs before reaping the benefits, which, in the author's view, amounts to a transition cost rather than a permanent disadvantage.

The main gap concerns the period since the obligations started to apply. The only causal study goes up to 2024, the first year of application, and the other work on this period is descriptive or theoretical. There is not yet a longer time series, with a comparison group, on startup investment in the regulated sectors. That would be the way to check whether the investment climate has improved or worsened. No study has yet tested Ostojski's hypothesis that the difficulties faced by small businesses are temporary.

3.2. *Ex ante* conduct rules

This area brings together the evidence on the effects of the DMA rules that prohibit or require specific conduct by gatekeepers. Most studies address the ban on **favoring their own products in search results** (Calzada et al., 2026; Püplichhuisen and Sirries, 2026; Waldfogel, 2024; Wen and Hu, 2026). Two others address the ban on **preventing other businesses from informing their customers about offers outside the platform** (Colangelo and Ribera Martínez, 2025; Lasio et al., 2025). One study examines the obligation to **let users choose their default apps**, in this case the browser (Akesson et al., 2026). Although the search also covered the ban on **requiring users to use other services from the same company**, known as tying, no study on its effects met the inclusion criteria.

Finding	Robustness	Method	Direction of effects
The changes Google made to its search page to comply with the self-preferencing ban increased the share of product searches displaying at least one rival price comparison site by 20 percentage points (from 12% to 32%), through a new box with links that does not show prices and rarely appears at the top of the page. At the same time, Google launched a feature that, according to the authors, works as its own comparison service and appears more often, in a better position and taking up more space. Data from Google Germany. **Püplichhuisen and Sirries, 2026**	 Robust	Causal	◆ Mixed (intended and contrary)
The redesign of Google's search page, which removed the Google Flights unit and created sections for airlines and flight comparison sites, increased organic traffic to low-cost airlines (between 8% and 28%, depending on the device), smaller national airlines and smaller comparison sites (up to 29%). Large comparison sites, such as Skyscanner and Booking.com, and large legacy carriers saw no significant change. The study compares France, Germany, Italy and Spain with the United Kingdom and the United States between November 2023 and December 2024. **Calzada et al., 2026**	 Moderate	Causal	▲ Intended direction
From the 15th month after the mandatory choice screen took effect, Firefox use was about 91% higher than it would have been without the rule on iOS and 13% higher on Android. For the authors, the difference reflects the reach and design of the screen on each system. Apple showed it to all users who updated their system and later redesigned it, making the choice mandatory. On Android, it appeared mainly on new devices, and only where Chrome was the default browser. **Akesson et al., 2026**	 Moderate	Causal	▲ Intended direction

Finding	Robustness	Method	Direction of effects
Tracking about 25,000 sellers in four European Amazon marketplaces and comparing them with five marketplaces outside the EU, the study finds no effect on the revenue of small sellers in the two years following the compliance deadline, neither among the smallest nor among the largest. The only clear result points in the opposite direction to what was expected: sellers in categories where Amazon sells more of its own products, and where the self-preferencing ban should have helped the most, did relatively worse. **Wen and Hu, 2026**	Moderate	Causal	▼ Contrary to intended
Amazon's private-label products appeared, on average, about 30 positions higher than products with similar characteristics in search results. About two months after the company was designated as a gatekeeper, this advantage fell to 20 positions, while the ranking of other brands did not change. The same drop occurred outside Europe, which makes it impossible to separate the effect of the DMA from other regulatory pressures, such as the lawsuit the FTC filed against Amazon in the United States in the same month as the designation. **Waldfogel, 2024**	Moderate	Correlational	▲ Intended direction
The article proposes criteria for measuring the DMA's success and applies them to how Alphabet complied with the rule that prohibits preventing developers from promoting offers outside Google Play. The company created a program for these offers, but participation depends on its approval and entails fees of up to 12% on sales made through this route: a 5% acquisition fee for two years, plus up to 7% in service fees. For the authors, promoting external offers does not become unrestricted, because it requires prior authorization, and a solution limited to Google Play falls short of the rule's scope, which applies to all of the company's channels. **Colangelo; Ribera Martínez, 2025**	Robust	Theoretical	▼ Contrary to intended

Finding	Robustness	Method	Direction of effects
A simulation of the rule allowing hotels to make direct offers to guests acquired through Booking.com, under the platform's narrow interpretation (only customers who have already stayed at the hotel), indicates that some sales would shift from the platform to hotel websites. To attract these customers, however, hotels would need to offer discounts on their own websites. The increase in sales would not make up for the lower margin on each booking, and hotel profits in this channel would fall by about 23%. Simulation using data from large hotel chains in eight European countries, 2014 to 2017. **Lasio et al., 2025**	 Moderate	Theoretical	Mixed (intended and contrary)

Taken together, the studies in this area show that the rules changed gatekeeper behavior, but that these effects weaken the further they move from the screen and the closer they get to the revenue of those who depend on the platforms. At the first level, the interface, the changes are clear: Amazon products lost ranking positions in search (Waldfogel, 2024), and rival comparison sites began appearing in 20 percentage points more Google searches (Püplichhuisen and Sirries, 2026). At the second level, user behavior, there are also gains: Firefox use grew with the choice screen (Akesson et al., 2026), and smaller airlines and comparison sites received more traffic (Calzada et al., 2026). At the third level, revenue, the picture changes. The only empirical study that measures revenue finds no gain for small Amazon sellers, and the sellers who stood to benefit most did relatively worse (Wen and Hu, 2026). The simulation by Lasio et al. (2025) points in the same direction: hotels would gain direct sales, but with lower profits.

Much of this variation is explained by the way each company chose to comply. The same choice screen obligation had a much larger effect on iOS than on Android, because of who was shown the screen and how it was designed (Akesson et al., 2026). At Google, opening up to competitors came with a feature of its own that takes up about six times more space on the screen (Püplichhuisen and Sirries, 2026). On Google Play, opening up to external offers was made conditional on the company's approval and on fees (Colangelo and Ribera Martínez, 2025). Formal compliance with the rule therefore does not guarantee the outcome it seeks. The territorial scope of compliance also matters, because it determines what can be measured. When the change applies only in Europe, countries outside it serve as a comparison and the effect can be attributed to the DMA (Akesson et al., 2026; Calzada et al., 2026). When the company makes the change worldwide, as Amazon did, the DMA cannot be separated from other regulatory pressures (Waldfogel, 2024).

Two gaps limit these conclusions. Effects on prices have barely been measured: the only data point is a 2% to 6% drop in fares for tickets bought a week before departure, which the authors themselves treat with caution (Calzada et al., 2026). And no study has examined the ban on tying.

3.3. Innovation incentives

This area brings together the evidence on what the DMA may have changed in the incentives to innovate, both for gatekeepers and for their competitors. Two studies address innovation directly: one examines the effect of the opening-up obligations on small firms and new entrants (Çavuş, 2024), and the other discusses the effect of the rules on the returns of those who have already innovated (Simone and Laudando, 2025). The other two have a different focus but include findings on the topic: how Apple proposed to comply with the regulation (Crémer et al., 2024) and the entry of new competitors in artificial intelligence (Botta, 2026).

Finding	Robustness	Method	Direction of effects
Since 2022, new competitors have emerged in artificial intelligence, such as OpenAI and Mistral, but the gatekeepers joined the race by investing in their own models, such as Gemini and Llama, or by partnering with the newcomers, as Microsoft did with OpenAI. Two years after the obligations began to apply, no gatekeeper has lost significant ground to competitors that entered thanks to the DMA. For the author, generative AI was probably the main factor reshaping competition in these markets, which makes it difficult to establish a causal link between the DMA and what is being observed. **Botta, 2026**	Robust	Descriptive	◆ Mixed (intended and contrary)
For the author, the obligation to open gatekeepers' systems to complementary third-party products, such as alternative apps and app stores, is likely to benefit small firms and new entrants more than established companies. In the short term, it encourages improvements to existing products and, in the long term, it may lead to disruptive innovation as entrants gain experience. The effect of interoperability between direct competitors, such as messaging services, is ambiguous: it may increase competition, but it may also reduce differentiation between services and pose privacy risks. **Çavuş, 2024**	Robust	Theoretical	◆ Mixed (intended and contrary)

For the authors, companies can earn profits for three reasons: shutting out competitors, having better resources, or having genuinely innovated. By treating these profits the same way, the DMA may also reduce the returns of those who innovated. Applied to four obligations, this analysis points mainly to mixed effects on innovation. Opening up app stores and interoperability broaden choice and lower barriers, but allow third parties to take advantage of gatekeepers' innovations without bearing their cost. Data portability is likely to have a positive effect.

Simone and Laudando, 2025

Robust | Theoretical | ◆ Mixed (intended and contrary)

For the authors, the conditions Apple proposed for complying with the regulation, such as the €0.50 fee per user per year and the irreversible choice of the new terms, would discourage popular apps from moving to rival app stores. Without them, these stores would be unable to attract users. Apple's requirements would also rule out alternative store formats, such as specialized stores or single-developer stores.

Crémer *et al.*, 2024

Limited | Theoretical | ▼ Contrary to intended

The evidence in this area is mostly theoretical and, taken together, it converges more than it diverges: no study predicts a single effect of the DMA on innovation, and all indicate that the outcome depends on which obligation is examined and how the company chooses to comply with it. Obligations that open gatekeepers' systems to complementary products tend to favor innovation by small firms and new entrants, according to Çavuş (2024). Simone and Laudando (2025) add the opposite risk: by not distinguishing profits that come from innovation from those that come from shutting out competitors, these same obligations may reduce the returns of those who innovated. For both studies, the effect of interoperability between direct competitors is uncertain, and only data portability emerges with a clearly positive effect, in Simone and Laudando (2025). Crémer et al. (2024) shift the risk from the rule to the way it is complied with: the conditions proposed by Apple would prevent rival app stores from entering the market and innovating.

The only development observed is the entry of new competitors in artificial intelligence. Even so, the gatekeepers responded with their own models and held on to their position, and the effect of the regulation cannot be separated from the expansion of generative AI (Botta, 2026). What is missing, therefore, is a measurement of what this area sets out to investigate: no study tracks R&D spending, patent filings or product launches since the obligations began

to apply. This is partly a matter of timing: the DMA itself only provided for data on its effects in the 2026 review under Article 53, which is why the theoretical studies offer early analyses (Simone and Laudando, 2025). Moreover, two years is too short a period to identify market trends (Botta, 2026).

3.4. Interoperability obligations

This area brings together the evidence on the DMA obligations that open gatekeepers' systems and services to other companies: communication between messaging apps, sideloading of apps and alternative app store distribution, and access to hardware and software features of operating systems. We also include data portability, which follows the same logic of lowering barriers to switching services. Communication between messaging apps is the most studied obligation (Hey, 2024; Taş, Wiewiorra and Liebe, 2023; Wiewiorra et al., 2026). App distribution outside the official stores appears in the European Commission's reports (2026a; 2026b) and in the analysis of Apple's fees (Scott Morton et al., 2024). Access to operating system features and data portability are covered in the Commission's reports (2026a) and in theoretical studies (Çavuş, 2024; Hey, 2024).

Finding	Robustness	Method	Direction of effects
In a November 2023 survey of 2,826 people in Germany, conducted before the rule was implemented, between 39% and 42% of those who would enable cross-app messaging said they would use rival apps such as Signal and Threema less. Only 13% to 14% said they would use them more. Use of WhatsApp and other gatekeeper services, by contrast, would tend to stay the same or increase. For the authors, by reducing the need to use several apps at the same time, the measure may strengthen the dominant services rather than favor their competitors. **Taş; Wiewiorra; Liebe, 2023**	Moderate	Descriptive	▼ Contrary to intended

Finding	Robustness	Method	Direction of effects
With the rules that opened gatekeepers' systems and services to other companies, alternative app stores have emerged, and more than 40 companies, most of them small and medium-sized, have begun offering services based on data portability and data access. Developers have also started requesting access to operating system features, which has already made possible, for example, apps that send emergency messages while the phone is switched off. Rival messaging services already communicate with WhatsApp and Messenger, and new providers have entered the market. The Commission does not report how many people use these services. **European Commission, 2026a**	Limited	Descriptive	▲ Intended direction
The DMA now allows iPhone users to install apps from outside the App Store. In April 2025, the Commission preliminarily found that Apple creates obstacles to such installation: a new fee charged to developers, strict requirements on who may distribute apps, and an installation process that is cumbersome and confusing for users. The case was still open as of March 2026. **European Commission, 2026b**	Limited	Descriptive	◆ Mixed (intended and contrary)
In a study commissioned by the European Commission on a possible extension of interoperability to social networks, companies, civil society organizations and experts assessed the experience with cross-app messaging so far. In their view, the results have been limited: few apps have begun to communicate with WhatsApp and Messenger. Meta attributes this to low demand. Other interviewees point to the design of the rule: without a common technical standard, each gatekeeper sets its own terms, and each smaller app has to build a specific connection, which raises the cost of taking part. Some warn that, as designed, the rule may even reinforce the gatekeepers' position. **Wiewiorra et al., 2026**	Limited	Descriptive	▼ Contrary to intended

Finding	Robustness	Method	Direction of effects
The obligation to open the Windows, Android and iOS operating systems to third-party products is likely to stimulate innovation, especially by small firms and new entrants. In the short term, they tend to improve products within the gatekeeper's ecosystem and, over time, may come to compete with it. The effect of interoperability between messaging services, however, is ambiguous: it may increase competition, but it may also standardize services and reduce multi-homing. The conclusions are predictions based on earlier European competition law cases, not effects that have already been measured. **Çavuş, 2024**	Robust	Theoretical	◆ Mixed (intended and contrary)
Drawing on economic theory, the study concludes that opening phone features to other manufacturers' products, such as contactless payments (NFC), is likely to increase competition, whereas the effect of opening software features is hard to predict, because the rule is very broad. Mandatory cross-app messaging, on the other hand, is not economically justified and, as currently designed, may even reduce competition, because people already use several apps at the same time. For the author, these rules will only have an effect if there are common technical standards. **Hey, 2024**	Moderate	Theoretical	◆ Mixed (intended and contrary)
For the authors, because rival app stores compete with the App Store, any significant fee charged for them to operate on the iPhone blocks competition, since it forces entrants to pay their rival in order to compete. The same applies to fees charged only to developers who distribute through these stores, which leave them empty of apps. Apple may charge for security review, provided the charge is proportionate to the cost, and it continues to profit from devices and advertising. Therefore, to comply with the DMA, the access fee should be zero or very low. **Scott Morton et al., 2024**	Moderate	Theoretical	▼ Contrary to intended

Taken together, the studies indicate that the interoperability rules have already produced new services, but there is no evidence that they have changed competitive dynamics. The Commission records alternative app stores, companies using data portability, apps that

access operating system features, and two messaging services that announced interoperability with WhatsApp in November 2025, but it does not report how many people use them (European Commission, 2026a; 2026b). None of the studies in this area is causal.

The evidence is most consistent on cross-app messaging, and it points to an effect that is smaller than intended, or even the opposite. Hey's theoretical analysis (2024) concludes that the obligation is not economically justified, because people already use several apps at the same time. The survey by Taş, Wiewiorra and Liebe (2023) shows that those who would enable the feature would tend to use rival apps less. The interviews by Wiewiorra et al. (2026) record limited results and the risk of reinforcing the gatekeepers' position. Çavuş (2024) also considers the effect ambiguous.

For the opening of app stores and operating system features, theory is more favorable. It tends to benefit small firms and new entrants (Çavuş, 2024) and to increase competition in the case of device features such as contactless payments (Hey, 2024). Here, however, the obstacle lies in how companies comply, as in the conduct rules area. The Commission preliminarily found that Apple's fees and requirements hinder distribution outside the App Store (European Commission, 2026b), and Scott Morton et al. (2024) argue that any significant access fee blocks competition. Two studies also point to a design barrier: without common technical standards, each smaller app has to negotiate and build its own connection with each gatekeeper (Hey, 2024; Wiewiorra et al., 2026).

It is not yet known how many users message across different apps, whether rival app stores have gained a meaningful share, or whether portability has led consumers to switch services. On messaging, the available evidence predates implementation or is based on stated intentions.

3.5. Consumer welfare

This area brings together the evidence on the effects of the DMA on end users: the choices available to them, control over their own data, ease of use of services, and the prices they pay. Two studies measure how users reacted when Google services lost prominence in search (Pape and Rossi, 2026; Pape et al., 2026). The new choice options and data controls appear in the records of the European Commission (2026a) and of the European consumer organization (BEUC, 2025), and in the analysis of the decision against Meta's “pay or consent” model (Gorecka, 2025). Ease of use is addressed in a consumer survey (ECIPE; EPPP, 2025), and prices in a study on App Store commissions (Choi, 2025).

Finding	Robustness	Method	Direction of effects
The study compared countries inside and outside the EU after Google removed clickable maps and direct links to Google Maps from its search page in the EU in January 2024 to comply with the DMA. Searches for "google maps" rose by more than 21%, but total visits to the service did not change, and competitors did not gain users. For the authors, habit, brand strength and the lack of alternatives led users back to Google Maps, now with one extra step: visits became 5% shorter and the bounce rate rose by 16%. **Pape; Rossi, 2026**	Moderate	Causal	▼ Contrary to intended
When Google stopped giving Google Flights prominence in search to comply with the DMA, the service lost 30% of its visits and 42% of its unique visitors in the European Union, compared with European countries outside the bloc. Unlike with Google Maps, searches for the service itself did not increase. For the authors, this indicates that Google Flights' popularity depended on its prominence in search, and the difference is explained by the presence of strong competitors in the travel market, unlike in maps. The study does not measure competitors' traffic. **Pape et al., 2026**	Limited	Causal	▲ Intended direction
In a study using App Store transaction data, developers who opted into the new business terms the company created to comply with the DMA paid about 10 percentage points less in commissions, but kept or raised the prices of 91% of their products. Moreover, 86% of these savings went to developers based outside the European Union. The study compares prices before and after developers opted in, without a group of apps that kept the old commission, so it is not possible to know whether prices would have behaved the same way without the change. **Choi, 2025**	Limited	Correlational	▼ Contrary to intended

Finding	Robustness	Method	Direction of effects
In an Ipsos survey of 3,500 people in seven Central and Eastern European countries, conducted in July 2025, 39% reported needing more steps for previously simple tasks since the changes brought about by the DMA, and about a third found the experience less seamless and more confusing. At the same time, 55% support strong rules for platforms, even if they delay new features, and 60% to 69% are still willing to share their data in exchange for free services. The survey measures respondents' perceptions, not their behavior. **ECIPE; EPPP, 2025**	Limited	Descriptive	▼ Contrary to intended
According to the Commission, the DMA has expanded consumer choice. A "significant share" of users now decline to let platforms combine their data across services, and it is now possible to transfer data to other companies, uninstall pre-installed apps and use services without creating an account for another service from the same group, such as using Android without Gmail. On the other hand, interface changes and choice screens have created adjustment costs. The Commission considers them generally temporary, but acknowledges that they may result from choices made by companies to discourage the use of alternatives. **European Commission, 2026a**	Limited	Descriptive	◆ Mixed (intended and contrary)
For the European consumer organization, after 18 months of the DMA consumers have gained options that did not exist before, such as choosing their browser and default apps on the iPhone, creating a Google account without Gmail, and making contactless payments on the iPhone with companies other than Apple, such as PayPal and Vipps. On the other hand, some companies rolled out compliance solutions without the Commission's approval that later had to be changed, which may frustrate users. For the organization, it is still too early to assess the effects, because compliance with the rules remains low. **BEUC, 2025**	Limited	Descriptive	◆ Mixed (intended and contrary)

Finding	Robustness	Method	Direction of effects
In April 2025, the European Commission fined Meta €200 million for offering users of its social networks only two options: consenting to the use of their data for personalized advertising or paying for a subscription. For the author, the decision is an important precedent, because it requires the platform to offer an equivalent, free and less personalized alternative, which broadens consumer choice. Its practical effect, however, is limited: the decision covers only the period up to November 2024, does not assess the new model Meta launched afterwards, and does not set out concrete compliance measures. **Gorecka, 2025**	Robust	Theoretical	▲ Intended direction

Taken together, the studies indicate that the DMA has expanded consumer choice, but that the actual gain depends on the alternatives available in each market and on how companies comply with the regulation. The new options are concrete: users can now choose their browser and default apps, refuse to let platforms combine their data, create a Google account without Gmail, and make contactless payments on the iPhone with other companies (European Commission, 2026a; BEUC, 2025). The two causal studies show, however, that opening up space is not enough. When Google Flights lost prominence in search, it lost 30% of its visits, because there were strong competitors in the travel market (Pape et al., 2026), and low-cost airlines and smaller comparison sites gained traffic (Calzada et al., 2026). When the same happened to Google Maps, which has no competitors of comparable standing, users went back to the service with one extra step, making shorter visits and abandoning the page more often (Pape and Rossi, 2026).

This extra step also shows up in consumer perceptions: in seven Central and Eastern European countries, 39% report needing more steps for previously simple tasks (ECIPE; EPPP, 2025). Part of this friction stems from the way companies comply. The Commission acknowledges that it may result from companies' choices to discourage alternatives (European Commission, 2026a), and BEUC points to solutions rolled out without the Commission's approval that later had to change (BEUC, 2025). Enforcement also matters: the decision against Meta's "pay or consent" model established that the alternative must be free and less personalized, but, for Gorecka (2025), its practical effect is limited, because it did not assess the company's new model or set out concrete measures.

On prices, the evidence is scarce. The only study in this area, funded by Apple, found no price reduction after commissions fell, but it does not compare prices with those of apps that

kept the old commission (Choi, 2025). The only causal evidence on prices comes from the conduct rules area: a 2% to 6% drop in airfares for tickets bought in the final week before departure (Calzada et al., 2026). On privacy, a "significant share" of users now decline to have their data combined (European Commission, 2026a), although, in the consumer survey, 60% to 69% are still willing to share data in exchange for free services (ECIPE; EPPP, 2025).

The origin of the sources helps in reading these results. The most favorable assessments come from the European Commission, which is responsible for enforcing the regulation, and from a consumer organization co-funded by the European Union. The most critical come from industry-funded studies. The two causal studies, with no ties to either side, support the central conclusion in this area. There are still no data on how many people use the new options, and no study measures the net outcome for consumers.

4. Analysis and Commentary

This section discusses the results of the research, relating them to the academic literature and expert opinion, through the lens of the authors of this study.

4.1. Evidence for the Brazilian debate: cautions and lessons from the European experience

This section relates the results of the study to the Brazilian debate on regulating digital markets and sets out, area by area, the cautions and lessons that the European experience offers.

Brazil is currently debating whether to adopt predefined rules for digital markets instead of addressing each type of conduct through investigation. Europe made that decision in 2022 and has applied the obligations since March 2024, long enough for that choice to begin producing evidence of its impacts. This is why the DMA matters to the Brazilian debate.

The debate on regulating digital markets in Brazil has drawn contributions with different emphases. Some analyses stress that network effects and economies of scale can entrench positions in digital markets before investigations are concluded, and that predefined rules could allow for swifter responses (Rodrigues; Nóvoa, 2026; Coalizão Direitos na Rede, 2025). Others argue that existing competition law already provides tools to deal with these problems and that it would be prudent to assess more carefully whether a new model is needed (Manne; Oliveira Neto; Auer, 2026; Instituto Sivis, 2026; Conselho Digital, 2026). What these contributions have in common is that they cite the European experience as a reference, whether to compare regulatory designs or to discuss the observed effects of *ex ante* regulation.

These contributions are complemented by economic analyses that start from different questions. The Ministry of Finance report underpinning the proposal argues that features such as network effects, scale and access to data make the current tools of Law No. 12,529/2011 inadequate for digital markets. It therefore recommends that CADE be empowered to designate platforms of systemic relevance and to set specific obligations for each of them, under the responsibility of a specialized unit (Brazil, 2024b). A study presented by ALAI, an association representing technology companies, estimates the compliance costs

of Bill No. 4,675/2025 at between R$2.7 billion and R$11.3 billion over ten years, part of which could be passed on to consumers and business users (ALAI; Ecoa, 2026).

The public consultation that opened this debate on the *Participa + Brasil platform* itself draws on international experience, including the European DMA. The document states that the decision on any new regulation "must be preceded by a broad debate on the problems and limitations it seeks to address". It also acknowledges that the challenge is to "identify problems precisely, seeking balanced and proportionate measures" (Brazil, 2024). In this sense, understanding the impacts the DMA has generated, and those that cannot yet be observed, can enrich this debate. The table below summarizes, area by area, what the European evidence indicates so far and the questions it raises for regulatory design.

Area	What the evidence indicates	Questions for regulatory design
New entrants and startup investment	In the sectors covered by the regulation, startup investment and creation fell between adoption and the start of application, and the decline was no longer observed afterwards. Gatekeepers stopped acquiring European startups, but this channel has always been small. New competitors have emerged, but they appear only in the European Commission's records, and, in the best-documented case, the main beneficiaries are also American companies.	How do the transition period and the predictability of the rules affect investment decisions, and who is likely to fill the space opened up by the obligations?
Ex ante conduct rules	The effects are clear in platform interfaces, smaller in user behavior, and absent from the revenue of those who depend on the platforms. Much of the variation comes from how each company complied with the obligation, and, in some cases, self-preferencing shifted elsewhere rather than disappearing.	How should obligations be specified, and how can we monitor not only whether they have been formally complied with but whether they have produced the expected result?
Innovation incentives	No study measures R&D spending, patents or product launches since the start of application. The theoretical studies do not predict a single effect: the outcome depends on which obligation is examined and how the company complies with it.	Which indicators would make it possible to track the effects on innovation over time?

Interoperability obligations	New services have emerged, but there are no public data on how much they are used. On cross-app messaging, theory, a user survey and interviews point to a smaller effect than intended, with a risk of strengthening the dominant services. A preliminary finding by the Commission and theoretical studies identify access fees as a barrier for rival app stores, and interviewees cite the lack of a common technical standard as a barrier to uptake by smaller apps.	In which markets does interoperability between direct competitors actually increase competition, what role should access fees and technical standards play, and how can openness be reconciled with user security and privacy?
Consumer welfare	The DMA has expanded consumer choice, but it has also added extra steps in some services. Where there were established competitors, the gatekeeper's service lost visits and smaller competitors gained traffic. Where there were not, users went back to the same service with an extra step. On prices, the evidence is scarce: a correlational study funded by the regulated company found no pass-through of lower commissions, and the only causal evidence is a small drop in airfares. No study measures the net outcome for users.	How can we track whether the new options are actually used and whether the gains in choice outweigh the extra steps?

Taken together, the evidence calls for caution in using the European experience as an argument, whether for or against ex ante regulation. After about two and a half years of application, the results are still preliminary and vary according to the design of the obligations, the way they are complied with, and the conditions in each market. These three factors are, in themselves, a lesson for any regulatory design, but the experience does not yet allow definitive conclusions about the effects of ex ante regulation in digital markets.

How the regulation is enforced also matters. In Europe, gatekeepers rolled out compliance solutions without prior validation that later had to change, and non-compliance decisions were not always accompanied by concrete measures (BEUC, 2025; Gorecka, 2025). The authority's capacity to monitor and correct compliance with the obligations is therefore part of regulatory design.

One lesson cuts across all areas: the importance of data for evaluating regulatory choices. The European Commission acknowledges that the impact of the DMA cannot yet be fully assessed and that it will continue to monitor its effects as they become more visible (European Commission, 2026a). Part of this difficulty stems from the lack of public data: it is not known how many people use alternative app stores or cross-app messaging, and the effects on prices and fees depend on contracts that are not disclosed. Whatever path is taken, evaluating its effects requires knowing the state of the

markets before the change, having access to the data that show how it was received, and knowing who produces the evidence that reaches the public debate. Some obligations still have no evidence at all: no source in our database examined the effects of the ban on tying, nor measured the effects of the interoperability obligations on device security, exposure to fraud or users' data protection.

4.2. From the Brussels effect to the anti-Brussels effect: the DMA as a model under debate

This section places the results of the study within the debate on the DMA's international influence and on the regulation's place in Europe's competitiveness agenda.

Over the past few decades, the European Union has built a reputation for exporting its rules. This phenomenon, known as the "Brussels effect", is the bloc's ability to influence markets and governments beyond its borders, and it works through two channels (Bradford, 2012, 2020). In the first, global companies adopt the European standard in every country where they operate, because maintaining different versions of their products is more costly. In the second, other countries use European law as a reference for their own rules. The General Data Protection Regulation (GDPR) is the most frequently cited example, and Brazil's General Data Protection Law (LGPD) is among the laws inspired by it. The results of this study show signs of both channels, and of how hard it is to tell them apart. The change in a large e-commerce platform's search results also occurred outside Europe, which may reflect an effect of the DMA beyond the bloc or other regulatory pressures (Waldfogel, 2024). Likewise, gatekeepers may change their behavior to comply with other countries' rules, such as the UK's, which makes it difficult to attribute effects to the DMA (Botta, 2026).

The DMA was born with similar expectations, and for a while they seemed to be borne out. Jiravuttipong (2026) shows that the regulation served as a model for proposals in Japan, South Korea, India, Brazil, South Africa and Australia, almost always with adaptations. Developed economies tended toward narrower rules targeting a few services, such as app stores. Developing economies, by contrast, tended toward broader regimes, with lower designation thresholds and more discretion for the regulator.

An October 2026 report by the Computer & Communications Industry Association (CCIA) argues that this trend has reversed. The authors call this reversal the "anti-Brussels effect" (Wagener; Katona, 2026). According to the report, of the 14 jurisdictions outside the European Union that considered adopting a DMA-inspired model, 11 dropped the idea

or adopted narrower regimes, and only Brazil is still pursuing a proposal close to the European model.

- **South Korea.** In 2023, the government proposed a DMA-style law, with upfront designation of large platforms and conduct prohibitions. In 2024, it abandoned the proposal and chose instead to amend its existing competition law.
- **India.** In 2024, a government committee proposed designating large digital companies across nine types of services, with fixed obligations, as under the DMA. The bill was not sent to Parliament, and a market study was launched instead.
- **United Kingdom.** The UK law, in force since 2025, allows large platforms to be designated on a case-by-case basis, with tailored obligations for each. Unlike the DMA, each obligation is subject to a proportionality test, and companies can justify conduct on the grounds of its benefits to consumers.
- **Japan.** The Japanese law, in force since 2025, covers only four smartphone services, such as app stores and browsers. It also allows companies to justify conduct on security and privacy grounds.

For the authors, this retreat is explained by the regulation's performance in Europe, where it allegedly has not delivered measurable benefits and has delayed product launches. The evidence gathered in this study qualifies that assessment: there are measurable effects in some markets, **such as increased use of rival browsers and the redistribution of traffic in the flights market, but there is no measurement of effects on innovation investment, product launches or the net outcome for consumers**.

The explanation for this retreat, however, is contested, and the DMA's performance is only one of the hypotheses. An analysis by the Center for European Policy Analysis (CEPA) also identifies a loss of momentum for the Brussels effect in the digital sector, but points to other causes (Galloway; Echikson, 2026). One is pressure from the US government on foreign regulators. The piece notes that South Korea softened its bill in response to trade concerns raised by the United States. Another is Europe's own competitiveness and regulatory simplification agenda. The analysis also cites the arrival of artificial intelligence products, which brought new competition to markets such as search, the same factor that, in the innovation area, makes it impossible to separate the effect of the DMA from the expansion of generative AI (Botta, 2026).

The CCIA report itself notes that Brazil's Bill No. 4,675/2025 also draws on the German, British and Japanese models. Read together, these analyses suggest that the international retreat reflects both the political dispute over the model and its results. The evidence gathered in this study, for its part, does not allow a verdict on those results in either direction.

Within the EU itself, the DMA has also come to be discussed in light of the bloc's competitiveness. The Draghi report, commissioned by the European Commission and published in September 2024, six months after the compliance deadline, describes the DMA and the DSA as pioneering legislation and considers it too early to fully measure their impact. At the same time, it warns that implementation should avoid the compliance burdens and legal uncertainty associated with the GDPR. The report acknowledges progress on open access and interoperability achieved through the DMA and calls for its firm enforcement. It also warns that if the regulation is not enforced effectively, the harm could include lower investment by multinational companies in Europe and delays in the rollout of technological advances. In the report's view, *ex ante* rules should not be the main tool of competition policy, except in markets with structural barriers, such as digital markets (Draghi, 2024). **The report does not oppose the DMA, but it places the regulation within the debate on regulatory costs. The question becomes how to enforce it without creating the burdens the bloc attributes to other rules.**

Delays in product launches in Europe are a recurring theme across different readings of the DMA, but with different explanations. The CCIA report cites smartphone features and a new version of a voice assistant that did not reach European users at the same time as the rest of the world. The company attributes these delays to the DMA's requirements, while the European Commission maintains that the decision not to launch rests with the company itself (Wagener; Katona, 2026). The Draghi report, for its part, treats technological lag as a risk linked to how the regulation is enforced (Draghi, 2024). As noted in the innovation area, no study in our database measured product launches, and since companies operate under several European regulations at once, such as the DSA, the AI Act and the GDPR, attributing each delay to a specific rule requires an analysis that has yet to be carried out. Whether, by how much and because of which obligations launches were delayed is a relevant question for assessing the costs and benefits of the DMA, and it remains open.

The international reception of the DMA shows that there is no single path. Some countries adopted *ex ante* rules with a narrower scope, others chose to strengthen their existing competition law, and still others opted for market studies before making any decision. Even where rules were adopted, the debate centered on scope, proportionality, room for justifications and enforcement capacity, factors that, according to the results of this study, also shaped the DMA's effects in Europe. For the Brazilian debate, this experience does not offer a ready-made answer; rather, it reinforces the importance of weighing the costs and benefits of each alternative in light of the available evidence and the specific conditions of Brazilian markets.

5. Conclusion

What did we set out to answer in this study?

This study sought to gather and assess the evidence produced between 2022 and 2026 on the impacts of the Digital Markets Act on European digital markets. We analyzed 27 sources, organized into five areas: new entrants and startup investment, ex ante conduct rules, innovation incentives, interoperability obligations, and consumer welfare. Each source was classified by the robustness of the publication and the method used, and each finding by the direction of the effect relative to the regulation's objective. This made it possible to separate what has already been observed from what is still a prediction, and what can be attributed to the DMA from what merely happened after it.

And what did we find?

After about two and a half years, more is known about what the designated companies changed in their services than about the effects of those changes on markets. In investment and startups, the relative drop in investment and company creation was concentrated between the adoption of the regulation and the start of application, and was no longer observed afterwards. New competitors have emerged, but they appear only in the European Commission's own records, and, in the best-documented case, the main beneficiaries are also American companies. In conduct rules, which account for most of the causal studies, the choice screen increased the use of rival browsers, and smaller airlines and comparison sites gained traffic. The effects, however, weaken the further they move from the interface: in some cases, self-preferencing shifted elsewhere rather than disappearing, and the revenue of the small sellers the regulation sought to protect did not improve. In innovation, no effect has been measured, and the theoretical studies indicate that the outcome depends on which obligation is examined and how it is complied with. In interoperability, new services have emerged, but it is not known how much they are used. On cross-app messaging, the studies converge on an effect smaller than intended, and access fees and the lack of technical standards emerge as barriers to opening up app stores and operating systems. For consumers, choices have increased, and so have the steps needed to use some services, and no study measures the net outcome.

Two patterns run through the results. The first is that similar obligations produced different effects, depending on the design of each obligation, the way each company complied with it, and the conditions in each market, especially the presence of established competitors. When a gatekeeper service lost prominence in search, it lost visits in the flights market, where there were established competitors, but not in maps, where users went back to the same service

with an extra step. How the regulation is enforced also matters, because solutions rolled out without validation and decisions without concrete measures limited its effects. The second pattern is that the evidence base is still taking shape: few studies manage to isolate the regulation's effect, descriptive and theoretical work predominates, and data are lacking on how many people use the new options.

And why does this matter?

Brazil is currently debating, through Bill No. 4,675/2025, whether to adopt an ex ante regulatory model for digital markets, and the European experience is cited both by those who support and by those who question this choice. The evidence gathered here calls for caution on both sides. There are measurable effects in some markets, but there is still no measurement of innovation investment, product launches or the net outcome for consumers, and changes in the structure of digital markets, such as competitor entry, switching between providers or innovation, take time to show up in the data. What the experience already offers are lessons on design: the outcome depends on how obligations are specified, complied with and enforced, and on the alternatives available in each market. Whatever path is taken, monitoring its effects requires knowing the state of the markets before the change and having access to the data that show how it was received.

6. Directions - future studies

This study does not exhaust the questions on this topic, and as digital markets regulation matures, there will be room for ongoing research. We identified the following avenues:

- **Periodic updates of the evidence.** The evidence base on the DMA is still limited by two time-related factors. The first is the lag between submission and publication in scientific journals, which means that some of the most recent work has not yet gone through peer review. The second is the short period during which the obligations have applied, since March 2024, which is not long enough for impacts on market structure, such as competitor entry, innovation or investment, to materialize and be measured. We recommend updating this review periodically to check whether the preliminary results hold as new data and more robust studies become available.

- **Actual use of the new options.** There are no public data on how many people use alternative app stores, cross-app messaging or data portability. On messaging, the available evidence predates implementation or is based on stated intentions. Studies that track actual user behavior, along with researcher access to platform data, are a prerequisite for assessing whether opening up these services has produced competition.
- **Estimating the net outcome for consumers.** The studies show gains in choice alongside extra steps, but none measures the net result. Research combining behavioral data with experiments on choice screens and interfaces could indicate whether friction tends to decrease over time and how much of it stems from the rule itself or from how each company complies with it. On prices, there is a lack of studies comparing products affected and unaffected by the changes, to determine whether cost reductions reach consumers.
- **Effects on market structure and the economy.** The studies document changes in the conduct of the designated companies, but none estimates the regulation's net effect on competition and the economy. Future research could track how concentration, competitor entry, prices and service quality evolve in regulated markets, and compare these trends with compliance and adjustment costs.
- **Innovation and product launches.** No study has measured R&D spending, patent filings or product launches since the obligations began to apply. Analysis is also needed of whether, by how much and because of which obligations launches were delayed in Europe, separating the effect of the DMA from that of other regulations, such as the GDPR, the DSA and the AI Act.

- **Effects outside Europe.** Some companies have also changed their behavior outside the bloc, which makes it difficult to separate the effect of the DMA from other regulatory pressures, such as those in the United States and the United Kingdom. Studies comparing jurisdictions with different rules would help measure this effect and inform countries that, like Brazil, are debating their own models.

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Reglab Methodology Annex

REGLAB CONTEXT

AUTHORS	Marina Garrote, Thais Palanca and Natália Ribeiro
Title	The impacts of the Digital Markets Act on European digital markets: what the evidence from its first years shows
Research Question	What scientific evidence produced between 2022 and 2026 is available on the impacts of the DMA on European digital markets?
Methodology Summary	Through a compilation of findings, the study gathers the evidence produced between 2022 and 2026 on the impacts of the Digital Markets Act (DMA) on European digital markets. The methodology combines desk research based on secondary sources with qualitative content analysis. Data collection was organized into five thematic areas: new entrants and startup investment, *ex ante* conduct rules, innovation incentives, interoperability obligations, and consumer welfare. This was followed by two-stage screening, AI-assisted and with human review, and by the classification of each source by publication robustness and by method.
Data Collection	Data were collected from September 16 to October 1, 2026, using predefined AI prompts applied area by area. The search was conducted on two fronts. The first was an initial search, using a base prompt and a specific paragraph for each of the five areas. The second consisted of complementary searches, using a single prompt aimed at identifying studies not found in the first round. *Base prompt (initial search) – translated from the Portuguese original* You are a research assistant. We are conducting a structured literature review on the empirical impacts of the European Union's Digital Markets Act (DMA). The research question is: What scientific evidence produced between 2022 and 2026 is available on the impacts of the DMA on European digital markets? The goal of this stage is to map and synthesize the state of the debate on the effects of the DMA, consolidating references that analyze the regulation's implementation, and to critically analyze the empirical evidence on its effectiveness, benefits and externalities. This is exploratory research: do not presume the direction of the result. Look for favorable, unfavorable and mixed evidence in a balanced way, faithfully reflecting what the literature shows, including the absence of robust evidence in any direction. Within this objective, look specifically for evidence on [area paragraph]. Prioritize studies on the European Union as a regulatory bloc. Also include studies on specific Member States when found. Include any document that analyzes or discusses the effects of the DMA in this area. Prioritize studies that measure or document observable impacts of the DMA on markets, companies, consumers and other actors: empirical evidence (quantitative or qualitative), case studies with concrete data, or institutional analyses based on verifiable facts.

The type of evidence is not a prerequisite for inclusion; it is additional information that will help us assess the strength of the evidence later.
DO NOT INCLUDE sources with unverifiable authorship, a stated methodology without corresponding evidence, preprints without review, or two or more indicators of low editorial integrity.
For each source found, provide: (1) title and authors; (2) year and type of publication; (3) main finding, specifying whether it is an observed, projected or hypothesized effect; (4) methodological design (e.g., difference-in-differences, instrumental variable, case study, theoretical analysis, observational regression); (5) country or geographic scope of the study; (6) the URL.

Area-specific paragraphs

1. New entrants and startup investment: Investigate the effects of the DMA on investment and on entry by new competitors into regulated markets, including evidence of both contraction (reduced investment, less entry, acquisitions that eliminate potential competitors) and expansion (increased investment, more entry, blocked acquisitions that preserved competition). Relevant indicators: venture capital investment volume; number and profile of acquisitions made by gatekeepers; rate of new business creation. Prioritize studies that compare the periods before and after the regulation took effect (2022 onward).
2. *Ex ante* conduct rules: Investigate the effects of the DMA's *ex ante* rules (prohibitions on self-preferencing, anti-steering, tying and bundling), looking for evidence both that these restrictions prevented pro-competitive or efficient practices and that they prevented genuinely anticompetitive or harmful conduct. Look for comparisons of gatekeeper behavior before and after the prohibition, and for side effects (intended or unintended) in either direction.
3. Innovation incentives: Investigate the effects of the DMA on the incentives to innovate of gatekeepers and their competitors, looking for evidence both of weakening (decline in R&D, patents, product launches) and of strengthening (new entrants innovating in previously closed spaces, gatekeepers adapting to the new rules). Relevant indicators: R&D investment; patent filings; product launches; flow of venture capital into innovation in regulated sectors.
4. Interoperability obligations: Investigate the effects of the DMA's interoperability obligations (messaging, sideloading, data portability), looking for evidence both of increased competition and wider user choice and of implementation costs, security risks or low actual uptake. Compare the expected competitive benefit with the observed one, in either direction.
5. Consumer welfare: Investigate the effects of the DMA on the end-user experience, looking for evidence both of harm (loss of service integration, added friction, privacy risks) and of benefit (more choice, lower switching costs, better data protection, lower prices due to greater competition).

Prompt for the complementary searches (Consensus, Perplexity and ChatGPT)

We are conducting a structured literature review on the impacts of the European Union Digital Markets Act (DMA).

Research question: What scientific evidence published between 2022 and 2026 is available on the impacts of the DMA on European digital markets?

Task: Identify relevant academic studies or scientific evidence that may have been missed by our existing review. Do not provide a general overview of the DMA. Focus on finding additional sources not already included in the list below. Search neutrally for evidence of positive, negative, mixed, null, or unintended effects. Do not assume that the DMA has succeeded or failed. Prioritize studies on the European Union or EU Member States, especially research using observed data after DMA implementation (particularly 2024 onward).

Search across these five areas: (1) Investment and startups: effects on venture capital, startup financing and creation, market entry, acquisitions by gatekeepers, exit opportunities, and investment incentives. (2) *Ex ante* conduct rules: effects of DMA rules concerning self-preferencing, anti-steering, tying, bundling, default settings, choice screens, app-store rules, ranking, and platform integration. (3) Innovation incentives: effects on innovation by gatekeepers and competitors, including R&D, patents, product launches, new features, entry by innovative firms, and venture financing. (4) Interoperability: effects of interoperability, data portability, data access, sideloading, alternative app stores, and messaging interoperability. (5) Consumer welfare: effects on prices, fees, consumer choice, switching costs, user friction, service quality, privacy, security, integration of services, consumer behavior, and adoption of alternatives.

Evidence: Prioritize empirical studies using observed post-DMA data. Also include relevant quantitative, theoretical, institutional, or case-study research when it materially contributes to understanding DMA effects, but clearly distinguish observed effects based on post-implementation evidence from projected or theoretical effects that have not yet been empirically observed. Prioritize peer-reviewed research. Because the DMA is recent, relevant working papers or preprints with unique post-2024 empirical evidence may also be included, but clearly label them as non-peer-reviewed. Exclude news articles, blogs, opinion pieces, and sources with unverifiable authorship.

Avoid duplicates: Do not return studies already included in our existing review. Match on author and title, not on URL.

Output: For each new and relevant source, provide title and authors; year and publication venue; whether it is peer-reviewed; evidence area(s); geographic scope; methodology and data used; main finding; whether the effect is observed or projected/theoretical; why the source adds something new to our existing review; DOI or stable URL. At the end, briefly state how many genuinely new relevant sources were identified, how many contain observed post-DMA empirical evidence, which areas gained new empirical evidence, which areas still have little post-implementation evidence, and whether the additional literature supports, contradicts, or complicates the proposition that the available evidence is still insufficient to reach strong conclusions about the overall effects of the DMA. Do not assume this proposition is correct; evaluate it based on the literature found.

Search sources: AI research tools (Claude and ChatGPT in Deep Research mode, Consensus and Perplexity).

Geographic scope: the European Union, as a bloc or in specific Member States. Studies on similar regimes in other jurisdictions were excluded.

	Time frame of included publications: 2022 to 2026. Definition of impact: before screening, the team set out what would count as an impact of the DMA on digital markets. It is a change in prices, entry by new competitors, use of new options, or the variety or quality of services, occurring after the companies were designated or after the obligation started to apply, and attributed to an identifiable obligation in the regulation. Impacts projected by economic models, simulations, feasibility studies or legal analyses of market effects were also considered. **Data collection stages:** Phase 1 (initial search): the base prompt was run in Claude (Deep Research), with a specific paragraph for each area. The results returned were logged in a collection document, with the reason for excluding each one, and organized in a spreadsheet. During this phase, the prompt was adjusted: legal scholarship without analysis of effects was excluded, while economic theory studies remained eligible. Phase 2 (complementary searches): the complementary prompt was run together with the list of sources already included. Consensus suggested 15 new sources, 3 of which were included. Perplexity suggested 7, 2 of which were included, with priority given to studies with a causal design. After the database was reviewed, the same prompt was run in ChatGPT (Deep Research), resulting in 2 inclusions. Phase 3 (screening): the 37 sources recorded in the spreadsheet underwent independent double human review, which excluded 7 documents: 2 compliance reports from the designated companies; 2 general studies that did not specifically address the impacts of the DMA; 1 blog post with low editorial integrity; and 2 technical computer science studies on interoperability between encrypted messaging apps. We excluded 3 more sources while writing the report, because they did not demonstrate impacts of the DMA. At the end of screening, the report's database comprised 27 sources. Exclusion criteria: unverifiable authorship; no identifiable methodology; stated methodology without corresponding evidence; indicators of low editorial integrity; predominantly advocacy statements without their own methodology; documents that only describe the implementation of the rules or discuss the nature or legal compatibility of the regulation. Working papers were admitted when no peer-reviewed version was available. Where a reviewed version existed, it was used as the reference.
Data Analysis	After screening, a qualitative content analysis was carried out. The sources were organized in a consolidated spreadsheet with the following information: document title; summary; methodology used; strength of evidence (robust, moderate or limited); method (causal, correlational, descriptive or theoretical); area of analysis; collection source, that is, the tool or database in which the document was found; document type (academic research, institutional report, market study, among others); link. Each source was assigned, non-exclusively, to one or more of the five areas. Each also received two independent classifications. Strength of evidence (robustness) follows the type of publication: robust (peer-reviewed journal), moderate (working paper series with editorial vetting) or limited (neither type of vetting). The method indicates what the study allows us to say: causal, correlational, descriptive or theoretical. For each area, a table was prepared with the main finding of each study, its robustness and its method, followed by a synthesis that compares the studies and indicates what they show together. The initial summaries were AI-assisted (Claude). The authors then reviewed the classifications and checked each finding against the original text.

Bias Reduction Procedures	(i) Adoption of inclusion and exclusion criteria defined before data collection (geographic scope, time frame and type of source); (ii) neutral search prompts, asking for favorable, unfavorable and mixed evidence with equal effort; (iii) an explicit, predefined concept of "impact of the DMA on digital markets" (Box 1), to avoid implicit or diverging criteria among the researchers during screening; (iv) triangulation of the search across four AI tools, academic databases and primary documents, to avoid relying on a single search engine; (v) independent double human review, with disagreements resolved jointly; (vi) robustness classification based on an external, verifiable criterion, the type of publication, rather than on the authors' judgment of the quality of each work; (vii) control for possible source bias through the robustness scale itself: sources that did not undergo external review, such as institutional reports, studies commissioned by companies or by the regulator, consultancy reports and position papers, were classified as having limited robustness. These sources did not go through independent vetting capable of filtering out any influence from those who produced or funded them. Commissioned studies were included only when the funder was disclosed.
Other Methodological Limitations	The DMA's obligations have applied since March 2024. Some of the most recent work has not yet reached peer-reviewed journals and appears with lower robustness for reasons of timing, not quality. For the same reason, many market effects have not yet had time to show up in the data. Descriptive and theoretical studies predominate, and findings based on models and legal analyses are presented as projections rather than observed effects. A significant part of the literature was produced or funded by companies, industry associations or the European Commission itself. Data collection relied in part on AI tools, whose coverage may be incomplete and whose results are not fully reproducible. Some restricted-access sources were obtained through one of the researchers' institutional affiliation, which limits replicability for those without equivalent access. Classifying robustness by type of publication does not assess the internal quality of each study. The geographic scope excludes evidence from similar regimes in other jurisdictions.
Software Used	Claude (Anthropic): initial search in Deep Research mode, preliminary summaries of the sources and assisted drafting, including synthesis of findings, adaptation to plain language and formatting of references. ChatGPT (OpenAI), Consensus and Perplexity: complementary searches for sources not identified in the initial phase. ChatGPT (Codex): used to generate images. Google Sheets: recording and consolidating the source database. Google Docs: recording the search protocol, screening decisions and methodology, as well as editing the final report.
Ethical Guidelines	Privacy and personal data protection: the research did not involve collecting or processing personal data of identifiable individuals. The data used are in the public domain or available through regular institutional access, and were obtained without violating the privacy or confidentiality of any individual or institution. Responsible use of AI: all content generated or suggested by AI tools was reviewed and validated by the authors, and every reference and finding was checked against the original source.

	Methodological transparency: the methodology was documented chronologically (search protocol, screening criteria and results of each phase), allowing any researcher on the team to validate the results. Non-discrimination: the research was conducted in a manner that respects diversity and avoids any form of discrimination.
Statement of Editorial Independence	**This research was funded by Google Brasil Internet Ltda**. To ensure the integrity of this work, the authors designed, conducted and analyzed the study independently, without interference from the funding company, which also had no influence on the interpretation of the results. The authors retain full professional independence and take full responsibility for the content and conclusions of this work.

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