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Access Pricing for App Stores Under the Digital Markets Act

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Access Pricing for App Stores Under the Digital Markets Act

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EXECUTIVE SUMMARY

This article concerns itself with fees that Apple and Google might charge to business users in their respective mobile ecosystems. We lay out the economic analysis behind the goals of the DMA—contestability and fairness—as they apply to third-party app store access fees. We focus on the access fees for alternatives to the Apple App Store, as this has become contentious in the early enforcement of the DMA. Much of our analysis, however, also applies also to Google and/or any other designated gatekeeper.

This paper makes several foundational points. First, the DMA permits Apple to charge a fixed fee to review the security of third-party app stores or apps distributed through and operated on Apple's operating system ('Review Fee'). The level of such a fee should be related to the cost of the review function for the reasons we describe below. Generally, because the cost of conducting a review is independent of the revenue an app generates, so too should be the Review Fee collected to cover that cost.

Second, there are many fees that apply to different elements of the Apple ecosystem (e.g., the cost of a handset, advertising in the app store, etc.) that are unaffected by the DMA. However, we show that one element of this complex fee structure—the fees Apple places on third-party app stores for the right to reside on iOS ('Access Fee')—has important consequences for fairness and contestability and is therefore constrained by the DMA. We argue that it is almost surely the case that the only way to comply with the DMA is to set the Access Fee to zero (and if not, to a very low level) and we show that this restriction is proportionate. We explain why the problem Apple would have to solve, should it attempt to justify a positive Access Fee, is beyond current economic knowledge and requires substantial additional regulation. In brief, because third-party app stores are potential competitors to Apple's ecosystem, any meaningful Access Fee blocks contestability, making it very harmful unless very particular conditions hold. Meanwhile, any financial harm to the gatekeeper that might result from setting this fee at zero is limited because of the freedom the gatekeeper has to monetise its ecosystem in other ways that are compliant with European law, including by selling devices, advertising, and other services.

Third, fees imposed on one category of business users may have implications in respect of fairness and contestability for a wholly separate category of business users. The regulator must remain alert for these 'adjacent' anticompetitive effects. Of particular relevance here, a fee Apple imposes on app developers only if those developers distribute through a rival app store imposes a direct cost on those developers to be sure, but it also undermines fairness and

[2] Author affiliations and disclosures appear immediately post Appendix, *infra*.

contestability in the app store market. By punishing app developers for using an alternative distribution channel, the fee suppresses app developers' use of those new channels, depriving the new channels both of revenue from the app developers (which is unfair) and the benefits that would accrue from network effects that would make them more attractive to end users (which also undermines contestability).

On 25 March 2024, the Commission opened an investigation against Apple in regard to its compliance with Article 5(4) DMA, the requirement to allow effective use of third-party app stores, and on 24 June 2024 the Commission opened another investigation against Apple in regards to its compliance with Article 6(4)'s obligation to provide effective use of its operative system.[3] Our final point is that if the Commission finds non-compliance under Article 29, it can proceed to specify what Apple should do by using the procedure in Article 8(2). In particular, we recommend that the Commission use Article 8(2) to specify an Access Fee of zero to rival distribution channels, including third-party app stores, allow a positive Review Fee, and combine these with unconstrained pricing for other elements of the ecosystem such as advertising and the price of the handset (consistent with the law). Opening the app store market without delay is necessary in order to obtain the innovation and entry by business users that is the purpose of the DMA. This solution is simple and proportionate and can be supported with the materials and evidence gathered thus far.

It is theoretically possible that our proposal is the unique compliant fee structure; in other words, it is possible that there are no Access Fees Apple could impose on third-party app stores that are unrelated to its market power and increase social welfare. Any other lawful fee charged by Apple would need to advance contestability and fairness; fees for advertising or reviewing apps may fall in this category. It is beyond the scope of the current paper to prove our recommendation is the only possible solution, but we discuss the reasons why we think this is likely below.

We demonstrate how to use economic principles to inform the Commission's determination of whether a gatekeeper's fee structures applicable to the app and app store ecosystems comply with the DMA's requirements. Based on analogs to the telecommunications industry, the policy community may believe a compliant Access Fee should be based on the well-known efficient component pricing rule. We explain why this is unlikely to be a helpful pathway in the case of digital platforms, and that economic analysis supports a zero Access Fee in the case of third-party app stores.

I. THE REGULATORY FRAMEWORK

A. Innovation

Before we begin our analysis, we provide some context. First, we acknowledge that the digital gatekeepers regulated by the DMA have been, and continue to be, innovative firms. The digital revolution of the last thirty years has created enormous benefits in enabling faster, better, and cheaper communications, and in allowing the distribution of cultural content, automation, improvement in productivity, etc. The gatekeepers regulated under the DMA

[3] *See* Press Release, 'Commission opens non-compliance investigations against Alphabet, Apple and Meta under the Digital Markets Act,' EUROPEAN COMMISSION (25 March 2024), available at https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1689; *see also* Press Release, 'Commission sends preliminary findings to Apple and opens additional non-compliance investigation against Apple under the Digital Markets Act,' EUROPEAN COMMISSION (24 June 2024), available at https://ec.europa.eu/commission/presscorner/detail/en/IP_24_3433.

have often contributed positively to these changes. At the same time, they create novel societal challenges as we learn how to use these new tools. We hope and anticipate that society will learn to use them more wisely as time goes by. Indeed, the process of initiating and experimenting with regulation and improving it over time is part of that evolution.

Second, an economy and its citizens benefit when law-abiding firms or individuals that develop new technologies benefit financially from their innovative effort. This is important both as a matter of fairness and as a matter of economic incentives. The alignment of private incentives and public interest is critical in designing such policies and regulation can play an important role in furthering this objective. This idea is not new and is not limited to the digital economy. At the same time, law and regulation have often put limits on the proportion of the social benefits generated by their innovation that is allocated to inventors: patents and copyrights are limited in length and in the scope of the protection that they afford; regulation and competition law limit the strategies and prices chosen by even the most innovative firms. Doing so helps to keep these markets fair and contestable, which allows entry of the next generation of innovative firms to reap rewards in their turn.

In the context of the digital gatekeepers, the rewards for innovation do not result solely or even mainly from innovations that IP protections reward. Rather, the underlying technology, network effects, and the role of data create a very strong 'first mover advantage.' By giving the winner all the rents even when rivals are close behind, the platform economy overly rewards the first mover. The distribution of rents does not match the contribution of value when the benefits stemming from the platform are not caused solely by the activity of its owner, but also by (a) the coordination of the users around that platform and (b) the activities of these users.[4] This raises new issues that have, among other consequences, implications for the regulator's enforcement of rules regarding appropriate Access Fees.

There has been a long lag between the realisation that digital regulation was needed, the building of the necessary institutional capacity to regulate, and the launch of the enforcement process. The enforcement efforts now underway commenced many years after the market power described above was established. Given how long it has had to wait, society properly expects quick action from the regulator and quick results from the DMA. The urgency is partly to show that the people should enjoy the benefits of the laws they pass, benefits that result from living and participating in a democracy. The urgency is also partly due to the importance of freeing up innovation in digital technologies. The fast pace of those technologies creates a risk that slow-moving regulation becomes irrelevant. Regulation is needed quickly to protect existing business users from harm as well as to incentivise them and new entrants to create innovations that benefit society. Of course, policy makers need to be careful not to dampen the incentives for subsequent innovations by gatekeepers themselves or the incentives for new entrants on the market to dislodge the incumbents. We believe that our analysis puts forward a regulatory framework that affirmatively improves incentives for innovation.

B. Benefits from Competition in App Stores

The DMA's requirement that Apple and Google offer their users the choice of using alternative app stores reflects the importance of such stores for driving quality and innovation. In recent years, the number of apps users have been installing on their handsets

[4] This phenomenon is explained in more detail in a previous article by some of the authors: Jacques Crémer, Gregory S. Crawford, David Dinielli, Amelia Fletcher, Paul Heidhues, Monika Schnitzer, Fiona M. Scott Morton & Katja Seim, 'Fairness and Contestability in the Digital Markets Act,' 40 YALE J. REG. 923 (2023).

has declined from a peak during the beginning of the pandemic in 2020.[5] This is the case despite the increasing number of applications of all kinds that make a handset more useful. Among the reasons for this decline *could be* the low quality of the discovery process and the lack of innovation in distribution. All apps are distributed through one of two, large monopoly stores[6] that have limited functionality; finding an app involves searching through millions of apps using the store's search function; the resulting recommendations are themselves distorted by advertising; and the store is not tailored to the needs of particular apps or users.

Innovation and store variety would improve the experiences of both consumers and business users. Rival app stores could provide value in curation and search by carrying only a subset of apps and offering users a different value proposition. Rival stores could be run by a large corporation with a particular business model, such as Disney in curation of apps for children, Pinterest in curation of apps for creativity, or American Express in distribution of apps for frequent travelers. New models of stores could spring up, such as a store that would offer a discount for subscription to multiple online newspapers, or a store run by a government with helpful apps for its citizens. Rival stores could also compete simply by charging lower fees to developers. Those lower fees would raise the returns to developers, encouraging more to enter and invest, and thereby increasing variety and choice for end users.

Users might want to make a non-legacy store their default while multihoming across others, or they might want to single-home on a rival store that offers higher security or a lower carbon footprint. Parents may wish to give their children access to only a child-centred store, for instance. All these options represent innovation, which is an important objective of the DMA, and one that the European Parliament feared was being harmed by incumbent gatekeepers. Effective access to third-party stores will increase contestability on the platform (some of these authors previously has called this competition *in* the market[7]) with resulting improvements in price, quality, and innovation for both sides of the platform. The second reason that competition in app stores is crucial is because such stores represent potential future competition for Apple's operating system (some of these authors previously have called this competition *for* the market[8]).

As described in the DOJ's recent antitrust complaint against Apple, app stores are a type of 'super app,' which can function as middleware.[9] Middleware lowers users' switching costs across operating systems because it functions on both the incumbent and rival operating systems. Users can adopt the rival OS, log in to the middleware, and immediately access entitlements, identities, and functionalities they expect. This promotes entry of rival operating systems because lower switching costs makes obtaining customers much easier. Super-apps will be part of robust competition in app stores, and in this way increase contestability in operating systems.

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[5] *See* Louise Wylie, 'US App Market Statistics (2024),' BUSINESS OF APPS (24 Feb. 2024), available at https://www.businessofapps.com/data/us-app-market/.
[6] Apple's App Store is a monopoly and Google's Play Store a quasi-monopoly on the ecosystem they serve.
[7] *See* Crémer et al., 'Fairness and Contestability in the Digital Markets Act,' *supra* note 4, at 994-95.
[8] *See id*.
[9] Compl., *U.S. v. Apple*, Case 1:23-cv-00108 (24 Jan. 2023) at para. 63, *available at* https://www.justice.gov/opa/media/1344546/dl?inline.

Effective access to third-party stores therefore will increase contestability for the platform itself, which will in turn benefit both business users and end users as they will have more distribution choices.[10]

C. The Size of the App Store Business

App store fees are a significant portion of the business of the two gatekeepers. In 2023, Apple services generated $89.3 billion dollars, or about a quarter of the revenue generated by the sales of hardware. Apple does not break out the components of its services revenue, perhaps because the category contains a very large payment from Google for the exclusive default position at all search access points on the iPhone. We know from the Google search antitrust trial in the United States that this payment is about US$20B annually, or 24% of the Apple's service category revenue. Other services in the category include advertising in the App Store, the margin on top of the credit card fee that Apple charges for Apple Pay, subscriptions for storage, AppleCare, Apple Music, and the like. It nonetheless seems likely that the single largest source of revenue in the Services category, perhaps about half, is the percentage fee from digital sales in the Apple App Store. This revenue is about 12% of total 2023 Apple revenue.

Since 2021, Google's annual revenue from the Google Play store has been over $40 billion. Google's annual revenues in recent years have grown from $250 to over $300 billion. Thus, app store revenues are approximately 15% of Google's revenue.

D. The Types of Fees Related to App Stores

We define a 'Review Fee' as the fee that a business user pays to the gatekeeper or its agent to undertake a safety and security review of the app or app store software. This is a fixed fee per app or app store being reviewed and its level will be related to the cost of the review function. We keep this fee conceptually distinct from the Access Fee, below.

We define an 'Access Fee' to be a fee assessed by the gatekeeper and borne by an app store or alternative distribution channel for the right to reside on the gatekeeper's operating system. An Access Fee reflects, and could not be imposed but for, the market power of the operating system.

Our analysis also occasionally considers a third type of fee: the distribution fees paid by third-party app developers to the gatekeeper app stores. This is for two reasons. First, when the gatekeeper's own store charges a high price to developers, developers will seek alternative distribution channels. If fees charged by the gatekeeper to third-party app stores are zero, developers may want to join together to open their own stores, as this could lower the cost of distribution. Second, the gatekeeper can design a fee that is formally paid by the developer but functions as a cost to the entering app store. For example, a fee that a developer pays on its sales through the Apple App Store *only* if that developer also distributes through a third-party app store blocks that store's ability to attract content. This design may cause a regulator to confuse the party who formally pays the fee (the developer) with the party whose access to the operating system is rendered ineffective by the fee (the third-party app store).

[10] Indeed, opening up competition among app stores and super apps is the most obvious path to generating competition among operating systems. There may be others. But if the current gatekeepers successfully thwart this path by resisting the DMA obligations that aim to generate competition among app stores, then it might be incumbent on policymakers to consider regulating the operating systems, including their pricing, directly.

There may be other fees charged by gatekeepers such as the prices of handsets, other hardware, and different types of advertising. These are not the focus of our analysis because the DMA does not (generally) constrain them.

E. DMA-Recognized Functions Within the App and App Store Ecosystems

The DMA describes three key entities within the app and app store ecosystem.

> *Gatekeepers:* Apple and Google each are designated gatekeepers that control both an operating system that has been designated a core platform service, or 'CPS' (iOS for Apple, Android for Google) and an app store that also has been designated a CPS (the App Store for Apple, and the Play Store for Google).
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> *Business Users*: the business users who might seek access to these CPS's are the app developers, i.e., firms other than Apple and Google that develop and seek to distribute 'software applications' and/or 'software application stores.'[11] For example, a developer offering a new mobile game would want access to the App Store and Google Play (and any third-party app store) to facilitate end-user downloads of the new game app onto their devices. A business user might want to open and run a third-party app store for either the Apple or Google Android OS.
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> *Intermediation Services*: App stores constitute intermediation services that link the developer business users to end users. Definition 2(14) says 'software application stores' means a type of online intermediation services, which is focused on software applications as the intermediated product or service.' App stores additionally qualify as business users under Definition 2(21), however, because an app store uses 'core platform services for the purpose of or in the course of providing goods or services to end users.' Thus, all apps are business users, but only those apps that operate as app stores also qualify as intermediation services.[12]

F. Legal Framework Governing Fees for App Stores

Several article 5 and 6 obligations, read collectively and in conjunction with certain of the DMA's recitals and definitions, together provide a legal framework for analysing compliance of these fees and any others. Whether a particular fee is DMA compliant depends not just on its nature or size, but also on who is charging it to whom as a condition of access to which CPS. One of the points we make below is that very often the DMA rules generate results that coincide with the optimal pricing principles generated by economic analysis. The rules do a good job of creating appropriate incentives and maintaining efficiency while advancing the DMA's twin goals of contestability and fairness. The overlap between the DMA rules and the outcomes generated by reasoning from economics first principles is not always perfect, however. As we shall see, the DMA specifies certain limitations that are *consistent* with first principles but not necessarily commanded by or easily derived from them. For this reason, it

[11] We use the term "developer" in this way throughout this paper, although we acknowledge that, in some instances, an app's developer may not be its "operator."

[12] DMA Definition 2(5) defines 'intermediation services' by reference to 2(2) of Reg. 2019/1150. We can imagine some line blurring between apps as business users and app stores as intermediation services. A game app might offer the ability to download other games without leaving the app, for example. Whether incidental, store-like features such as these are sufficient to push a traditional non-store business user over the line so that it also should be considered an intermediation service is beyond the scope of this paper. We point out the possibility merely to alert enforcers that the dividing line between the seemingly separate categories might be more porous than the DMA's definitions suggest.

is important to lay out the legal framework the DMA expressly erects. Our subsequent exploration of the related economic theory will illuminate the rationale of these rules and help inform the Commission's enforcement of them in a way that is most likely to generate access fee structures that are DMA compliant, that advance the DMA's twin goals of contestability and fairness, *and* that are economically optimal, meaning that they are efficient and maximise welfare. Here is this framework:

- Article 6(4) DMA provides that the gatekeepers must allow 'effective use' of apps and app stores on their operating systems. This obligation includes, expressly, a technical access component (the gatekeeper can't allow access that makes an app or app store run at half-speed, for example) and, by implication, a limit on fees. The 'effective use' provision means that, if any combination of fees prevents 'effective' use of the OS, they are noncompliant, no matter how those fees are denominated or on whom they fall.
- In addition, Article 6(4) DMA provides that gatekeepers may, in respect of safety and security reviews of both apps and app stores, take 'measures' so long as they are 'strictly necessary and proportionate' and also 'duly justified' by the gatekeeper. Recital 50 clarifies that it is the gatekeeper's burden to show that "there are not less-restrictive means" than those it has chosen "to safeguard the integrity of the hardware or operating system."
- Recital 40 (which elucidates the Article 5(4) obligation to allow business users to communicate and transact with their end users through alternative distribution channels free of charge) makes it clear that gatekeepers may charge business users for facilitating the *initial* acquisition of end users. The text states, '[a]n acquired end user is an end user who has already entered into a commercial relationship with the business user and, where applicable, the gatekeeper has been directly or indirectly remunerated by the business user for facilitating the initial acquisition of the end user by the business user.' That is, the gatekeeper may charge a business user for substantively facilitating a new match between a business user and an end user. This is a conceptually distinct activity from simply being the gatekeeper, whose function is necessary for business users and end users to connect in any way, whether old matches or new, particularly when it has operated a monopoly app store for fifteen years. The DMA does not state that a gatekeeper may continue to charge the business user beyond the new match, and indeed Article 5(4) confirms that it cannot charge for any communication between a business user and its end users.
- There are certain fees or limitations a gatekeeper might conceivably attempt to impose on third-party app stores that the DMA expressly prohibits. For example, Article 6(7) requires the gatekeeper to provide business users access to the same functions of the handset (those that operate a handset's speaker, for an obvious example, but also all other APIs that the designated Core Platform services of the gatekeeper uses) that it makes available to its own services, free of charge.
- The DMA also prohibits any indirect measure, which includes fees, that undermines the effectiveness of the access the DMA seeks to guarantee. Article 13(4) states, '[t]he gatekeeper shall not engage in any behaviour that undermines effective compliance with the obligations of Articles 5, 6 and 7 regardless of whether that behaviour is of a

contractual, commercial or technical nature, or of any other nature, or consists in the use of behavioural techniques or interface design.'[13]

- Article 6(12) permits gatekeepers to impose conditions (including fees) on business users, i.e., apps, seeking distribution through the gatekeepers' own app stores. Those conditions must be FRAND and the gatekeeper must publish them.

G. Apple's Fees and Their Impact

Until the enactment of the DMA, Apple did not permit alternative distribution of apps on iOS at all. As of May 2024, Apple has implemented a variety of fees on app developers and rival app stores. We summarise these below and include details (including the cost of belonging to the Apple developer program) in the Appendix.

- *Fees imposed on rival app stores*: A fixed fee of .50€ times the number of annual users (after the first one million)
- *Fees imposed directly on third-party apps distributed through the Apple App Store*: The large developers pay either (a) 30% of revenue earned through in-app purchases, or (b) 17% of revenue plus 3% payment processing fee plus a fixed fee of .50€ times the number of annual users (after the first one million).
- *Fees imposed on third-party apps if they stop exclusive use of iOS*: If the developer uses any alternative distribution channel other than iOS for its app, including linking out to the web, it must move to option (b) above and thus pay .50€ per annual user regardless of the app store those users employ to get the app (meaning the sum of the users in the Apple App Store as well as in third party stores, less one million).

The first condition is an Access Fee charged to rival app stores because it is required for them to reside on iOS and it monetizes the existing network effects of the gatekeeper. With the third condition, Apple blocks the entry of rival app stores as well as sales through developer websites, thereby creating fees that work directly against contestability. Consider 'free' apps that are used by companies like banks, e-commerce, and offline business to connect to their customers, for example Santander, Amazon, and Deliveroo. Also relevant are apps supported by advertising such as Facebook, Instagram, and Sky News. Today these apps can pay zero in fees to reach their end users through iOS. If they choose to distribute through an alternative store, however, they must move to the new terms of the Apple store, namely .50€ per user per year (less the first one million users). Critically, *this fee is calculated on all installs regardless of the app store in which the downloads occur.* That is, the app developer must now pay .50€ for Apple App Store users it previously served for free.

For example, if Deliveroo distributes its app through a rival store, the company will have to pay .50€ for every user (after the first million) that it serves through the Apple App Store as well as for every user downloading the app through the alternative store. The same switch in terms is required if the developer updates its app to include a link out to the web.[14] The Apple pricing scheme effectively means that any app developer with millions of existing downloads will become liable for a very substantial annual fee to Apple the moment it decides to employ distribution options other than the Apple App Store.

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[13] Recital 50 DMA also covers this material.

[14] *See* Jaspreet Singh, 'Spotify says Apple has rejected its app update with price information for EU users,' REUTERS (25 April 2024), *available at* https://www.reuters.com/business/media-telecom/spotify-says-apple-has-rejected-its-app-update-with-price-information-eu-users-2024-04-25/#:~:text=%22Apple%20has%20once%20again%20defied,Spotify%20said%20in%20a%20statement.

An app developer is permitted under Article 5(4) DMA to tell its users about alternative distribution channels where they can find better or different offers and, with respect to those acquired users, Recital 40 clarifies that the gatekeeper cannot tax those communications or the resulting transactions with those users. Users might want to click on a link that takes them out of the app to a website where they can buy a subscription or a game for a lower price on the developer's own website compared with the price in the app. If the developer updates its app to contain these instructions and the ability to link outside, Apple requires the developer to move to the new terms. First, this means the developer must pay Apple the large annual charge of .50€ for all its users (less one million). The new terms require the developer to agree to pay Apple 17% of its sales initiated within two weeks through any click on the external link. Payment processing is widely viewed to cost about 3% of sales, meaning that if an app developer links out and pays Apple 17% of sales as a commission and 3% of sales in payment processing, its total commission is identical to what it would pay if it were to stay entirely inside the Apple App Store, which charges a 20% commission under the new terms.

By making alternative distribution channels as costly as remaining with the legacy app store and not attempting to link out, Apple's fee structure prevents disintermediation of the App Store. Overall, Apple's scheme has the effect of choking off demand for rival app stores as well as rendering direct distribution unprofitable for many developers.[15] These policies have triggered non-compliance proceedings by the Commission, including a preliminary finding of noncompliance in respect of Apple's restriction on app developer's ability to steer users to cheaper purchasing options outside the Apple App Store.[16]

It is interesting to speculate that the difference between apps and app stores may become less clear going forward. For example, some apps may be designed to encourage the user to download other apps. A player of Game A might be informed, while playing Game A, that she might enjoy Game B. Game A would at the same time offer the user the opportunity to buy game B within the environment provided by Game A—without the need to navigate to an app store. For the purposes of this paper, however, we keep apps and app stores as two distinct categories.

We note additionally that if there were vigorous competition among app stores—in other words, Apple's app store competed fairly with multiple third-party app stores—there would likely be no policy concern regarding the fees in the App Store. In that situation, if the fees Apple charged in its own store were higher than justified by its quality, at least some developers and end users would move to one of the many third-party app stores on iOS or link out to their own web distribution.[17] For this reason, the analysis below spends little time

[15] *See* Jacques Crémer, Paul Heidhues, Monika Schnitzer, and Fiona Scott Morton, 'Apple's exclusionary app store scheme: An existential moment for the Digital Markets Act,' *CEPR.org* (6 March 2024), available at https://cepr.org/voxeu/columns/apples-exclusionary-app-store-scheme-existential-moment-digital-markets-act.
[16] *See* Press Release, 'Commission sends preliminary findings to Apple and opens additional non-compliance investigation against Apple under the Digital Markets Act,' EUROPEAN COMMISSION (24 June 2024), available at https://ec.europa.eu/commission/presscorner/detail/en/IP_24_3433.
[17] Of course, the degree to which this form of competition actually restrains Apple's pricing in its own store depends on developer and end user awareness of alternative channels, the ease of switching to those channels, and whether the developers and end users procrastinate in switching. In this regard, we note that switching should become easier as a result of the Article 5(4) DMA and the Commission's decision in Case AT.40437 – Apple: App Store Practices (music streaming) (4 March 2024), *available at* https://competition-cases.ec.europa.eu/cases/AT.40437. Both require that Apple remove anti-steering provisions from its terms and conditions. This will allow apps that users currently operate via the App Store to inform these end users of cheaper options elsewhere.

on Apple's fees for its own distribution services. Future robust competition may provide helpful evidence on what constitutes FRAND app store terms and fees.[18]

H. Specifying a Compliant Fee Structure

Many regulations contain specific technical provisions established by the regulator that the regulated firms must follow. The DMA does not take this approach. Rather, under the DMA it is the gatekeeper's responsibility to find a way to meet the mandates and prohibitions of the law with regard to its app store fees.

At the outset of the specification process, it is the gatekeeper's obligation first to propose measures that it deems compliant with the DMA and provide a reasoned submission as to why it thinks the measures are compliant.[19] At the time of writing, the Commission has informed Apple of its preliminary finding that Apple's restrictions on the ability of app developers to steer users to cheaper purchasing options outside the Apple App Store—restrictions that include commissions on such purchases—violate Article 5(4).[20] The Commission also has informed Apple of the opening of a new investigation into whether certain of its new contractual requirements, including the imposition of a "Core Technology Fee" of .50€ per install for all apps and app stores, violate Article 6(4)'s obligation to provide "effective use" of Apple's operating system.[21] Apple's conditions for rival app stores and has preliminarily found noncompliance of Apple's solution for 5(4).[22] For the reasons set out above, we agree that the current Apple terms do not comply with the DMA. The commission on web sales, as well as the level of the Core Technology Fee and its structure, both harm the free choice of distribution by developers and interfere with effective use of the Apple operating system.

Given this conclusion, what is the next step for the Commission? Article 8(2) of the DMA allows the Commission to further specify what the gatekeeper must do to comply with the law. A compliant and proportionate scheme is a positive cost-based Review Fee and a zero Access Fee. The Commission should so specify. There may be further fees incurred from services that the gatekeeper provides, and possibly an Access Fee that improves contestability and advances social welfare, but it is up to Apple to propose them and to demonstrate that they comply with Article 6(4) and other relevant obligations.[23]

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[18] Art. 6(12) DMA.

[19] Art. 8(3) DMA. This assignment of responsibility takes advantage of the superior knowledge of the corporation about its own complex technology, its ecosystem, and its business strategy, particularly relative to the knowledge of regulators in Brussels on those subjects.

[20] *See* Press Release, 'Commission sends preliminary findings to Apple and opens additional non-compliance proceedings against Apple under the Digital Markets Act,' EUROPEAN COMMISSION (24 June 2024), available at https://ec.europa.eu/commission/presscorner/detail/en/IP_24_3433.

[21] *See id.*

[22] Art. 5(4) DMA: "The gatekeeper shall allow business users, free of charge, to communicate and promote offers, including under different conditions, to end users acquired via its core platform service or through other channels, and to conclude contracts with those end users, regardless of whether, for that purpose, they use the core platform services of the gatekeeper."

[23] Apple may argue that it should be permitted to continue to collect Access Fees while their legality is being litigated. This would impose significant costs on business users and also undermine both fairness and contestability, as described above. By contrast, specifying a zero Access Fee does not necessarily impose a monetary cost on Apple; whatever amount Apple is prevented from charging as Access Fees can easily be collected elsewhere within its ecosystem. The only advantage Apple will lose if the Commission specifies a zero Access Fee is the ability to use such fees to thwart the DMA's goal of opening up competition in app stores.

II. FAIR PRICING OF APPS AND APP STORES

The goal of the DMA to advance fairness between gatekeepers and business users is satisfied with an Access Fee of zero for rival distribution channels.

A. Contribution to Network Effects

We begin with the first goal of the DMA, which is fairness. Any method of monetizing a core platform service such as an app store must be fair. Crémer et al. (2023) provided a definition of 'fairness' tightly focused on economic principles and incorporating contestability:

> [T]he organisation of economic activity to the benefit of users in such ways that they reap the just rewards for their contributions to economic and social welfare and that business users are not restricted in their ability to compete.

The final version of the DMA, published after Crémer et al. (2023), contains a definition in Recital No. 33 (according to its opposite):

> For the purpose of this Regulation, unfairness should relate to an imbalance between the rights and obligations of business users where the gatekeeper obtains a disproportionate advantage. Market participants, including business users of core platform services and alternative providers of services provided together with, or in support of, such core platform services, should have the ability to adequately capture the benefits resulting from their innovative or other efforts.

This latter definition, though it uses the terms on "rights and obligations" in the first sentence, is entirely consistent with economic principles in its second sentence. We deploy these concepts as follows. Any consideration of a 'fair' fee for app stores should recognise and reward the benefits that app developers bring to users of the handset. Without a large number of developers offering useful functionalities, the size of the iPhone market would be far smaller. Indeed, this was Steve Jobs's conclusion back in 2008 when he opened up the App Store to third-party developers.[24] App developers bring users to the handset. While business users attract consumers to the ecosystem and those consumers purchase handsets, the consumers in turn attract business users who develop more applications. The platform gains from the trade between the two sides and can monetise it because of the strong network effects that prevent either side from leaving the platform easily.

Crémer et al. run a thought experiment in which end users and business users can coordinate to move simultaneously to a rival platform (in this case, a rival app store). The loss to participants from leaving Apple, or any given gatekeeper, will be relatively small if the main reason they participate in the store is because of the presence of the other side. In addition to access to the other side, the rival could have a better or worse interface that affects consumers' willingness to pay; either way, its impact is likely small relative to the value of the network effects. For this reason, any fair price the gatekeeper charges will be low because

[24] This is confirmed by some of the findings in the Commission's Apple decision. Evidence shows that large developers typically bring their own audience to their iOS apps typing the name of the service provider they are looking for. For example, Match Group found that the majority of new users from the App Store organically searched for its apps (e.g., by typing 'Tinder') while Apple contributed only 6% of discovery. In such cases, curation by Apple has little or no effect in-app discovery. Apple itself acknowledges that in general 65-70% of searches are for specific apps rather than searches for general topics such as music or travel.' Apple Decision, Case AT.40437, *supra* note 17 at para. 111, *available at* https://ec.europa.eu/competition/antitrust/cases1/202419/AT_40437_10026012_3547_4.pdf.

it will reflect *only* the gatekeeper's value added, not the value added by the group of end users and the group of business users.

Indeed, one might reasonably conclude that the fair price Apple should charge a rival app store for the privilege of residing on iOS should be *negative*. This is because we can presume that new, exciting, and innovative app stores will attract new developers and drive end user engagement, making the handset more valuable to both sides of the platform and therefore also to Apple (in ways Apple can freely monetise as described above). We have no direct evidence of this, but we can look by analogy at evidence from other handset manufacturers' efforts to attract developers to their platforms. Huawei, for example, was willing to spend $1.5 million to attract developers to its platform after losing access to the Play Store.[25]

Similarly, Microsoft was reportedly willing to pay developers $600,000 per app to be placed on the Windows phone.[26] Because, as we have described, apps and app stores both increase the value of handsets, there is no reason to think that Apple should not fairly be expected to pay third-party app stores for their presence, just as Huawei and Microsoft were willing to pay apps for their presence.

Each mobile operating system gatekeeper initially began life with a business model that did *not* rely on selling business users access to its platform. Each earned revenue from end users. Apple sold a handset that comes with an operating system and other hardware, while Google sold advertising. For both gatekeepers, the network effects generated by developers were, and are, critical to making the business model work.

Another issue with making an assumption about the sign of net value creation for any given developer is that many app developers such as Netflix or the Financial Times pre-dated the iPhone. The new app distribution channel allowed for more functionality and was efficient for these developers. However, many of their users had subscribed or became familiar with their services before the App Store was invented. Indeed, the arrival of an existing popular service on the handset increased its value to users and drove network effects that benefited Apple. For a gatekeeper to later justify any charge as a 'customer acquisition fee' is therefore illogical.

Even after an app store is entrenched, and is designated as a gatekeeper, the need to attract more interesting developers to increase the use and value of the device and its ecosystem means that gatekeepers do not generally find it in their interest to impose high fees on most developers.[27] QR ('quick read') codes offer a prime example of this positive feedback loop.

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[25] *See* Joe McDonald, 'Huawei races to replace Google apps for next smartphone,' AP NEWS (2 Jan. 2020), available at https://apnews.com/huawei-races-to-replace-google-apps-for-next-smartphone-7323f8303d398c762d1866d7ba26657e.

[26] *See* Preston Gralla, 'Microsoft Subsidizes Developers up to 600,000 per Windows Phone App,' *COMPUTERWORD*.com (6 April 2012), available at https://www.computerworld.com/article/1492359/microsoft-subsidizes-developers-up-to-600-000-per-windows-phone-app.html; Walter Frick, 'App Developers: Here's How to Get Paid Properly,' *MIT Technology Review* (4 Dec. 2012), available at https://www.technologyreview.com/2012/12/04/181333/app-developers-heres-how-to-get-paid-properly/; Jenna Wortham and Nick Winfield, 'To Fill out its App Store, Microsoft Wields its Checkbook,' NEW YORK TIMES (5 April 2012), available at https://www.nytimes.com/2012/04/06/technology/to-fill-out-its-app-store-microsoft-wields-its-checkbook.html.

[27] Apple itself points to the supposedly low fees it charges developers as a key economic driver of its thriving app ecosystem. The subtitle of a 2023 press release proclaiming that the Apple ecosystem generated a total of $1.1 trillion in billings and sales in the prior year practically brags that 'More than 90 percent of billings and sales accrued solely to developers without any commission paid to Apple.' *See* Press Release, 'App Store Developers Generated $1.1 Trillion in Total Billings and Sales in the App Store Ecosystem,' APPLE.COM (31

First developed in 1993, QR codes did not immediately gain traction with device users. Indeed, clunky and ill-conceived early uses—plastering a QR code on the side of long-haul truck or on a billboard aside the interstate highway—made QR codes the frequent butt of jokes among marketers and advertisers. The principal explanation for QR codes' initial 'failure to launch' is that they required specialised readers. This made the codes useful to consumers only in a narrow set of applications (e.g., when scanning an airline boarding pass at a gate with an embedded QR code reader) but useless in most other settings.

This all changed in 2017 when, in connection with the iOS 11 update, Apple incorporated a QR code reader in its native camera app. Millions of users suddenly and for the first time were carrying QR readers in their pockets. A developer who could find a cool use for the new technology would give users a reason to upgrade their handset and spend more time on it watching advertising. This spurred advertisers, marketers, and developers to experiment with countless new, consumer-friendly uses for the QR code, for example embedding the links in product labels to give easy access to useful and engaging information.[28]

The explosion of exciting new QR code placements encouraged users to update to iOS 11 more quickly than they might have otherwise. It also provided users even more frequent reasons/excuses to pull out their phones, making the users more excited about the products whose QR codes they scanned *and* more available for ad delivery from other advertisers as well. All sides of the platform reaped the benefits of Apple's inclusion of the QR reader. And, of special significance to this paper, so too did Apple, even though Apple charged no access fee whatsoever (to developers, to marketers, or to users) upon embedding the QR code reader in its camera app.

Apple's price of zero for developer access to such APIs may reflect the economic value that developers contribute to the gatekeeper's business, in particular the network effects needed for a successful OS or app store. By offering access to APIs at no charge, gatekeepers help induce developers to take commercial risks, which they hope will yield exciting apps that draw users to the operating system and create lucrative network effects for the gatekeeper.

May 2023), available at www.apple.com/jo/newsroom/2023/05/app-store-developers-generated-one-point-one-trillion-in-total-billings-and-sales-in-the-app-store-ecosystem-in-2022/. More recently, Apple reportedly has asserted that 85% of apps pay no commission. Google Play's website asserts that a whopping 97% of apps pay nothing for distribution on Google Play. *See*, *e.g.*, Jason Knowles & Ann Pistone, 'Hidden fees could mean you're paying 15-30 percent more for your apps,' ABC7CHICAGO.com (9 Feb. 2024), available at https://abc7chicago.com/apple-app-store-google-play-apps-hidden-fees/14404977/. Plainly, these companies perceive significant value in the distribution of apps that draw end users to their device, which raises the question why Apple insists on charging a large commission specifically to those business users that pose the most significant competitive threat. Consider also that Google charges a one-time fee of $25 for all developers (*see* https://support.google.com/googleplay/android-developer/answer/6112435?hl=en#zippy=%2Cstep-pay-registration-fee); the Apple Developer Program has remained at $99/year (*see* https://developer.apple.com/programs/whats-included/). These fees are for the base level software development kit. Though there are some additional tiers that cost more, and though some developers contend that all software development kits should be free, these membership costs have stayed relatively modest. Further, using mac iOS to develop an app prior to any attempted distribution is free. *See* https://developer.apple.com/support/compare-memberships/.

[28] *See* Bennet Travers, 'Did Apple Just Resurrect QR Codes?' NEBO, BACK TO THE BLOG (Nov. 29, 2017), https://www.neboagency.com/blog/apple-resurrect-qr-codes/ ('Maybe you want to know more details about a rug you see in a store labeled Fair Trade Certified. You can open your camera app, hold it over the product tag, and instantly see a video of the rug's origin story and journey to existence. Or say you're at dinner drinking wine you really love and want to know about the vineyard, vintage and good food pairings — just scan the QR code on the bottle.').

B. A Fair App Store Fee

As mentioned previously, the DMA does not prohibit gatekeepers from charging a Review Fee so long as the fee does not prevent effective access to the operating system.

Theorizing about whether there ever could be a DMA compliant Access Fee is more difficult, however. One could—at least in principle— try to separate out the value of superior technology from the network effects and explore a way for the gatekeeper to charge for the former. However, the superior technology is due, at least in part, to the fact that the gatekeeper's platform has enjoyed superior learning by doing over the years as well as to the benefits that it derives from the data it has acquired thanks to network effects. Thus, network effects will always be the source of at least some of the gatekeeper's advantage and these may not be monetized in an Access Fee. The difficulty of proving the value of superior technology—entirely separated from the market power of network—is one that the gatekeeper must surmount if it wants to justify a fee based on some technological offering.

In aggregate, apps have brought, and still bring, as much benefit to the gatekeeper as the gatekeeper does to the developers.[29] It is therefore unfair for Apple to then trap the business users on the platform—which is an element of the ecosystem they co-created—with a monopoly app store and high costs of distribution. Business users have no choice but to accept the Apple commission and Core Technology Fee ("CTF") because of its entrenched market power derived from these network effects. By contrast, the availability of rival app stores and links to web sites give developers a choice about how to distribute. Accessing those alternative distribution channels lets apps keep a greater share of the surplus they generate. Fairness therefore requires that there are no barriers put in place to the effective functioning of rival app stores. Fees levied by the gatekeeper on developers wanting to use those stores or link to the web to carry out their own sales are likewise unfair. In addition to access restrictions and fees being forbidden, some other kinds of fees or technical limitations on distribution for business users could be unfair because they are an inaccurate reflection of their contribution to the platform. The gatekeeper remains responsible for showing fairness and contestability of these other fees.

One of the original justifications offered by Apple for its developer commission was as a 'finders' fee' for delivering their wealthy and tech-savvy consumers to business users.[30] This sounds like a version of a fee permitted by the DMA, an 'initial customer acquisition' fee. However, a monopoly gatekeeper benefitting from powerful network effects is not 'finding' many people today because (virtually) all end users single home on a gatekeeper platform already. For example, if such a user has searched the app store for 'Spotify,' it is more likely that the Spotify created that demand than that Apple specifically invested to bring a group of

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[29] This observation has led one commentator to conclude:

> The pie should be divided so that the gatekeeper is remunerated in proportion to the net incremental value of the gatekeeper's platform relative to its next best alternative. This means that it is able to appropriate the full value of its superior technology but not the value associated with the network effects that characterise the core platform services regulated by the DMA. The practical implementation of this surplus-sharing rule is difficult but not impossible.

Jorge Padilla, 'Fairness and Contestability in the Provision of Software Application Stores Services,' JOURNAL OF ANTITRUST ENFORCEMENT (2024) 1, 5.

[30] The Commission's 2024 decision recounts Steve Jobs's own explanation of this justification, quoting Jobs in 2011 as stating: '[O]ur philosophy is simple—when Apple brings a new subscriber to the app, Apple earns a 30% share; when the publisher brings an existing or new subscriber to the app, the publisher keeps 100% and Apple earns nothing.' Apple Decision, Case AT.40437, *supra* note 17 at para. 111, *available at* https://ec.europa.eu/competition/antitrust/cases1/202419/AT_40437_10026012_3547_4.pdf.

music enthusiasts to Spotify. Instead, as described above, it may be the arrival of the Spotify app that attracts the music enthusiasts to the ecosystem in the first place or deepens their engagement with it.[31]

To the extent Apple justifies an Access Fee such as the CTF as the 'initial customer acquisition fee' the DMA contemplates, this likewise fails a fairness test.[32] Moreover, an 'initial' fee is clearly time limited and does not attach to the customer's relationship with the app store or app *ad infinitum*. For example, an 'initial customer acquisition fee' that took the form of advertising within the App Store when a user searches for 'music app' could be perfectly fair as it performs a match within the ecosystem that is time limited. Ordinary non-deceptive advertising by app stores may be compliant with the DMA for this reason.

A Review Fee, as described above, is fair if it is appropriately related to the cost of the necessary review activity. If a gatekeeper, for example, needs to do a security check that ensures the app is not a security risk to the handset, works as promised, and protects personal data according to the law, the costs for doing so are also a social cost. For incentive reasons also, these costs should be borne by the business user. App or app store review costs, however, are likely to be largely independent of how many people use the store, independent of whether an app or app store shows advertising to users, whether it has an upfront purchase price, or earns money from in-app purchases. If the cost is independent of the revenue an app generates than so should be the fee collected to cover them. A compliant Review Fee will efficiently allocate the costs of carrying out the review and we expect this fee to be both fixed and positive.[33]

III. CONTESTABILITY AND THE PRICING OF APPS AND APP STORES

The goal of the DMA to advance the contestability of gatekeeper markets is also satisfied with an Access Fee of zero for rival distribution channels.

A. Positive Access Fees Undermine Contestability

The second goal of the DMA after fairness is contestability, which is defined as follows in Recital 32 DMA: "For the purpose of this Regulation, contestability should relate to the ability of undertakings to effectively overcome barriers to entry and expansion and challenge

[31] It may be that very few end users adopted the iPhone specifically to access Spotify, but it is easy to imagine ways in which Spotify's presence (or the presence of any number of other apps) could lead end users to engage with their devices more frequently and for longer stints. A gym goer who might usually leave her device in her locker might, after downloading Spotify, keep her device with her so she can listen to music while on the treadmill. Increased engagement of this sort contributes value to the ecosystem and benefits all categories of participants.

[32] Our point is not that the DMA makes any fee based on the 'finder's fee' theory unfair or noncompliant. To the contrary, the DMA contemplates that the Gatekeeper may charge 'for facilitating the initial acquisition of the end user by the business user.' *See* Recital 40 DMA. But, once the end users are acquired, the DMA makes clear that business users (apps or app stores) should be free to communicate and conclude transactions with their end users through whatever channel they choose, without paying additional 'finder's fees.' This is to 'prevent further reinforcing their dependence on the core platform services of gatekeepers, and in order to promote multi-homing.'

[33] One may be tempted to argue that charging a percentage of revenue allows risk-sharing between the business user offering the app and the gatekeeper. But given that the fee for such security checks is likely to be very modest and in line with what firms have to pay now to be enrolled in Apple's developer program, such risk-sharing incentives are unimportant in practice.

the gatekeeper on the merits of their products and services." This means that gatekeepers cannot unduly use their gatekeeping power to monopolise or otherwise tilt the playing field in their favour when competing in other services such as those apps or apps stores provide. An app store, and sometimes an app itself, competes either with the monopolist itself (e.g., the Apple App Store, Apple music) or with another app that is favoured by the gatekeeper (e.g., one that pays the gatekeeper as Google does for search access points). Contestability requires that the rival app store be able to get onto the handset and offer apps at similar terms to the gatekeeper's store. Since the gatekeeper's store pays no fees to the gatekeeper, this creates a benchmark of zero fees for the rival store. Technical barriers or contractual ones would likewise constitute other straightforward hurdles that the law prohibits. If an entrepreneur wishes to launch a rival third-party store to contest Apple's monopoly distribution channel, it must have the same costs and functionalities as Apple or the market will not be contestable. For Apple to then charge an Access Fee on third-party app stores is *a priori* inimical to the DMA.

Consider the alternatives that developers have when considering use of rival app stores. A rival store must offer improvement over its customers' other options, namely using the gatekeeper's store or disintermediating and sending the consumer to buy on its own website. If gatekeepers allow linking out to function freely, the developer will calculate its cost of setting up and running its website. It will compare that to the fees charged by the various stores on the platform. If a gatekeeper can charge access fees to an entering app store, that store would have to pay the costs of its own operations as well as the gatekeeper's fee. If the rival store attempts to add the gatekeeper fees onto what it charges app developers, those app developers could be driven to use the gatekeeper's own app store (if its prices are lower) or disintermediate stores entirely and link out to the open web where they would pay only the cost of operation.

This outside option of disintermediation is a significant constraint on the prices a third-party store can charge, as well as on the prices the gatekeepers' stores can charge. Recognising the power of disintermediation explains why both Apple and Google have chosen to impose the same fees for sales on the web as they do in their own stores. When fees to sell on the web are eliminated but the gatekeeper charges rival stores an Access Fee, such stores will have a much harder time competing with web sales as well as gatekeeper app stores. Conversely, eliminating Access Fees will allow rival app stores to be competitive with external channels as well as the gatekeeper's own store.

Contestability in apps, app stores, and mobile operating systems will increase for three distinct reasons when there is a right of access without charge. First, businesses will have increased incentives to enter due to the prospect of connecting with the many end users on the other side of the interface. Second, a regulated interface gives business users not just the right to access to that interface, but certainty about that right going forward, again increasing the incentive to invest. The right of access has a final competitive implication: the DMA protects a business that innovates in a way that creates a potential future competitive threat to the gatekeeper. This is likely to be the case for app stores, particularly those that become middleware and threaten the market power of Apple. Thus, in the long run, the right of access can create contestability for the platform itself.

To the extent that third-party apps delivered through third-party app stores can evolve into competitors for platform services of various kinds in the future, gatekeepers have incentives to foreclose that channel of distribution. Importantly, when a rival store has the right to access a gatekeeper's interface for no Access Fee, neither the store nor the app itself is controlled by the gatekeeper (other than through the security review process). Either can

develop its technology in any direction it chooses and monetise that business model. A 'super-app' could enter this way and become the core of a new platform that competes in some way with incumbent platforms, benefitting consumers. The possibility of increased contestability in the future may be why the gatekeeper does not allow rival app stores today. The DMA allows more creative directions for innovation and technology to have a chance of facing a market test with users, rather than being shut down by the incumbent gatekeeper. This discussion makes it clear why a positive Access Fee harms contestability in many markets; monetizing the market power that comes from network effects restricts the entry of potential competitors in mobile operating systems as well as app stores.

B. Tradeoffs

It is interesting to speculate on whether it is possible to set up the social planner's problem and solve for optimal prices for all the elements of a mobile ecosystem while excluding the impact of market power on app store fees and including the complementarities between elements of the ecosystem. If this problem could be solved, in principle a gatekeeper could use it as a method to prove the fairness and contestability of the resulting fees. To our knowledge, this problem is too difficult for existing economic methods. In addition, there is the empirical challenge that costs, demand, and technology evolve, so the policy target would be constantly moving.

Without this full model, one cannot use standard economic methods to determine if there is a tradeoff, or economic cost, to specifying an Access Fee of zero. However, even without these tools, there are several reasons to conclude that there is very likely little to no welfare loss from setting this fee to zero. First, third-party app stores are direct competitors (though still 'potential competitors' since they have not yet entered) to the gatekeeper app stores. Ordinary competition harm to consumers in a monopoly app store market is likely to outweigh indirect benefits (undertaken in the least anticompetitive way) to the consumers in those stores.

Second, the innovation that is likely to flow from competition in app stores is significant. We can see from the opening up of consumers' television service to Netflix, Disney, Roku, Hulu, and many others, just how much consumers value choice. The new environment in app stores is likely to drastically increase consumer surplus and business user profit. For example, a few of the stores that are already poised to enter include Epic, Microsoft, and the startup AltStore.[34]

Meanwhile, the many ways that gatekeepers can charge for other products and services within their ecosystems allow them to respond to demand in a way that maximizes revenue from the entire ecosystem. Moreover, this multiplicity of revenue generation points ensures that the gatekeepers will continue to have the incentive to innovate to improve their ecosystems. Apple can increase the price of its handsets or advertising in the app store, for example. Google likewise has prices and services unconstrained by the DMA that it can use to respond to demand and monetise inventions. It is important to be clear, however, that these other policies and prices may not be used to circumvent the DMA.

Third, the existing app store policies were not chosen to be optimal. There is abundant evidence that gatekeepers have little to no analytical justification for their access fees. For example, in setting a 30% commission fee on in-app purchases, the costs of running the App Store were not considered; rather, the percentage came from the cost of credit card processing

[34] *See* Jacob Kasternakes, 'Epic intends to launch its game store — and Fortnite — on iOS,' THEVERGE.com (25 Jan. 2024), available at https://www.theverge.com/2024/1/25/24050800/epic-games-store-fortnite-apple-ios-launch-eu-dma.

on a $.99 song sale.[35] According to the Commission, furthermore, '[t]he economics of and the impact on the downstream markets were not taken into account when setting the level of the fee.'[36] This was confirmed by Apple's external economic adviser:

> The point is that the totality of the investments, and not just in the App Store, but in fact in the entire ecosystem, are monetised through a complex set of tools [. . .] or channels: the App Store commission, services, most importantly the price of the device that is the main means through which investments are recovered, and advertising. So you have a set of channels through which you recover investments. The point I am trying to make is that that 30% commission is not even what is required to map exactly into the investment into the App Store. It's one of the channels through which monetization occurs for the entire ecosystem.[37]
>
> The monetisation objectively falls on a category of developers and there is vast cross-subsidisation to a huge tail of developers who pay zero, so benefit, get a sweet-heart deal, from this business model.' The point is, someone needs to pay, and at the moment, there is a bunch of people who pay, but if you change that bunch of people, someone else needs to pay.' The same adviser further noted that 'by definition, what I am saying is that in a world in which somebody pays and somebody doesn't, those who don't pay are being cross-subsidised. It's an objective observation. The point of how much of this is effectively going to be the component, I don't know, no-one does those calculations.'[38]

Apple and Google have both shown their willingness to lower fees for app developers in response to public pressure—and to do so simultaneously and in round numbers. These are not characteristics of solutions to difficult engineering problems that vary by platform. For example, in 2021, in response to the pandemic, Apple lowered its fees on small developers and for subscriptions. Google implemented identical fee changes directly after Apple announced its move.[39]

IV. LESSONS FROM ECPR

We now evaluate the utility of the Efficient Component Pricing Rule (ECPR) in determining whether there is a DMA-compliant role for Access Fees. We emphasize below that it is critical *not* to carry over old practices and intuitions from regulated telecommunications or other non-digital industries for which ECPR was developed.

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[35] "There was some precedent for how Apple arrived at 30%. Apple had been charging roughly the same commission on music sales on its iTunes software. For each 99 cent song it sold, Apple passed on 72 cents to major music labels and 62 cents to independent labels . . . ." *Jack Nicas,* 'How Apple's 30% App Store Cut Became a Boon and a Headache,' NEW YORK TIMES (14 Aug. 2020), available at https://www.nytimes.com/2020/08/14/technology/apple-app-store-epic-games-fortnite.html (citing Nick Wingfield & Ethan Smith, 'Music's New Gatekeeper,' WALL STREET JOURNAL (9 March 2007), *available at* https://www.wsj.com/articles/SB117340340327331757.)

[36] Apple decision, *supra* note 17, at para. 126.

[37] *Id.* at para. 806.

[38] *Id.*

[39] *See* Lauren Feiner, 'Google slashes service fees in its app store after similar move by Apple,' *CNBC.com* (21 Oct. 2021), available at https://www.cnbc.com/2021/10/21/google-slashes-service-fees-in-app-store-after-similar-move-by-apple.html.

A. ECPR Oversimplifies the Complexities of App Store Ecosystems

We note as an initial matter that, although ECPR may at one time have enjoyed popularity among economists as a topic for theoretical debate, it found little purchase in the real world, with regulators of legacy industries mostly ignoring or rejecting it as a basis for price regulation.[40] Digital gatekeepers are different than non-digital legacy monopolists in important ways that make ECPR even less likely to offer regulators simple solutions to difficult pricing problems than it offered in those other settings it was developed for. The technologies themselves have different characteristics from past networks as do the gatekeeper business models, so the analytical path used to regulate them will also different. In particular, the setting of ECPR is that of competition in a downstream market between a provider of the basic infrastructure used by itself and rival downstream firms. Moreover, the products sold in the downstream market are very similar across firms. This is quite different from the competition among digital platforms and complex ecosystems in today's digital markets. If ECPR proved overly simplistic for practical application in non-digital legacy industries, there is no basis to presume its straightforward application somehow will generate useful results in two-sided digital markets, the more complex dynamics of which are even less understood.

An important recent paper, Bisceglia and Tirole (2023) (hereafter BT), has rekindled an interest for an adaptation of the ECPR model to the economics of apps and app stores.[41] We have already briefly alluded to this earlier, but in this section we would like to expose in greater detail what we can learn and what we cannot learn from this adaptation.

ECPR was developed in the 1970s and 1980s as the deregulation of the large utilities led to a new problem. For instance, a monopolist provider of the local telephone services might compete on the provision of long-distance calls with other long-distance operators who must use the monopolist's local services to access end consumers. Regulators wondered what 'access fee' the local monopolists should be allowed to charge. As Baumol and Willig put it, 'When several firms compete with one another in the sale of an identical final product, where one of the firms is the monopoly owner of an input that is indispensable in the supply of that product, the problem is how competition in the final product market can be preserved and not tilted to favor either the owner of the input or the owner's rivals.'[42] A competitive market in the final product would also align incentives both for use of the service as well as ongoing investment and innovation, generating positive consequences for allocative efficiency, investment in the network, and social welfare.

ECPR, as developed by Baumol et al., is the solution that comes out of a simple competitive model and therefore provides an initial benchmark for an optimal access fee. The basic idea of ECPR is that the monopolist should 'charge' competitors the same price it charges itself for

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[40] In a 2006 decision, for example, the UK Competition Appeal Tribunal rejected the use of ECPR as a helpful tool for resolving a dispute regarding water transport rates to be charged by a vertically integrated common carrier water system. The tribunal noted that 'ECPR is in fact a controversial methodology, both in the academic literature and in regulatory practice,' noting that it 'had not been presented with any examples of case studies of ECPR being successfully used.' *See Albion Water Ltd. v. Water Services Regulation Authority* (6 October 2006), paragraph 738, at 218, *available at* https://www.catribunal.org.uk/sites/cat/files/Judge1046Albion061006.pdf.

[41] *See* Michele Bisceglia & Jean Tirole, 'Fair Gatekeeping in Digital Ecosystems,' TOULOUSE SCHOOL OF ECONOMICS, Working Paper No. 1452 (June 2023), available at https://www.tse-fr.eu/sites/default/files/TSE/documents/doc/wp/2023/wp_tse_1452.pdf.

[42] *See* William J. Baumol, Janusz A. Ordover, and Robert D. Willig, 'Parity Pricing and Its Critics: A Necessary Condition for Efficiency in the Provision of Bottleneck Services to Competitors,' 14 YALE J. REG. 145 (1997). This article, written for a non-economic audience, provides a readable introduction and defense of ECPR.

the essential input. But what is the price the monopolist charges itself for the input? It is the opportunity cost if that input is used by a competitor rather than the monopolist itself, namely the margin on the lost sale. The monopolist sells one less unit of final output and therefore has a *lost profit margin* when it offers capacity to the rival.

An example might help to build intuition for this idea. Assume the price of the final product is 10€ per unit, and that producing that unit costs 3€. The monopolist therefore earns a net 7€ of gross economic margin. Then, forfeiting the use of the intermediate product to accommodate a competitor has an opportunity cost of 7€ for the monopolist and this 7€ is the access price that the ECPR recommends. If the monopolist charged more, there would be circumstances in which competitors would not access the essential input despite the fact that they could use it more effectively than the monopolist. If the monopolist charged less, there would be cases where the competitors would request access despite the fact that they use the input less efficiently. *We should stress that this presentation hides a number of difficulties, some of which we will discuss below.* In particular, whether the 10€ of our example is a competitive price or a monopoly price is critical. The ECPR logic in this simple form does not work if the monopolist is charging a monopoly price.

One of the attractions of ECPR is its apparent simplicity. As Armstrong, Doyle and Vickers have pointed out, however, this simplicity 'may be a misleading artefact of simple examples with extreme elasticities.'[43] In the rest of this section, we will discuss some of the assumptions underlying the simple ECPR rule and argue that, apart from providing an interesting intuition, it does not provide much guidance for app and app store pricing.

B. Monopoly Rents Must Be Subtracted from Any Margin

As we have stated above, the final price used in the computation of the ECPR is not necessarily the price that is actually charged by the monopolist. Assume, as it would typically do, that the monopolist chooses an above cost price, which includes a monopoly rent. Applied blindly, the ECPR would have the competitor compensate the monopolist for the loss of monopoly profits! This is explained by Baumol, Ordover and Willig: "We have consequently always maintained that efficiency requires both ECPR and some arrangement that prevents overpricing of both final product and bottleneck input and, consequently, that removes all monopoly profit from the opportunity cost component of [the ECPR formula]."[44] The correct use of the ECPR would therefore require that the price used in its computation is the price that would obtain if there were competition in the monopolist's market. Computing that price is an enormous task and is even more difficult in the case of the digital economy where there are few benchmarks of 'perfect' competition in two-sided platform markets.

This conclusion can also be understood using the logic of the DMA's goal of contestability. It requires a reduction in barriers to entry and the creation of an environment that allows rivals and business users to compete on the same terms as incumbents. Setting an access fee at the level of the profit earned by the gatekeeper from its own application builds the advantages of the incumbent into an effective entry barrier. Thus, such a fee blocks entry, which is the most important element of contestability.

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[43] Mark Armstrong, Chris Doyle & John Vickers. 'The access pricing problem: a synthesis,' *THE JOURNAL OF INDUSTRIAL ECONOMICS* 131 (1996).

[44] *See* Baumol et al., *supra* note 42.

C. *The DMA Is Not Currently Set Up To Allow the Commission To Set Regulated Prices for all the Products and Services of Designated Gatekeepers*

Not only will it be difficult to calculate such a competitive price, it must then be imposed on the gatekeeper's service. ECPR was developed for industries moving from full price and product regulation (e.g. electricity, telephony) to a partially deregulated system, so there was already an established regulator accustomed to setting prices and with the appropriate legal authority and process. In the case of the DMA, the industry is taking its first step towards regulation. The regulator with price-setting competency and broad price-setting authority are missing. Moreover, because "price" in the digital economy often takes the form of bartered data, a "price regulator" for digital platforms must also be a data regulator. The legal structure for a dual role is complicated.

Until the regulated price has been determined and then legally imposed by a regulator, ECPR will not work as it is designed to.

D. Monopoly Rents Created by Network Effects May, in Practice, Constitute the Bulk of the Gatekeeper's Margin.

Before pursuing our analysis, it may be worthwhile reminding the reader of the source of the margins of the gatekeepers. The consequences of switching costs and network effects for the profits of the firms at the nexus of network effects have been discussed at length and are well documented,[45] and we will only briefly summarise the argument. We start with a simple model of reality. Assume that a new form of communication is emerging. There are a number of competing firms that offer very similar services. The users will all want to join the same network, each user wanting to benefit from connection with as many partners as possible. Once the market has 'tipped' and there is a winning dominant network, it is, as experience has proven, very difficult for those users to coordinate a migration to a better platform *even if* quality is degraded by the platform they are on, or the price increased. As a consequence, the first firm that succeeds in solidifying these network effects can generate profits that are much greater than the social benefits that are due to the quality of its network. Entrenched gatekeepers may continue innovating and improving the quality of the services they offer or they may make the product more exploitative; either way, their incentive to do so is not driven by competition or the fear of losing users to rivals. Regardless of what happens next, the main message remains valid: the potential benefits of being the first mover in the digital economy can be disproportionate to that firm's contribution.[46]

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[45] *See* European Commission, Directorate-General for Competition, Montjoye, Y., Schweitzer, H., Crémer, J., *Competition Policy for the Digital Era*, Publications Office (2019), https://data.europa.eu/doi/10.2763/407537; *Unlocking Digital Competition, Report of the Digital Competition Expert Panel* (March 2019), available at https://assets.publishing.service.gov.uk/media/5c88150ee5274a230219c35f/unlocking_digital_competition_furman_review_web.pdf; *Stigler Committee on Digital Platforms, Final Report* (September 2019), available at https://research.chicagobooth.edu/stigler/media/news/committee-on-digital-platforms-final-report.

[46] The discussion above makes plain that applying ECPR in a two-sided market that overcompensates the first mover relative to its contribution will lead to yet further overcompensation of the firm controlling the input. This distorted overcompensation would be even more unjustified if the firm controlling the input violated any competition law to achieve its position, as some of the firms designated as gatekeepers have been alleged or shown to have done.

The incumbent's network effects generate market power that disadvantages entrants. It also brings other competitive benefits to the incumbent. It creates economies of scale,[47] which lower the cost of the gatekeeper's activity relative to entrants. It allows for the capture of personal data that both allows for a better personalisation of the service and increases the value of advertising, which is often an important source of revenue for the gatekeeper. In most cases, entrants do not benefit from all these elements, and the ECPR rule should be adapted for all of these elements to arrive at the optimal fee.[48]

In addition, the DMA's fairness goal requires rebalancing the rents derived from network effects so that, at least as regards to business users, the rents are adequately captured by the business users who helped to create those network effects.[49] These business users, of course, include those seeking access to the gatekeeper's platform. As noted above, while any one app only adds a small amount to the value of a mobile operating system, together, the developers are responsible for close to the entirety of the network effects. For example, if all developers left the Apple app store and distributed their software through an alternative channel, the Apple App Store would lose its customers (except, presumably, those seeking the apps supplied by Apple). This pattern would render it incorrect to assign even a substantial part of the value of the network effect to the gatekeeper.

E. Innovation

Some authors argue that reforms that eliminate Access Fees will decrease the incentives for innovation. We believe that this is wrong. When network effects are strong, an epsilon advantage by one competitor can cause the market to 'tip' in its favor and thereby deliver large and durable monopoly profits. In this setting, the incentives to innovate are very strong when platforms are competing to become the nexus of strong network externalities, *i.e.* at the start of the industry. Once a few firms have succeeded in entering the market and establishing themselves the incumbents have weaker[50] incentives to innovate, and entrants are discouraged from innovating as conquering any market share becomes very difficult.

Similarly, many authors assert that a low regulated price is harmful because it decreases the incentives for innovation, or analogously, that a low regulated price is tantamount to ex post holdup of efficient investments. But our arguments above demonstrate that this is misleading. The incentive that is being reduced is the incentive to 'win' which is not the same as the incentive to innovate. Getting a market to tip in favor of one competitor is often achieved through alliances, tying, mergers, etc., and the current environment creates excessive incentives to engage in these tactics. While that environment also includes incentives to innovate, an open ecosystem maintained through regulation arguably creates stronger incentives to innovate because business users and end users can easily move their business to a better service. As far as we know, this tradeoff and its consequence for optimal access fees,

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[47] Economies of scale refers to the fact that the cost of serving more customers is less than proportional to the number of customers.

[48] There has been very little formal economic analysis of this problem. D. Yannelis,, in the article entitled 'On access pricing with network externalities,' ATLANTIC ECONOMIC JOURNAL 30, 186-190 (2002) provides an interesting first analysis along these lines, but he assumes that the network externalities affect only the customers of the competitor.

[49] *See, e.g.*, Crémer, at al, 'Fairness and Contestability,' *supra* note 4.

[50] Because the value of incumbency advantage is very high, the incumbent will continue innovating to protect it if necessary. The innovation incentives will, nevertheless, typically be lower than at the beginning of the industry.

including the way in which the ECPR should be interpreted when there are network externalities, has not been explored in the economics literature.

F. Zero Lower Bound

Services supported by advertising often charge one side of the platform (often end users) a zero-cash price while charging advertisers (or other business users like sellers) a positive fee. This 'zero lower bound' outcome arises because the revenue from advertising (or from sellers) is so large that the gatekeeper would like to attract more end consumers. A brick-and-mortar business that wants more customers would normally consider charging a lower price. This is a common way restaurants or automobile manufacturers attract more sales, for example. In the case of digital businesses that want to attract end users so they can expose them to valuable advertising, they have lowered the price as far as they can—to zero—unless they create a mechanism they can use to subsidise consumers.[51] Such mechanisms exist in the credit card industry, for example, when cards have no annual fee and earn consumers valuable points. But if the business does not lower price below zero (pay a subsidy to users) when those users bring in profit, the platform's price of zero is necessarily above the competitive level.

BT analyse gatekeeper access fees relative to an ECPR benchmark. They stress the consequences of what they call the 'Zero Lower Bound,' that is the fact that it is generally impractical to charge a negative price.[52] An important result in the paper is that the welfare-maximising access charge is below the profit maximising access charge. In other words, the fee the gatekeeper charges when left to its own devices is above the ECPR fee, which is itself higher than the socially optimal fee.

In the BT model, apps earn their owners a benefit that arises through an interaction with the end consumer. This benefit could be a sale of content, valuable data, the sale of advertising, revenue from a freemium business model, etc. Because the developer bears zero marginal cost of serving an additional consumer, the developer is happy to charge a money price of zero in order to earn a positive data or advertising benefit. In the BT model (where there is no monopoly rent), the welfare-maximising access charge is equal to the benefit the developer (who may be the gatekeeper also) earns from a consumer's use of the application.

App margins due to targeted advertising are likely to fall in Europe going forward.[53] The types of data that can be processed in the EU and the uses they can be put to are increasingly restricted by new European laws like the DMA. Moreover, these laws typically require

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[51] Some of these authors have explored the possibility of one mechanism that would do just that, creating a market for personal data whereby platforms and others would pay end users for the use of their data through entities some of us have envisioned as 'data intermediaries.' *See generally* Dirk Bergemann, Jacques Crémer, David Dinielli, Carl-Christian Groh, Paul Heidhues, Maximilian Schäfer, Monika Schnitzer, Fiona Scott Morton, Katja Seim, Michael Sullivan, 'Market Design for Personal Data,' 40 YALE J. REG. 1056 (2023).

[52] The importance of the zero lower bound to the study of platforms was stressed by J.P. Choi and D.S. Leon in 'A leverage theory of tying in two-sided markets with nonnegative price constraints,' 13(1) *AMERICAN ECONOMIC JOURNAL: MICROECONOMICS* 283 (2021).

[53] In combination with the DSA and the GDPR, the DMA limits both access to users' data and what gatekeepers are able to do with any user data they obtain, in particular, whether they can use personal data to target advertising. Meta remains engaged in legal process with national Data Protection Authorities and European courts over how the GDPR affects its ability to take users' personal data and monetise it. The full effect of the GDPR is therefore yet to be determined, but, in combination with other data laws, is likely to lower the profits of a personal data harvesting and ad-supported business model. The DMA continues this trend by prohibiting the sharing of data across different functions within the gatekeeper without active user consent and is careful about requiring that obtaining user consent be free of manipulative choice architecture.

meaningful user consent. With neutral choice architecture, it will be much more difficult to obtain 'consent' than it is at present. This higher cost of data will reduce the unpriced data benefit currently accruing to gatekeepers. Apps and gatekeepers may need to offer their consumers some kind of benefit to induce those users to share the personal data that powers lucrative personalised advertising. Both the increased costliness of obtaining personal data and the increased difficulty—or impossibility—of deploying it legally after it has been collected will lower the profits of the advertising-supported business model. In the BT model, this represents a decline in the benefit earned by the app. Because in that model the optimal access fee equals this benefit, a decline in the realised benefit causes a decline in whatever remains of the optimal access fee.

G. Dynamic Competition

In addition, if the application business has the possibility of becoming a competitive threat itself in future or serving as an access point for another competitive threat, this will create an incentive for the gatekeeper to engage in foreclosure as discussed in the Contestability section above. It is critical that this dynamic force be included in the calculation of ECPR we discussed above. A fee constructed only on the basis of ECPR principles derived from a static environment will be too small and will not neutralise the foreclosure incentives, some of which come from dynamic effects.

H. Adopting ECPR Would Require a Huge Amount of Data

As we have mentioned above, the ECPR formula has a deceptive simplicity. This is because it is presented in a framework where lots of the complications have been assumed away. But, in reality, they require a great deal of internal knowledge. For instance, correcting for the effect of monopoly power requires knowledge of demand conditions. Taking into account the zero lower bound requires knowledge of the benefits that the platforms obtain from attracting more users. Taking into account innovation would require building a complex dynamic model and the theoretical results would yield formulas which would depend on various elasticities of demand with respect to price, quality, the presence of other users, and the like which would be extremely difficult to estimate. The necessary information would likely vary with each app. The ECPR is a useful tool to clarify the issues and help think about the problem of access; it is very far from a complete guide to access fees for app stores.

I. Incentive of the Gatekeeper

The likely impossibility of solving the ECPR problem intersects with the structure of the DMA. Recall that the gatekeeper must justify any Access Fee based on ECPR and show the fee satisfies the principles of contestability and fairness. That means the gatekeeper must perform all the calculations just described on its own data and business. The first step is to quantify its profits and profit margin, something that it would prefer the regulator not know. Second, it must estimate the proportion of its profit margin that is due to network effects and entrenched market power. The gatekeeper has no incentive to accurately estimate the share of its profits that are due to its entrenched market power. The greater the share of profits are due to market power, the lower is the optimal Access Fee that entrants must pay the gatekeeper. Therefore, the gatekeeper gains by underestimating the share due to market power and over-estimating the share due to its own technological contributions. Thus, not only are these

calculations likely beyond the capability of current techniques and available data but gatekeepers also have a clear incentive to bias them. Hence, before a regulator can rely on any calculations of the gatekeeper regarding optimal ECPR, the perverse incentives of the gatekeeper justify applying the highest standards of proof and engaging in a careful review of the gatekeeper's analysis.

J. If ECPR Is Imperfect, Structural Separation Is Required

A perfectly computed ECPR would ensure that the monopolist has no incentive to favor or to disfavor its own product. In reality, for the reasons mentioned above and some more discussed below, the ECPR will in practice always be computed imperfectly. What should be done in this case?

A first solution is proposed by Armstrong & Vickers in the conclusion of their article. According to them, the extent of the losses caused by estimation errors can be diminished if 'the incumbent's marginal profit on final product sales can be reduced—for example by financing fixed costs by means other than access charges ….' In the case of app stores, this would correspond to the solution proposed in the current article: increasing the price of handsets or other services within the ecosystem. If this solution is not accepted, a level playing field between the monopolist and the firms who need access to the infrastructure can only obtain under structural separation, as we argue below.

Suppose the regulator forecasts that the calculated ECPR will always be imperfect in some way. For the incentive reasons just previewed, the regulator might expect the Access Fee to be too high because this will choke off competing app stores and leave the gatekeeper as a monopolist. Another risk is that because ECPR is too low and the gatekeeper will earn less profit from the third party's sale than it can through own, the gatekeeper will have an incentive to self-preference and foreclose. When ECPR is imperfect, however, the regulator must scrutinise the costs of the gatekeeper and continue to try to improve the Access Fee, while observing the strategies of all parties and any attempts at foreclosure by the gatekeeper. The regulator may find it difficult to track the information it needs until the platform and the application formally separate into divisions that do not share costs or operational responsibilities. This solution gives the regulator transparency into the sources of costs and how incentives are being transferred. For this type of real-world reason, regulators often require that a gatekeeper who is permitted to charge an access fee must carry out structural separation of the business or service to which competitors seek access.

For example, when the U.S. Federal Communications Commission sought to restrain AT&T to the communications market to protect competition in the burgeoning data processing market, it developed what it termed 'maximum separation' safeguards in addition to mandating access fees.[54] In the 1960s and seventies, the FCC undertook multiple reviews of telecommunication companies' structures ('The Computer Inquiries'), and concluded that common carriers like AT&T were permitted to enter the unregulated data market *only* through

[54] *Final Decision and Order, In re Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities (First Computer Inquiry)*, 28 F.C.C.2d 267 (1971) (*Computer I Final Decision*) (1971 FCC LEXIS 2066) paras. 9-10 ('[T]he furnishing of such data processing services by carriers should not inhibit free and fair competition between communication common carriers and data processing companies or otherwise involve practices contrary to the policies and prohibitions of the anti-trust laws…[A]ppropriate regulatory treatment of these concerns requires a maximum separation of activities which are subject to regulation from non-regulated activities involving data processing.) (internal quotations omitted).

fully separate subsidiaries.[55] The stated goal of these structural restrictions—and their ultimate effect—was to safeguard contestability.[56] Structural separation and an ability to control the specific incentives applied to each part of the business is a necessary precaution when the regulator is concerned that the gatekeeper's ECPR calculation is imperfect.

CONCLUSION

The DMA contains several provisions that enable rival developers and app stores to avoid paying the gatekeeper's access fees by either moving more easily to rival channels or disintermediating the gatekeeper entirely. To the extent these alternative channels provide a good user experience, they will pressure the gatekeeper to lower its own distribution fees to remain competitive. Furthermore, such channels may be middleware that induces future entry in operating systems. For this reason, it is critical that gatekeepers do not evade those provisions of the DMA designed to ensure fairness to distributors and third-party app stores, and to promote contestability both on and for the gatekeepers' operating systems and app stores.

The Commission has, for good reason, opened proceedings to determine whether Apple's fee structure imposing Access Fees on app stores and third-party apps complies with the several provisions of the DMA governing access to its CPS's. We think it is plain that Apple's current fee structure violates the DMA, and we expect the Commission will find noncompliance. Our analysis shows that an Access Fee of *zero* is DMA compliant. A zero Access Fee also advances fairness and contestability, and is practical, proportionate, and non-punitive. For these reasons, we advocate the Commission utilize its power under Article 8(2) of the DMA to specify an Access Fee of zero unless Apple comes up with an alternative proposal that is DMA compliant. For the reasons provided above, we are not sure that such an alternative exists.

This zero Access Fee would not prevent Apple from charging a Review Fee to subsidise security checks that are related to its costs, fees for access to Apple's own app store under terms that are FRAND and available publicly, and DMA-compliant advertising. Nor would it prevent Apple from capturing the value it contributes to the app and app store ecosystem elsewhere in that ecosystem, most obviously through the cost of handsets and handset-related services. But what it cannot do is attempt to monetise its contribution to the value of that ecosystem by charging Access Fees to its rivals that render their access to iOS or the App Store 'ineffective.' Nor may it charge any combination of other fees or impose conditions that individually or collectively render that access ineffective; doing so would run afoul of the DMA's anti-circumvention provision.

We emphasise here that the DMA expressly empowers Apple to design its own effective compliance scheme if it can devise one that that would satisfy the requirements of the DMA and that Apple considers to be superior to the one suggested here. Whatever fee Apple proposes must adhere all DMA obligations, including those set forth in Article 6(4) DMA

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[55] The FCC decided that communications companies of a certain size — not smaller, newer entrants — had to abide by the new structural safeguards. See *Amendment of Section 64.702 of the Comm'n's Rules & Regs,* (Second Computer Inquiry), 77 F.C.C.2d 385 Para. 12 (1980); 1980 FCC LEXIS 188 *389 ('We find that only AT&T and GTE present a sufficiently substantial threat such that they should be required to establish separate corporate entities for the provision of enhanced services and customer-premises equipment. We will not require any other underlying carrier to form separate entities for the provision of these services and CPE.').

[56] *See Tentative Decision of the Commission, In re Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities (First Computer Inquiry)*, 28 F.C.C. 2d 291 (1970) (*Computer I Tentative Decision*) (1970 FCC LEXIS 826).

(*allow* effective access by third-party app stores) and Article 5(4) DMA (*allow* apps and app stores to communicate and consummate transactions with end users through channels of their choosing), and also those set forth in Article 6(7) DMA (*allow* functionalities available to Apple services to third parties free of charge), Article 8(1) DMA (*demonstrate* effective compliance) and Article 13(4) DMA (*avoid* circumvention). So far, Apple has failed to make such a showing. The Commission therefore should specify app stores fees, including a zero Access Fee, as we recommend above.

Appendix

Summary of Apple fees on large commercial developers (as we understand them, simplified)*

Category	**Existing fees**	**Alternative fees** Required if distribute > 0 downloads through a rival store
Physical goods Amazon, Uber	0	.50 * (annual users across all stores – 1 million)
Ad-supported media Instagram	0	.50 * (annual users across all stores – 1 million)
Commission on Apple app sales and in-app purchases (including payment processing)	30%	20% +.50*(annual users across all stores – 1 million)
Commission on Apple subscriptions (including payment processing)	15%	13% + .50*(annual users across all stores – 1 million)
Rival store fee	NA	.50 per annual user

*Taken from Jacques Crémer, Paul Heidhues, Monika Schnitzer & Fiona Scott Morton, *Apple's exclusionary app store scheme: An existential moment for the Digital Markets Act*, VoxEU (CEPR) (6 March 2024), https://cepr.org/voxeu/columns/apples-exclusionary-app-store-scheme-existential-moment-digital-markets-act.

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