

Making Sense of the Google Android Decision

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Introduction

The European Commission's recent Google Android decision will go down as one of the most important competition proceedings of the past decade.¹ Yet, in-depth reading of the 328-page decision leaves attentive readers with a bitter taste. The problem is simple: while the facts adduced by the Commission are arguably true, the normative implications it draws—and thus the bases for its action—are largely conjecture.

This paper argues that the Commission's decision is undermined by unsubstantiated claims and non sequiturs, the upshot of which is that the Commission did not establish that Google had a "dominant position" in an accurately defined market, or that it infringed competition and harmed consumers. The paper analyzes the Commission's reasoning on questions of market definition, barriers to entry, dominance, theories of harm, and the economic evidence adduced to support the decision.

Section I discusses the Commission's market definition. It argues that the Commission produced insufficient evidence to support its conclusion that Google's products were in a different market than Apple's alternatives.

Section II looks at the competitive constraints that Google faced. It finds that the Commission wrongly ignored the strong competitive pressure that rivals, particularly Apple, exerted on Google. As a result, it failed to adequately establish that Google was dominant – a precondition for competition liability under article 102 TFEU.

Section III focuses on Google's purported infringements. It argues that Commission failed to convincingly establish that Google's behavior prevented its rivals from effectively reaching users of Android smartphones. This is all the more troubling when one acknowledges that Google's contested behavior essentially sought to transpose features of its rivals' closed platforms within the more open Android ecosystem.

Section IV reviews the main economic arguments that underpin the Commission's decision. It finds that the economic models cited by the Commission poorly matched the underlying fact patterns. Moreover, the Commission's arguments on innovation harms were out of touch with the empirical literature on the topic.

In short, the Commission failed to adequately prove that Google infringed European competition law. Its decision thus sets a bad precedent for future competition intervention in the digital sphere.

¹ See Commission Decision AT.40099 (Google Android), slip op., (Jul. 18, 2018).

I. The Commission's faulty market definition

One of the Commission's most significant—and problematic—findings is that the Android operating system and Apple's iOS are not in the same relevant market, along with the related (and similarly problematic) conclusion that Apple's App Store and Google Play are also in separate markets.

A. Everyone but the European Commission thinks that iOS competes with Android

Surely the assertion that the two predominant smartphone ecosystems in Europe don't compete with each other will come as a surprise to anyone paying attention.

The internet is replete with Android versus iPhone buying guides: "*Apple iPhone 11 vs the Android competition*"², "*iOS 13 vs. Android 10: How Apple and Google match up*"³, "*iPhone vs. Android: Which is better?*"⁴, etc.

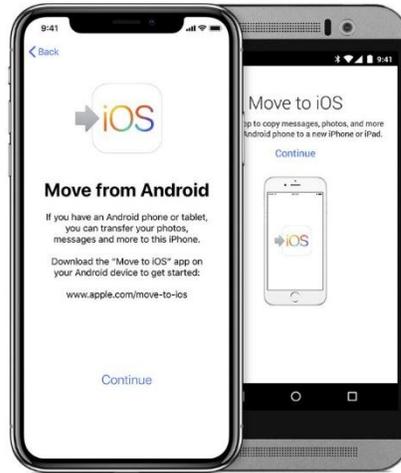
Both Apple and Google have webpages that help users to switch from one platform to the other⁵:

² William Pelegrin, *Apple iPhone 11 vs. the Android Competition*, ANDROID AUTHORITY (Sept. 23, 2019), <https://www.androidauthority.com/apple-iphone-11-vs-android-1030032/>.

³ Clifford Colby, *iOS 13 vs. Android 10: How Apple and Google Compare*, CNET (Sept. 15, 2019, 5:56 AM PDT), <https://www.cnet.com/news/ios-13-vs-android-10-how-apple-and-google-compare/>.

⁴ CNN BUSINESS, *iPhone vs. Android: Which is Better?*, <https://money.cnn.com/interactive/technology/iphone-android-comparison/index.html> (last visited Nov. 01, 2019).

⁵ APPLE, *Move From Android to iPhone, iPad or iPod Touch*, <https://support.apple.com/en-au/HT201196> (last visited Nov. 01, 2019). ANDROID, *Switch Is easier than ever*, <https://www.android.com/switch/> (last visited Nov. 01, 2019).



The business pages of newspapers routinely talk of the fierce rivalry that exists between Apple and Google: “*Why competition between Apple and Google is more brutal than ever*”⁶, “*Google vs. Apple: Why Their Competition Is Good For You*”⁷, etc.

Numerous competition policy papers reach a similar conclusion. Nicolas Petit refers to Apple and Google as “*moligopolists*”⁸. David Evans speaks of “*dynamic competition*”⁹. Marshall Van Alstyne and his co-authors have analyzed the strategies¹⁰ deployed by Google and Apple to compete against each other.

Finally, the annual reports of Apple and Google both cite the other firm as an important competitor (if not by name):

Apple 10-K:

The Company believes the availability of third-party software applications and services for its products depends in part on the

⁶ Rhiannon Williams, *Why Competition Between Apple and Google is More Brutal than Ever*, THE TELEGRAPH (Sept. 29, 2014), <https://www.telegraph.co.uk/technology/google/11127694/Why-competition-between-Apple-and-Google-is-more-brutal-than-ever.html>.

⁷ Bianca DiSanto, *Google vs. Apple: Why Their Competition Is Good for You*, THE HOYA (Oct. 21, 2016), <https://thehoya.com/google-vs-apple-why-their-competition-is-good-for-you/>

⁸ Nicolas Petit, *Technology Giants, the Moligopoly Hypothesis and Holistic Competition: A Primer* (Univ. of Liege, Working Paper, 2016).

⁹ David S. Evans, *Why the Dynamics of Competition for Online Platforms Leads to Sleepless Nights But Not Sleepy Monopolies* (2017).

¹⁰ Marshall W. Van Alstyne et al., *Pipelines, Platforms, and the New Rules of Strategy*, HARV. BUS. REV., Apr. 2016, at 1-9.

developers' perception and analysis of the relative benefits of developing, maintaining and upgrading such software and services for the Company's products **compared to competitors' platforms, such as Android for smartphones and tablets** and Windows for personal computers.¹¹

Google 10-K:

We face competition from: Companies that design, manufacture, and market consumer electronics products, including **businesses that have developed proprietary platforms.**¹²

This leads to a critical question: Why did the Commission choose to depart from the instinctive conclusion that Google and Apple compete vigorously against each other in the smartphone and mobile operating system market?

As explained below, its justifications for doing so were deeply flawed.

B. It does not matter that OEMs cannot license iOS (or the App Store)

Despite these tales of fierce competition between the so-called "Big Tech" firms, the Commission concluded that Apple and Google operate in different relevant markets.

For a start, the Commission found that Google's Android operating system was part of a **licensable mobile OS market** which, by definition, excludes the "closed" iOS:

(239) From a demand-side perspective, OEMs cannot obtain a licence to use iOS or BlackBerry OS because Apple and BlackBerry do not grant licences to third parties.

(240) From a supply-side perspective, neither Apple nor BlackBerry has licensed or announced its intention to license its smart mobile OS to any third party.¹³

It added that:

(249) [W]hile respondents to the requests for information may have acknowledged the **existence of a degree of competition between iOS and Google Android** devices at the level of users of smart mobile devices,

¹¹ Apple Inc., Annual Report (Form 10-K), at 1 (Sept. 29, 2018).

¹² Alphabet Inc., Annual Report (Form 10-K), at 5 (Dec. 31, 2017).

¹³ *Google Android*, *supra* note 1, at 239-240.

they **did not indicate that licensable and non-licensable smart mobile OSs can be seen as substitutes from an OEM perspective.**¹⁴

Following a similar logic, it concluded that only Google was active in the **market for Android app stores**:

(306) App stores for non-licensable smart mobile OSs such as Apple's AppStore and BlackBerry's BlackBerry World do not belong to the same product market as Android app stores.

(307) From a demand-side perspective, **the app stores of Apple and BlackBerry** have been specifically developed for iOS and BlackBerry OS and **cannot run on Android.**

(308) From a supply-side perspective, developers of app stores for non-licensable smart mobile OSs are unlikely to start developing app stores for Android due to their vertically integrated business model.¹⁵

In short, one of the main reasons why the Commission chose to exclude Apple from the relevant market is that OEMs cannot license Apple's iOS or its App Store.

Although the Commission's reasoning might have some superficial appeal – how can Google and Apple compete against each other if Android OEMs cannot switch to Apple? – in so defining the market the Commission lost sight of the reason competition authorities define markets in the first place.

In their groundbreaking article on the subject, Richard Posner and William Landes observed that:

The standard **method of proving market power in antitrust cases involves first defining a relevant market** in which to compute the defendant's market share, next computing that share, and then deciding whether it is large enough to support an inference of the required degree of market power.¹⁶

Louis Kaplow makes this same point:

¹⁴ *Id.* at 249.

¹⁵ *Id.* at 306-308.

¹⁶ William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 938 (1981).

[T]he entire rationale for the **market definition** process is to **enable an inference about market power**.¹⁷

In other words, relevant markets, and market shares, are merely a proxy for market power (which is the appropriate baseline upon which build a competition investigation).

The process by which relevant markets are typically defined in antitrust cases is typically rooted in demand-side substitutability: Would consumers switch to product Y if product X became too expensive (thus making a moderate price increase unprofitable)? If so, the two are competitors in the same market. This immediately raises an important question as far as the *Google Android* case is concerned: As a matter of principle, is it possible to infer that Google and Apple do not compete against each other *because* their products (be they iOS and Android, or the App Store and Google Play) are not substitutes from OEMs' point of view?

The answer to this question is likely no. Although it is often convenient to start by confining the market definition inquiry to consumers' switching habits, this line of reasoning is generally insufficient to establish the boundaries of a market. For instance, it is widely accepted that authorities should also look at supply-side substitutability, even though rival producers may not *currently* sell goods that consumers view as substitutes.

Along similar lines, it is generally recognized that the presence of perfect complements (in this case, mobile OSs and hardware, and mobile OSs and app stores) greatly complicates the market definition exercise.

This problem is reminiscent of the long-standing debate about aftermarket competition. In a nutshell, the question is whether antitrust authorities should define separate relevant markets for equipment (such as machines and vehicles) and aftermarkets (such as spare parts and repair services), or whether they should limit themselves to looking at competition in the main equipment market? Obviously, once users have made a decision to buy a particular machine, for example, they have no interest in buying spare parts or complements that don't function on that machine. Thus, one line of argument runs, no amount of "competition" from makers of parts for a competing machine will affect the competitiveness of the market for parts that work with the machine they purchased.

¹⁷ Louis Kaplow, *Why (Ever) Define Markets?*, 124(2) HARV. L. REV. 437, 440 (2010).

But the story isn't so simple. Because aftermarket goods and services are complements to the main product, a manufacturer arguably cannot exercise market power in these segments without *also* having market power in the primary market (at least absent important informational deficiencies¹⁸ on the part of buyers).

This led the late Justice Scalia to argue (in his *Eastman Kodak* dissent) that:

In the absence of interbrand power, a seller's predominant or monopoly share of its single-brand derivative markets does not connote the power to raise derivative market prices generally by reducing quantity.¹⁹

Similarly, Benjamin Klein posits that:

Even if consumers are totally uninformed about aftermarket conditions when they purchase their equipment, they pay a competitive package price because competition forces manufacturers to offset later aftermarket price increases with initial equipment price decreases.²⁰

An analogous reasoning can (and should) be applied in the *Google Android* case. For instance, if there is a competitive market for Android and Apple *smartphones*, then it is somewhat immaterial that Google is the only firm to successfully offer a *licensable mobile operating system* (as opposed to Apple and Blackberry's "closed" alternatives). Rather, that different business model represents product differentiation – a key element of competition – at the smartphone level.

If consumers view iOS and Android smartphones as substitutes, then by exercising its "power" against OEMs by, for instance, degrading the quality of Android, Google would, by the same token, weaken its competitive position against Apple. Google's competition with Apple in the smartphone market thus constrains Google's behavior and limits its market power in Android-specific aftermarkets. That OEMs have no alternative to Android doesn't change this, yet the Commission overlooked this dynamic.

This is not to say that Apple's iOS (and App Store) is, or is not, in the same relevant market as Google Android (and Google Play). But the fact that OEMs cannot license iOS or the App Store is mostly immaterial for market definition purposes.

¹⁸ See Severin Borenstein et al., *Antitrust Policy in After Markets*, 63 ANTITRUST. L.J. 455 (1995).

¹⁹ *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451, 495 (1992) (Scalia, J., dissenting).

²⁰ Benjamin Klein, *Market Power in Aftermarkets*, 17(2) MANAGERIAL & DECISION ECON. 143 (1996).

C. Google would find itself in a more “competitive” market if it decided to stop licensing the Android OS

The Commission’s rigid assessment also leads to illogical outcomes from a policy standpoint. For instance, Google could suddenly find itself in a more “competitive” market if it decided to stop licensing the Android OS and operated a closed platform (like Apple does). The direct purchasers of its products – consumers – would then be free to switch between Apple and Google’s products.

As a result, an act that has no obvious effect on actual market power – and that could have a distinctly *negative* effect on consumers – could nevertheless significantly alter the outcome of competition proceedings on the Commission’s theory.

One potential consequence of this policy is that firms might decide to close their platforms (or refuse to open them in the first place) in order to avoid competition scrutiny (because maintaining a closed platform might effectively lead competition authorities to place them within a wider relevant market). This might ultimately reduce product differentiation among mobile platforms (due to the disappearance of open ecosystems) – the exact opposite of what the Commission sought to achieve with its decision.

This is, among other things, what Antonin Scalia objected to in his *Eastman Kodak* dissent:

It is quite simply **anomalous that a manufacturer functioning in a competitive equipment market should be exempt from the *per se* rule when it bundles equipment with parts and service, but not when it bundles parts with service** [i.e. when the manufacturer has a high share of the “market” for its machines’ spare parts]. This vast difference in the treatment of what will ordinarily be economically similar phenomena is alone enough to call today's decision into question.²¹

D. Conclusion on market definition

The upshot is that Apple should not have been automatically excluded from the relevant market. To be clear, the Commission *did* discuss this competition from Apple later in the decision. And it also asserted that its findings would hold even if Apple were included in the OS and App Store markets (because Android’s *share of devices sold* would have ranged from 45% to 79%, depending on the year (although this

²¹ *Eastman Kodak*, 504 U.S. at 492-93 (Scalia, J., Dissenting).

ignores other potential metrics such as the *value of devices sold* or *Google's share of advertising revenue*).

However, by gerrymandering²² the market definition (which European case law²³ likely permitted it to do), the Commission ensured that Google would face an uphill battle, starting from a very high market share and thus a strong presumption of dominance.

Moreover, that it *might* reach the same result by adopting a more accurate market definition is no excuse for adopting a faulty one and resting its case (and undertaking its entire analysis) on it. Finally, accurately defining the relevant market would likely have led the Commission to focus more of its analysis on the most relevant question: competition between Apple and Google. In the words of Gregory Werden:

Alleging the relevant market in an antitrust case does not merely identify the portion of the economy most directly affected by the challenged conduct; it **identifies the competitive process alleged to be harmed**.²⁴

As discussed below, the Commission's choice of a faulty market definition underpins its entire analysis and is far from a "harmless error."

II. Ignoring Google's competitors

The Commission's improper market definition might not be so problematic if it had then proceeded to undertake a detailed (and balanced) assessment of the competitive conditions that existed in the markets where Google operates (including the competitive constraints imposed by Apple).

Unfortunately, this was not the case. The following paragraphs respond to some of the Commission's most problematic arguments regarding the existence of barriers to entry, and the absence of competitive constraints on Google's behavior.

²² Nicolas Petit, *EU engaged in Antitrust Gerrymandering Against Google*, THE HILL (Jul. 31, 2018, 05:30 PM EDT), <https://thehill.com/opinion/technology/399742-eu-engaged-in-antitrust-gerrymandering-against-google>.

²³ Confédération Européenne des Associations d'Horlogers-réparateurs (CEAHR) v. European Commission, 2010 E.C.R. II-05865, available at https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?isOldUri=true&uri=CELEX:62008TJ0427#Footnote*.

²⁴ Wesley M. Cohen, *Fifty Years of Empirical Studies of Innovative Activity and Performance*, 1 HANDBOOK OF THE ECONOMICS OF INNOVATION, 741 (2010).

The overarching theme is that the Commission failed to quantify its findings and repeatedly drew conclusions that did not follow from the facts cited. As a result, it was wrong to conclude that Google faced little competitive pressure from Apple and other rivals.

A. Market shares are a poor proxy for market power, especially in narrowly defined markets

The Commission cited Google's **substantial market shares** (which it had arguably obtained by gerrymandering the relevant market) as evidence of its alleged dominant position:

(440) **Google holds a dominant position** in the worldwide market (excluding China) for the licensing of smart mobile OSs since 2011. This **conclusion is based** on:

(1) the **market shares** of Google and competing developers of licensable smart mobile OSs [...]

(590) Google holds a dominant position in the worldwide market (excluding China) for Android app stores since 2011. This **conclusion is based** on:

(1) the **market shares** of Google and competing Android app stores [sic] market shares [...]²⁵

In doing so, the Commission ignored one of the critical findings of the law & economics literature on market definition and market power: Although defining a narrow relevant market may not itself be problematic, the market shares thus adduced provide little information about a firm's actual market power.

For instance, Richard Posner and William Landes have argued that:

If instead the market were defined narrowly, the firm's **market share would be larger** but the effect on market power would be **offset by the higher market elasticity of demand**; when fewer substitutes are included in the market, substitution of products outside of the market is easier. [...]²⁶

If all the submarket approach signifies is willingness in appropriate cases to call a narrowly defined market a relevant market for antitrust

²⁵ *Google Android*, *supra* note 1, at 440 & 590.

²⁶ Landes & Posner *supra* note 16, at 962.

purposes, it is unobjectionable – so long as appropriately less weight is given to market shares computed in such a market.²⁷

Likewise, Louis Kaplow observes that:

In choosing between a narrower and a broader market (where, as mentioned, we are supposing that the truth lies somewhere in between), **one would ask whether the inference from the larger market share in the narrower market overstates market power** by more than the inference from the smaller market share in the broader market understates market power. If the lesser error lies with the former choice, then the narrower market is the relevant market; if the latter minimizes error, then the broader market is best.²⁸

In short, it is well understood that a large market share in a narrowly defined market provides less information about actual market power than the same market share in a broadly defined market. Accordingly, the problem with the Commission's decision is not so much that it chose to exclude Apple from the relevant markets, but that it then cited the resulting market shares as evidence of Google's alleged dominance.

B. Significant investments, network effects, and the failure of rivals ≠ barriers to entry

More importantly, the Commission concluded that the market for smart licensable mobile OSs involves significant **barriers to entry and expansion**. Among others, it cited the following:

(462) **Developing a smart mobile OS is a costly and time-consuming process.** Costs result both from the initial investment in research and development to bring a smart mobile OS to the market and the need to finance the ongoing development of the OS, its new features and releases.

(464) Second, the worldwide market for the licensing of smart mobile device OSs is characterised by **network effects**.

(470) **OEMs wishing to switch to other licensable smart mobile OSs face switching costs.** This is because implementing a smart mobile OS requires lead time and investment from an OEM.

²⁷ *Id.* at 978.

²⁸ Kaplow, *supra* note 17, at 468-69.

(471) **Users** of Android devices **face significant costs when switching** to another smart mobile OS **and exhibit loyalty** to their smart mobile OS.

(472) **No alternative provider** of licensable smart mobile OSs **has been able to enter and expand successfully in the worldwide market (excluding China)** for the licensing of smart mobile OSs.²⁹

It reached a similar conclusion on the market for Android app stores:

(628) The establishment of a fully-fledged Android app store (including its development and introduction into the market) requires **significant investment** [...]

(631) The establishment of a fully-fledged Android app store requires **significant investment** in APIs and automatic update functionalities.

(637) Google has gained a **first mover advantage** in the worldwide market (excluding China) for Android app stores.

(639) **A number of players have unsuccessfully tried to enter** the worldwide market (excluding China) for Android app stores.³⁰

In short, the Commission notably argued that significant investments (millions of euros) are required to set up a mobile OS and App store. It also argued that market for licensable mobile operating systems gave rise to network effects. But contrary to the Commission's claims, neither of these two factors is, in and of itself, sufficient to establish the existence of barriers to entry.

Take the conclusion that **significant investments** (millions of euros) are required to set up a mobile OS and App store. Even if one (wrongly) rejects George Stigler's definition³¹ of barriers to entry (*i.e.* relevant barriers are costs borne by entrants but not by incumbents) and adopts the looser "definition" supported by European Courts (essentially, anything that makes entry significantly more difficult for rivals), the evidence cited by the Commission is still not dispositive.

The main problem is that virtually every market requires significant investments on the part of firms that seek to enter. Not all of these costs can be seen as barriers to entry, or the concept would lose all practical relevance. For example, purchasing a

²⁹ *Google Android*, *supra* note 1, at 462, 464 & 470-472.

³⁰ *Id.* at 628, 631, 637 & 639.

³¹ Harold Demsetz, *Barriers to Entry*, 72 AM. ECON. REV. 47 (1982).

Boeing 737 Max airplane reportedly costs at least \$74 million.³² Does this mean that incumbents in the airline industry are necessarily shielded from competition? Of course not. Instead, the relevant question is whether an entrant with a superior business model could access the capital required to purchase an airplane and challenge the industry's incumbents.

Returning to the market for mobile OSs, the Commission should thus have questioned whether as-efficient rivals could find the funds required to produce a mobile OS. If the answer was yes, then the investments highlighted by the Commission were largely immaterial. As it happens, several firms have indeed produced competing OSs, including CyanogenMod³³, LineageOS³⁴ and Tizen³⁵. That these alternative licensable OSs may not have been as successful as Android is immaterial (on which, see below); the point is that a number of rivals have found it feasible to produce or purchase alternative OSs.

Much of the same is true of Commission's conclusion that **network effects** shielded Google from competitors. While network effects almost certainly play some role in the mobile OS and app store markets, it does not follow that they act as antitrust-relevant barriers to entry.

As Paul Belleflamme recently argued, it is a myth that network effects can never be overcome.³⁶ Instead, the most important question is whether users could effectively coordinate their behavior and switch towards a superior platform, if one arose.³⁷

³² Justin Rohrlich, *What's a Private Boeing 737 Max Owner to Do Now?*, QUARTZ (Mar. 16, 2019), <https://qz.com/1574321/737-max-grounded-whats-a-private-buyer-to-do-now/>.

³³ WIKIPEDIA, CyanogenMod, <https://en.wikipedia.org/wiki/CyanogenMod> (last visited Nov. 02, 2019).

³⁴ LINEAGE, <https://lineageos.org/> (last visited Nov. 02, 2019).

³⁵ TIZEN, <https://www.tizen.org/about> (last visited Nov. 02, 2019).

³⁶ Paul Belleflamme, *You Can Never Overcome Network Effects: The Truth Behind the Myth*, IPDIGIT (Sept. 18, 2019), <http://www.ipdigit.eu/2019/09/you-can-never-overcome-network-effects-the-truth-behind-the-myth/>.

³⁷ Daniel F. Spulber, *Consumer Coordination in the Small in the Large: Implications for Antitrust in Markets With Network Effects*, 4(2) J. COMP. L. & ECON 207 (2007). See also, Dirk Auer, *What Zoom Can Tell Us About Network Effects and Competition Policy in Digital Markets*, TRUTH ON THE MARKET, (Apr. 24, 2019), <https://truthonthemarket.com/2019/04/24/what-zoom-can-tell-us-about-network-effects-and-competition-policy-in-digital-markets/>.

The Commission completely ignored this critical interrogation during its discussion of network effects (and, as I discuss below, only superficially touched upon the issue during its brief discussion of the competitive constraints posed by Apple).

Just as problematically, the Commission wrongly concluded that the **failure of previous attempts to enter the market** was proof of barriers to entry. This is the epitome of the Black Swan³⁸ fallacy (*i.e.* inferring that all swans are white because you have never seen a relatively rare, but not irrelevant, black swan).

The failure of rivals is equally consistent with any number of propositions: there were indeed barriers to entry; Google's products were extremely good (in ways that rivals and the Commission failed to grasp); Google responded to intense competitive pressure by continuously improving its product (and rivals thus chose to stay out of the market); previous rivals were "persistently inept"³⁹ (in the words of Oliver Williamson); etc.

The Commission did not demonstrate that its own inference was the right one, nor did it even demonstrate any awareness that other explanations were at least equally plausible.

C. First mover advantage?

And much of the same can be said about the Commission's observation that Google enjoyed a **first mover advantage**.

The elephant in the room is that Google was *not* the first mover in the *smartphone* market (and even less so in the mobile phone industry). The Commission attempted to sidestep this uncomfortable truth by arguing that Google was the first mover *in the Android app store market*. It then concluded that Google had an advantage because users were familiar with Android's app store.

To call this reasoning "naive" would be too kind. Maybe consumers are familiar with Google's products today, but they certainly weren't when Google entered the market. Why would something that did not hinder Google (*i.e.* users' lack of familiarity with its products, as opposed to those of incumbents such as Nokia or Blackberry) have the opposite effect on its future rivals? Moreover, even if rivals had to replicate

³⁸ NASSIM NICHOLAS TALEB, *THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE* (2nd ed. 2010).

³⁹ Oliver E. Williamson, *Dominant Firms and the Monopoly Problem: Market Failure Considerations*, 85(8) HARV. L. REV. 1512 (1972).

Android's user experience (and that of its app store) to prove successful, the Commission did not show that there was anything that prevented them from doing so — a particularly glaring omission given the open-source nature of the Android OS.

The result is that, at best, the Commission identified a correlation but not causality. Google may arguably have been the first, and users might have been more familiar with its offerings, but this still does not prove that Android flourished (and rivals failed) *because* of this.

In short, the Commission's conclusion that Google was shielded by barriers to entry and expansion rests on cherry-picked claims that were not assessed against a relevant metric that might separate the wheat from the chaff. For all its trappings of rigour, the Commission's analysis here is almost entirely supposition and conjecture without evidence or economic proof.

D. Competitive constraints?

Last but not least, the Commission also concluded that alternatives (notably Apple's iOS and App Store) exercised **insufficient competitive constraints** on Google:

(479) The Commission concludes that non-licensable smart mobile OSs, such as iOS and BlackBerry OS, exercise an insufficient indirect constraint on Google's dominant position in the worldwide (excluding China) market for licensable smart mobile OSs.

(652) For the reasons set out in this Section, the Commission concludes that app stores for non-licensable smart mobile OSs exercise an insufficient indirect constraint on Google's dominant position in the worldwide market (excluding China) for Android app stores.⁴⁰

Some of the Commission's arguments are particularly noteworthy.

First, the Commission claimed that consumers do not take the OS into account when they purchase a smartphone:

(480) Users obtain smart mobile OSs as part of a wider bundle with a smart mobile device and **take into account a range of factors other than the smart mobile OS when purchasing a smart mobile device.**

(492) A survey submitted by Yandex (the "Yandex Survey") indicates that **Google Android users are not sensitive to quality variations in Google**

⁴⁰ *Google Android*, *supra* note 1, at 479 & 652.

Android as **59% of Android users do not know which version of Android their devices are running**. When asked to identify recently-added features in the Android OS their phone was running, **only 37% indicated they were aware of new features**. When these 37% of respondents were asked to identify the most important new feature of which they were aware, approximately a third did not provide an answer or said "don't know".

(494) An internal Google presentation [...] indicates that the smart mobile OS brand is only a small factor among those triggering user purchase decisions [...]. The same document indicates that the **top trigger by far in terms of popularity is the handset brand/model**.⁴¹

Second, it found that users are loyal to their existing smartphone brand, which reduced the competitive constraints imposed by Apple on Google:

(533) **Users show a significant degree of loyalty to their existing smart mobile OS**. For example, it has been estimated that in 2015, **82% of Google Android smartphone users purchasing a new smartphone decided to purchase a Google Android device**. These figures are slightly higher than the equivalent figure for iOS users (78%).⁴²

Finally, it found that competition for first time buyers was insufficient to constrain Google's behavior:

(545) The degree of **competition between OEMs for first-time buyers is insufficient to protect existing Android users**.

(548) First time buyers represent a small and declining portion of smart mobile device users. This is confirmed by:

(1) estimates by the business consultancy Kantar that in the 3 months ending July 2015, **75% of smartphones sold in Europe were purchased by users that already owned a smartphone**;

(2) [...] data which indicates that, between 2014 and 2016, the annual growth rate of sales of smart mobile devices has been small or even negative in Europe (between 9% and -5%);

(549) In the third place, first-time buyers are less likely to react to a small but significant non-transitory deterioration of the quality of Google

⁴¹ *Id.* at 480, 492 & 494.

⁴² *Id.* at 533.

Android. This is because these buyers are not familiar with the functioning of a smart mobile device OS and are therefore less likely to perceive differences of the quality of Google Android when purchased as part of a bundle with a Google Android device.⁴³

These claims are highly problematic.

The first important point concerns the **factors that consumers take into account when they purchase a smartphone**. In a nutshell, the Commission contended that consumers do not account for a phone's operating system when they purchase it. This argument has significant shortcomings.

The Commission failed to grasp that buyers might base their purchases on a device's OS *without knowing it*. Some consumers will simply follow the advice of a friend, family member or buyer's guide. Acutely aware of their own shortcomings, they thus rely on someone else who *does* take the phone's OS into account. But even when they are acting independently, unsavvy consumers may still be driven by technical considerations. They might rely on a brand's reputation for providing cutting edge devices (which, per the Commission, is the most important driver of purchase decisions), or on a device's "feel" when they try it in a showroom. In both cases, consumers' choices could indirectly be influenced by a phone's OS.

In more technical terms, a phone's hardware and software are complementary goods. In these settings, it is extremely difficult to attribute overall improvements to just one of the two complements. For instance, a powerful OS and chipset are both equally necessary to deliver a responsive phone. The fact that consumers may misattribute a device's performance to one of these two complements says nothing about their underlying contribution to a strong end-product (which, in turn, drives purchase decisions). Likewise, battery life is reportedly⁴⁴ one of the most important features for users, yet few realize that a phone's OS has a large impact on it.⁴⁵

⁴³ *Id.* at 545, 548-549.

⁴⁴ Felix Richter, *What Smartphone Buyers Really Want*, STATISTA (Feb. 19, 2019), <https://www.statista.com/chart/5995/the-most-wanted-smartphone-features/>.

⁴⁵ David Nield, *How to Get the Most Out of Your Smartphone Battery*, WIRED (Aug. 25, 2019), https://www.wired.com/story/smartphone-battery-care-last-longer/?mbid=social_twitter&utm_brand=wired&utm_campaign=wired&utm_medium=social&utm_social-type=owned&utm_source=twitter.

Moreover, it seems extremely strange to assume that the OS is irrelevant to consumers' choices when the firms vying for their business expend enormous resources both to improve their OSs and to advertise these improvements to consumers.

Finally, if consumers were really indifferent to the phone's operating system, then the Commission should have dropped at least part of its case against Google. The Commission's claim that Google's anti-fragmentation agreements harmed consumers, by reducing OS competition, (discussed below) has no purchase if Android is provided free of charge and consumers are indifferent to non-price parameters, such as the quality of a phone's OS.

A second important point concerns the Commission's claim that **consumers are loyal to their smartphone brand** and that **competition for first time buyers** was insufficient to constrain Google's behavior against its "captured" installed base.

Take the claim that 82% of Android users stick with Android when they change phones (compared to 78% for Apple), and that 75% of new smartphones are sold to existing users. The Commission asserted, without further evidence, that these numbers prove there is little competition between Android and iOS.

But is this really so? In almost all markets consumers likely exhibit at least some loyalty to their preferred brand. At what point does this become an obstacle to inter-brand competition? The Commission offered no benchmark mark against which to assess its claims.

And although inter-industry comparisons of churn rates should be taken with a pinch of salt, it is worth noting that the Commission's implied 18% churn rate for Android is nothing out of the ordinary, including for industries that could not remotely be called anticompetitive.⁴⁶

To make matters worse, the Commission's own claimed figures suggest that a large share of sales remained contestable (roughly 39%). Imagine that, every year, 100 devices are sold in Europe (75 to existing users and 25 to new users, according to the Commission's figures). Imagine further that the installed base of users is split 76–24

⁴⁶ See, e.g., E. Mazareanu, *Customer Churn Rate in the United States, by Industry*, STATISTA (Aug. 09, 2019), <https://www.statista.com/statistics/816735/customer-churn-rate-by-industry-us/>. See also, Ryan Law, *Churn Rate: How High Is Too High? A Meta-Analysis of Churn Studies*, COBLOOM (May 28, 2019), <https://www.cobloom.com/blog/churn-rate-how-high-is-too-high>. See also, Gregory Kohs, *Comparison of Churn Rates*, INSIDE MARKET RESEARCH (Jun. 09, 2006), <http://insidemr.blogspot.com/2006/06/comparison-of-churn-rates.html>.

in favor of Android.⁴⁷ Under the figures cited by the Commission, it follows that at least 39% of these sales are contestable.

According to the Commission's figures, there would be 57 existing Android users (76% of 75) and 18 Apple users (24% of 75), of which roughly 10 (18%) and 4 (22%), respectively, switch brands in any given year. There are also 25 new users who, even according to the Commission, do not display brand loyalty. The result is that out of 100 purchasers, 25 show no brand loyalty and 14 switch brands. And even this completely ignores the number of consumers who consider switching but choose not to after assessing the competitive options.

In short, as with its previous arguments, the Commissions fell prey to a series of *non sequiturs* and failed to assess its claims against an appropriate benchmark.

E. Conclusion on Google's alleged dominance

The preceding paragraphs have argued that the Commission did not meet the requisite burden of proof to establish Google's dominance. Of course, it is one thing to show that the Commission's reasoning was unsound (it is) and another to establish that its overall conclusion was wrong.

At the very least, there is a sense that the Commission loaded the dice, so to speak. Throughout the first half of its lengthy decision, it interpreted every piece of evidence against Google, drew significant inferences from benign pieces of information, and often resorted to circular reasoning. To make matters worse, the Commission's decision paid little attention to the very complex competitive dynamics that are arguably at play in the digital economy.

In short, the preceding analysis suggest that the Commission's assessment of Google's dominance, and the competitive dynamics underlying the markets in which it competes, were inadequate. Although this might seem like a semantic quibble, it is important to recall that European competition law places a "special responsibility" on firms that are found to hold a dominant position. Indeed, the relative severity of European competition law in unilateral conduct cases is premised on the assumption that only firms with very powerful market positions will be targeted. The

⁴⁷ GLOBALSTATS, *Mobile Operating System Market Share Worldwide* (Sept. 2018 - Oct. 2019), <https://gs.statcounter.com/os-market-share/mobile/worldwide>.

Commission's questionable findings relating to the relevant markets and Google's dominance thus had ripple effects on its assessment of Google's potential infringements.

III. Where is the harm?

The Commission's analysis of Google's potentially anticompetitive behavior was also particularly one-sided. The Commission notably failed to adequately account for the complex business challenges that Google faced – such as monetizing the Android platform and shielding it from fragmentation. Its decision also rests on dubious factual conclusions and extrapolations. The result is a highly unbalanced assessment that could ultimately hamstring Google and prevent it from effectively competing with its smartphone rivals, Apple in particular.

A. How to compete against Apple without infringing European competition law?

Whether or not Google and Apple operate in separate relevant markets (as the Commission argued), the fact remains that both firms run smartphone platforms. In doing so, they face remarkably similar challenges, and there is an uncanny resemblance between the solutions both firms adopted to address them. Comparing these solutions provides important context to the Commission's *Android* decision.

Critically, the behavior that spurred the Commission's decision essentially replicates features of Apple's "closed" platform within Google's more "open" ecosystem. This raises important questions from a competition policy standpoint. Indeed, the fact that Google's contested behavior was replicated by most firms in the highly competitive smartphone industry suggests that it was likely motivated by efficiency considerations rather than anticompetitive intent.⁴⁸

The following graph illustrates the differences and similarities that exist between Apple and Google's smartphone platforms, as well as the important challenges faced by Google as a result of its decision to operate an open source platform:

⁴⁸ Frank H. Easterbrook, *Limits of Antitrust*, 63 TEX. L. REV. 21 (1984). ("When the collaborators possess no market power, either their cooperation is beneficial, in which event it will flourish, or it is not, in which event it will die as rivals take the sales. When the collaborators have no power, monopoly cannot be their objective, and we must consider the more likely possibility that the arrangements create efficiencies.").

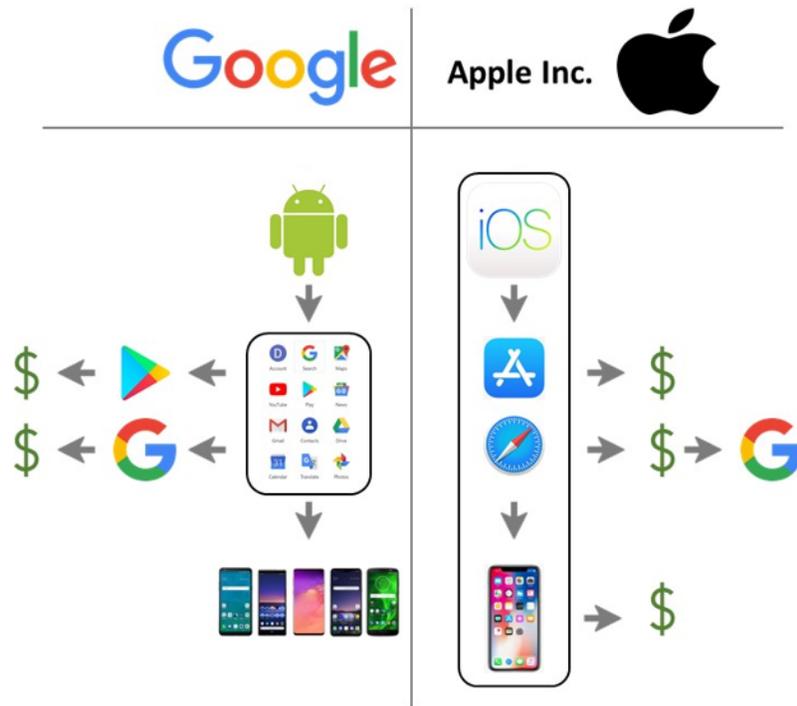


Figure 1: Comparison of Google and Apple’s smartphone business models.

1. Different competitive strengths and monetization strategies, and firm boundaries.

Many of the differences that exist between Apple and Google’s ecosystems can, to some extent, be explained by these firms’ very different competitive strengths (or “dynamic capabilities”) at the time when they entered the smartphone industry.⁴⁹

When it launched Android, Google was a leader in the search engines. It likely foresaw that the future of the internet was mobile, and that search engines and smartphones would become important complementary goods.⁵⁰ Google could thus

⁴⁹ DAVID J. TEECE, DYNAMIC CAPABILITIES AND STRATEGIC MANAGEMENT: ORGANIZING FOR INNOVATION AND GROWTH 509-33 (OUP Oxford. 2009).

⁵⁰ GLOBALSTATS, *Mobile and Tablet Internet Usage Exceeds Desktop for First Time Worldwide*, Nov. 1, 2016, <https://gs.statcounter.com/press/mobile-and-tablet-internet-usage-exceeds-desktop-for-first-time-worldwide>.

monetize its smartphone platform by driving users towards its search engine, and it did not need to earn revenue by either licensing its OS or selling handsets.

This might explain why Google chose to develop Android on an open source basis, via the Open Handset Alliance (“OHA”).⁵¹ And why it mostly relied upon third party OEMs to manufacture and sell Android handsets, rather than do so itself.⁵²

In more quantitative terms, Google still earns the vast majority of its revenue from advertising, mostly on its search engine (advertising accounted for \$116.31 Billion of Alphabet’s \$136.22 Billion total revenue, in 2018).⁵³ The rest of Google’s revenue is almost entirely earned via Google Play, Google’s cloud offerings, and hardware sales (\$19.90 Billion, in 2018).⁵⁴

In contrast, when it entered the smartphone scene, Apple had a track record for creating successful closed platforms that it controlled from end-to-end.⁵⁵ It thus left search-related activities to other firms and focused on its core strengths: designing and selling high-end hardware bundled with proprietary software. As with its previous products, Apple decided to control the entire iPhone ecosystem from the OS to the handset.

As a result, Apple earns most of its revenue from handset sales (iPhone sales generated \$166.69 Billion of Apple’s total revenue of \$265.59 Billion, in 2018).⁵⁶ It also earns significant revenue from its App Store (Apple’s “services” segment, which includes the App Store, generated \$37.19 Billion, in 2018). Finally, it earns an

⁵¹ Ryan Block, *Google Is Working on a Mobile OS, And it's Due Out Shortly*, Engadget, Aug. 28, 2007, <https://www.engadget.com/2007/08/28/google-is-working-on-a-mobile-os-and-its-due-out-shortly/>. OPEN HANDSET ALLIANCE, *Industry Leaders Announce Open Platform for Mobile Devices*, Nov. 5, 2007, http://www.openhandsetalliance.com/press_110507.html.

⁵² Note, however, that Apple does not manufacture iPhones itself, so this last difference is perhaps not as clear-cut as the others). Abhishek Jariwala, “Taiwan’s Foxconn will make iPhone Xr and iPhone 11 in its Indian plant”, *The Taiwan Times*, <https://thetaiwantimes.com/taiwans-foxconn-will-make-iphone-xr-and-iphone-11-in-its-indian-plant/1130>.

⁵³ ALPHABET INC., ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED DECEMBER 31, 2018.

⁵⁴ *Id.*

⁵⁵ Johnna Montgomerie & Samuel Roscoe, *Owning the Consumer—Getting to the Core of the Apple Business Model*, 37 ACCOUNTING FORUM 290-99 (2013).

⁵⁶ APPLE INC., ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED SEPTEMBER 29, 2018.

estimated \$ 1 – 12 Billion, per year, by agreeing to set Google Search as the default search engine for the Safari Browser.⁵⁷

2. *Similarities, and the unique challenges faced by Google*

Despite these superficial differences, both firms have a lot in common. More importantly for the sake of competition policy, the features of Google’s platform that were challenged by the Commission are also present, to an even larger extent, within Apple’s ecosystem.

For a start, Apple and Google both exert some control over the apps that are pre-installed and set as default on their respective smartphones. This is especially true of Apple, whose proprietary applications are *necessarily* pre-installed, set as default (sometimes almost irrevocably), and placed favorably on all iPhones.⁵⁸ Moreover, Apple rarely, if ever, pre-installs the apps of other firms on its devices.⁵⁹ While Google does incentivize OEMs to pre-install its proprietary applications, they remain free not to do so (though they must then forgo the Google Play App). More importantly, opting for Google’s proprietary applications does not preclude these OEMs from simultaneously pre-installing apps produced by Google’s rivals; something that would be unthinkable in the much more closed iPhone/iPad ecosystem.

Likewise, both firms earn revenue from their devices’ default search engine. Apple receives payments to set Google Search as default.⁶⁰ And Google implements a series of measures (*see below*) to ensure that Google Search is set as default on numerous Android devices. In turn, this enables Google to generate extra advertising revenue from its search engine.

Finally, both firms attempt to limit the number of software versions with which developers must work (*i.e.* fragmentation). Apple routinely (and sometimes annoyingly) prompts users to update their devices.⁶¹ It also stops supporting older handsets or

⁵⁷ Lisa Marie Segarra, *Google to Pay Apple \$12 Billion to Remain Safari’s Default Search Engine in 2019*, FORBES, Sept. 29, 2018, <https://fortune.com/2018/09/29/google-apple-safari-search-engine/>.

⁵⁸ Mozilla, *Unable to Set Firefox as the Default Browser for iOS*, <https://support.mozilla.org/en-US/kb/unable-set-firefox-default-browser-ios>. (“Currently, Apple does not allow you to change the default browser on iPad, iPhone and iPod touch devices.”).

⁵⁹ T-Mobile, *Pre-installed Apps: Apple iPhone on iOS 13*, <https://support.t-mobile.com/docs/DOC41104>.

⁶⁰ Lisa Marie Segarra, *supra*, note 57.

⁶¹ Lucy Hattersly, *How to Stop an iPhone From Asking to Update iOS*, MACWORLD, Aug. 8, 2018, <https://www.macworld.co.uk/how-to/iphone/stop-iphone-nagging-ios-software-update-3641478/>.

older versions of iOS.⁶² Meanwhile, Google steers the development of Android so as to ensure that a large number of devices run the “standard” version of Android (notably via antifragementation agreements with OEMs).⁶³ However, unlike Apple, it cannot unilaterally coerce users of its ecosystem into adopting its own preferred version of Android.

Critically, while Google arguably imposes a much looser set of controls over the Android ecosystem, these measures are arguably far more important for the viability of its platform than they are in the case of Apple. Indeed, going down the open platform route entails at least two existential challenges (and it is Google’s answers to these problems that spurred the Commission’s case):

First, Google must ensure that a large share of Android users opt for its own search services, rather than those of rivals. As things stand, the Android operating system would be largely unprofitable without this conversion of Android users to Google Search.

This is probably why Google concluded a series of agreements with OEMs (so-called MADAs). These agreements effectively required OEMs to obtain Google’s proprietary apps as a bundle (but for free), and to preinstall a number of them on new devices. Ultimately, these agreements increased Google’s control over the app layer of Android smartphones. In competition terms, the Commission found that this amounted to tying the Google Play app to both the Chrome Browser and the Google Search app.

This might also explain why Google also entered into a series of revenue sharing agreements with OEMs. Under these agreements, Google pays OEMs to exclusively place the Google Search app on devices’ home screen (in exchange for a cut of the revenue generate by the app). OEM thus “share” in the revenue generated by the search app. The Commission found that these agreements constituted exclusivity payments.

⁶² Eli Blumenthal, *Apple Warns iPhone 5 Users to Update iOS or Risk Not Having a Working Phone*, CNET, Oct. 28, 2019, <https://www.cnet.com/news/apple-warns-iphone-5-users-to-update-ios-or-risk-not-having-a-working-phone/>. STACK EXCHANGE, *What is Apple's Policy for Supporting Security Updates on Older Versions of iOS?*, <https://apple.stackexchange.com/questions/223170/what-is-apples-policy-for-supporting-security-updates-on-older-versions-of-ios>.

⁶³ See Section III. B, *infra*.

The **second** big challenge faced by Google is the potential fragmentation of the Android operating system.⁶⁴ The anti-fragmentation agreements concluded between Google and OEMs present a partial solution to this problem. In a nutshell, Google withholds the Google Play and Google Search apps from OEMs that distribute “incompatible devices” (*i.e.* devices that significantly depart from the “standard version” of Android). The exact scope of this obligation was hotly contested throughout the Commission’s decision.

In short, the idiosyncrasies of Google’s open ecosystem raise a number of unique challenges, which Google sought to address via a series of contracts. These contractual provisions appear to have driven the Commission’s investigation. Critically, Apple applies, *mutatis mutandis*, very similar (and often stricter) measures within its own ecosystem. While this does not necessarily imply that Google’s behavior was procompetitive, it suggests that Google was, at least in part, motivated by legitimate platform design choices. However, as explained below, the Commission was mostly oblivious to this complex business reality.

B. Tying without foreclosure

The first theory of harm identified by the Commission concerned the tying of Google’s Search app with the Google Play app, and of Google’s Chrome app with both the Google Play and Google Search apps:

(773) The Commission concludes that the **tying of the Google Search app with the Play Store** is capable of restricting competition because it:

(1) **provides Google with a significant competitive advantage that competing general search services providers cannot offset** (Section 11.3.4.1); and

(2) **helps Google to maintain and strengthen its dominant position in each national market for general search services, increases barriers to entry, deters innovation and tends to harm, directly or indirectly consumers** (Section 11.3.4.2).

⁶⁴ Simon Hill, *What is Android Fragmentation, and Can Google Ever Fix It?*, DIGITAL TRENDS, Oct. 31, 2018, <https://www.digitaltrends.com/mobile/what-is-android-fragmentation-and-can-google-ever-fix-it/>. Team AA, *What is Android Fragmentation, and Can Google Fix It?*, ANDROID AUTHORITY, Sep. 5, 2019, <https://www.androidauthority.com/android-fragmentation-google-fix-it-713210/>.

(896) The Commission concludes that the **tying of Google Chrome with the Play Store and the Google Search app** is capable of restricting competition because it:

(1) provides Google with a **significant competitive advantage that competing non OS-specific mobile web browsers cannot offset** (Section 11.4.4.1); and

(2) **deters innovation, tends to harm, directly or indirectly, consumers of mobile web browsers** and helps to maintain and strengthen Google's dominant position in each national market for general search services (Section 11.4.4.2).⁶⁵

According to the Commission, Google contractually required OEMs to take these apps as a bundle. In its own words:

(765) First, **OEMs can pre-install the Play Store on their Google Android devices only if they license and pre-install the GMS bundle, including the Google Search app.**

(766) Second, **users cannot obtain the Play Store without simultaneously obtaining the Google Search app.**

(767) Third, **OEMs that wish to install a different general search app on their GMS devices can do so only alongside the Google Search app.**

...

(888) First, **OEMs can pre-install the Play Store and the Google Search app on their Google Android devices only if they license and pre-install the GMS bundle, including Google Chrome.**

(889) Second, **users cannot obtain the Play Store and the Google Search app without simultaneously obtaining Google Chrome.**

(890) Third, **OEMs that wish to install a different mobile web browser on their GMS devices can do so only alongside Google Chrome.**⁶⁶

In short, and oversimplifying, OEMs thus had to choose between either *pre-installing* a bundle of Google applications, or forgoing some of the most important ones (notably Google Play) – though this did not preclude OEMs from also pre-installing rival web browsers and search apps.

⁶⁵ *Google Android*, *supra* note 1, at 773 & 896.

⁶⁶ *Id.* at 888-890.

Finally, in order to support the above, the Commission argued that alternative distribution channels could not be used to offset the competitive advantage that Google obtained from its tying:

(804) The competitive advantage that Google ensures for itself cannot be offset by competing general search services using alternative distribution channels, such as downloads or agreements with developers of mobile web browsers whereby the competing general search service would be set as default in the URL line, the browser's home page or appear as a bookmark.

(a) **Downloads cannot offset** the competitive advantage that Google ensures for itself.

(b) **Agreements with mobile web browser developers cannot offset** the competitive advantage that Google ensures for itself.

(c) **Pre-installation agreements** with OEMs and MNOs **cannot offset** the competitive advantage that Google ensures for itself.⁶⁷

However, a detailed analysis of the market in which Google operated reveals that these conclusions are far from clear. In a nutshell, the Commission concluded that **no alternative distribution channel** would enable rivals to offset the competitive advantage obtained by Google from tying.

For a start the Commission claimed that **user downloads** were not a viable alternative distribution channel, even though roughly 250 million apps are downloaded on Google's Play store every day.⁶⁸

The Commission notably sought to overcome this inconvenient statistic by arguing that Android users were unlikely to download apps that duplicated the functionalities of a pre-installed app – why download a new browser if there is already one on the user's phone?⁶⁹

But this reasoning is far from watertight. For instance, the 17th most-downloaded Android app, the “Super-Bright Led Flashlight” (with more than 587million

⁶⁷ *Id.* at 805, 817 & 823. The Commission voiced similar concerns regarding the tying of the Chrome Browser. *Id.* at 917&932.

⁶⁸ Avinash Sharma, *Top Google Play Store Statistics 2019-2020 You Must Know*, APPINVENTIV, Jul. 22, 2019, <https://appinventiv.com/blog/google-play-store-statistics/>.

⁶⁹ *Google Android*, *supra* note 1, at 781 & 805-807.

downloads), mostly replicates a feature that is pre-installed on all Android devices.⁷⁰ In fact, the five most downloaded Android apps (Facebook, Facebook Messenger, Whatsapp, Instagram and Skype) provide functionalities that are, to some extent at least, offered by apps that have, at some point or another, been preinstalled on many Android devices (notably Google Hangouts, Google Photos and Google+).⁷¹

The Commission countered that communications apps were not appropriate counterexamples, because they benefit from network effects.⁷² But this overlooks the fact that these apps benefited from very limited network effects *when they were launched*, and that they succeeded despite the presence of their rivals' pre-installed apps. Direct user downloads are thus a far more powerful channel than the Commission cared to admit.

The Commission was also wrong to cite both the “low” download numbers of rival search apps and the higher usage of Google’s apps, on Android devices⁷³, as proof that that user downloads were not a viable distribution channel.⁷⁴ Indeed, the higher usage of Google’s apps could just as well have been due to consumer preferences (which is not unlikely given these users’ decision to purchase an Android phones in the first place). In other words, the Commission did not prove that the relative popularity of Google’s apps on Android phones was *caused* by their pre-installation.

Finally, it is worth noting that smartphone users reportedly use 9-10 apps per day, on average, and about 30 different ones per month.⁷⁵ They also have an average of roughly 80 apps installed on their devices.⁷⁶ Smartphone users are thus far more adept at finding superior applications than the Commission’s decision might suggest.

⁷⁰ Dan Price, *The 20 Most Popular Android Apps in the Google Play Store*, MADEUSEOF, Jul. 5, 2018, <https://www.makeuseof.com/tag/most-popular-android-apps/>.

⁷¹ Jimmy Westenberg, *Hangouts Will no Longer be Required to Come Pre-installed on Android Phones in December*, ANDROID AUTHORITY, Oct. 7, 2016, <https://www.androidauthority.com/hangouts-no-longer-pre-install-android-phones-720719/>. *Google Android*, *supra* note 1, at 813.

⁷² *Google Android*, *id.* at 813.

⁷³ *Id.* at 790.

⁷⁴ *Id.* at 808-810.

⁷⁵ Nick G., *51+ Jaw Dropping App Usage Statistics In 2020 [Infographic]*, TECHJURY, Mar. 15, 2019, https://techjury.net/stats-about/app-usage/#Apps_Usage_Trends.

⁷⁶ APP ANNIE, SPOTLIGHT ON CONSUMER APP USAGE (2017), http://files.appannie.com.s3.amazonaws.com/reports/1705_Report_Consumer_App_Usage_EN.pdf.

Similarly concerning is the Commission's conclusion that **paying OEMs or MNOs to pre-install their search apps was not a viable alternative** for Google's rivals. Some of the reasons cited by the Commission to support this finding are particularly troubling.

For instance, the Commission claimed that high transaction costs precluded this type of arrangement.⁷⁷ And yet, such pre-installation agreements are a common feature of smartphone markets. In recent years, Microsoft struck a deal with Samsung to pre-install some of its office apps on the Galaxy Note 10.⁷⁸ It also paid Verizon to pre-install the Bing search app on a number of Samsung phones, in 2010.⁷⁹ Likewise, a number of Russian internet companies have been in talks with Huawei to pre-install their apps on its devices.⁸⁰ And Yahoo reached an agreement with Mozilla to make it the default search engine for its web browser.⁸¹ Transaction costs do not appear to have been an obstacle in any of these cases.

The Commission also claimed that duplicating too many apps would cause **storage space issues** on devices.⁸² But a back-of-the-envelope calculation suggests that storage space is unlikely to be a major issue. For instance, the Bing Search app has a download size of 24MB.⁸³ And typical entry-level smartphones generally have an internal memory of at least 64GB (that can often be extended to more than 1TB with the addition of an SD card). The Bing Search app thus takes up less than one-thousandth of these devices' internal storage. Granted, the Yahoo search app is slightly larger

⁷⁷ *Google Android*, *supra* note 1, at 826.

⁷⁸ Shilpa Ranganathan, *Microsoft and Samsung Partner to Empower You to Achieve More*, MICROSOFT WINDOWS BLOG, Aug. 7, 2019, <https://blogs.windows.com/windowsexperience/2019/08/07/microsoft-and-samsung-partner-to-empower-you-to-achieve-more/>

⁷⁹ Preston Gralla, *With the Verizon-Bing Deal, has Microsoft Found a Chink in Google's Android Armor?*, COMPUTERWORLD, Sep. 8, 2010, <https://www.computerworld.com/article/2469142/with-the-verizon-bing-deal-has-microsoft-found-a-chink-in-google-s-android-armor.html>.

⁸⁰ Joel Joseph, *Mail.ru is Planning to Pre-install its Apps on Huawei Phones*, GIZMOCHINA, Aug. 14, 2019, <https://www.gizmochina.com/2019/08/14/mail-ru-install-apps-on-huawei-phones/>.

⁸¹ Liam Tung, *Google's Back: It's Firefox's Default Search Engine Again, After Mozilla Ends Yahoo deal*, ZDNET, Nov. 15, 2017, <https://www.zdnet.com/article/googles-back-its-firefoxs-default-search-engine-again-after-mozilla-ends-yahoo-deal/>.

⁸² *Google Android*, *supra* note 1, at 829.

⁸³ GOOGLE PLAY, *Microsoft Bing Search*, <https://play.google.com/store/apps/details?id=com.microsoft.bing&hl=en>.

than Microsoft's, weighing almost 100MB.⁸⁴ But this is still insignificant compared to a modern device's storage space.

Finally, the Commission claimed that rivals were contractually prevented from concluding *exclusive* pre-installation deals because Google's own apps would also be pre-installed on devices.⁸⁵ However, while it is true that Google's apps would still be present on a device, rivals could still pay for their applications to be set as default. Even Yandex – a plaintiff – recognized that this would be a valuable solution. In its own words (taken from the Commission's decision):

Pre-installation alongside Google would be of some benefit to an alternative general search provider such as Yandex [...] given the **importance of default status and pre-installation on home screen**, a level playing field will not be established unless there is a meaningful competition for default status instead of Google.⁸⁶

In short, the Commission failed to convincingly establish that Google's contractual terms prevented as-efficient rivals from effectively distributing their applications on Android smartphones. The evidence it adduced was simply too thin to support anything close to that conclusion. And much of the same can be said about the arguments it made relating to the tying of the Chrome Browser with the Google Play and Search apps.

C. The threat of fragmentation

The Commission's second theory of harm concerned the so-called "antifragmentation" agreements concluded between Google and OEMs. In a nutshell, Google only agreed to license the Google Search and Google Play apps to OEMs that sold "Android Compatible" devices (*i.e.* devices sold with a version of Android did not stray too far from Google's most recent version).⁸⁷

According to Google, this requirement was necessary to limit the number of Android forks that were present on the market (as well as older versions of the standard

⁸⁴ GOOGLE PLAY, *Yahoo Search*, <https://play.google.com/store/apps/details?id=com.yahoo.mobile.client.android.search&hl=en>.

⁸⁵ *Google Android*, *supra* note 1, at 830-834.

⁸⁶ *Id.* at 830.

⁸⁷ *Id.* at 131 & 1032.

Android). This, in turn, reduced development costs and prevented the Android platform from unraveling.

The Commission disagreed, arguing that Google's anti-fragmentation provisions thwarted competition from potential Android forks (*i.e.* modified versions of the Android OS):

(1036) The licensing of the Play Store and the Google Search app on condition that hardware manufacturers enter into the anti-fragmentation obligations is capable of restricting competition. This is the following reasons:

(1) **Android forks constitute a credible competitive threat to Google** (Section 12.6.1);

(2) Google actively monitors compliance with, and enforces, the anti-fragmentation obligations (Section 12.6.2);

(3) **The anti-fragmentation obligations hinder the development of Android forks** (Section 12.6.3);

(4) **Compatible forks do not constitute a credible competitive threat to Google** (Section 12.6.4); and

(5) The capability of the anti-fragmentation obligations to restrict competition is reinforced by the unavailability of Google's proprietary APIs to fork developers, which makes it more difficult for Android forks to attract app developers (Section 12.6.5);

(6) Google's conduct helps to maintain and strengthen Google's dominant position in each national market for general search services, deters innovation, and tends to harm, directly or indirectly, consumers (Section 12.6.6).⁸⁸

The Commission's conclusions regarding Google's anti-fragmentation agreements raise, at least, two critical questions: The first is whether these agreements were necessary to ensure the survival and competitiveness of the Android platform, and the second is why "open" platforms should be precluded from partly replicating a feature that is the quintessential to rival "closed" platforms, such as Apple's iOS.

Let us start with the **necessity, or not, of Google's contractual terms**. If fragmentation did indeed pose an existential threat to the Android platform, and anti-

⁸⁸ *Id.* at 1036.

fragmentation agreements averted this threat, then it is hard to make a case that they thwarted competition. The Android platform would not have been viable without them.

The Commission mostly dismissed this possibility on the basis of statements made by Google's rivals (many of whom likely stood to benefit from the suppression these agreements).⁸⁹ For instance, the Commission notably relied on comments from Yandex – one of the plaintiffs in the case:

(1166) The fact that **fragmentation can bring significant benefits** is also confirmed by third-party respondents to requests for information:

(2) Yandex, which stated: "*Whilst the development of Android forks certainly has an impact on the fragmentation of the Android ecosystem in terms of additional development being required to adapt applications for various versions of the OS, **the benefits of fragmentation outweigh the downsides...***"⁹⁰

Ironically, the Commission relied on Yandex's statements while, at the same time, it dismissed arguments made by Android app developers, on account that they were conflicted. In its own words:

Google attached to its Response to the Statement of Objections 36 letters from OEMs and app developers supporting Google's views about the dangers of fragmentation [...] It appears likely that **the authors of the 36 letters were influenced by Google when drafting or signing those letters.**⁹¹

More fundamentally, the Commission's claim that fragmentation was not a significant threat is at odds with an almost unanimous agreement among industry insiders.⁹²

For example, while it is not dispositive, a rapid search for the terms "Google Android fragmentation", using the DuckDuckGo search engine⁹³, leads to far more nuanced

⁸⁹ *Id.* at 1163-1168.

⁹⁰ *Id.* at 1166

⁹¹ *Id.* at 1066.

⁹² Simon Hill, *supra*, note 64.

⁹³ Search made on Nov. 12, 2019, limited to US results. The search was conducted using the DuckDuckGo search engine so as to avoid unlikely, but conceivable, biases that might have existed on the Google Search engine.

results than those cited in the Commission's decision. Of the ten first results⁹⁴, only one could remotely be construed as claiming that fragmentation was not an issue⁹⁵.

The other results paint a very different picture:

There's a fairly universal perception that Android fragmentation is a barrier to a consistent user experience, a security risk, and a challenge for app developers.⁹⁶

Android fragmentation, a problem with the operating system from its inception, has only become more acute an issue over time, as more users clamor for the latest and greatest software to arrive on their phones.⁹⁷

Android Fragmentation a Huge Problem: Study.⁹⁸

Google's Android fragmentation fix still isn't working at all.⁹⁹

Does Google care about Android fragmentation? Not now—but it should.¹⁰⁰

This is very frustrating to users and **a major headache for Google... and a challenge for corporate IT**," Gold said, explaining that there are a large

⁹⁴ Simon Hill, *supra*, note 64. Team AA, *supra*, note 64. Lucas Mearian, *Google Attacks Android Fragmentation, Pushes Use of Newer API, OS versions*, COMPUTERWORLD, Dec. 22, 2017, <https://www.computerworld.com/article/3242995/google-attacks-android-fragmentation-pushes-use-of-newer-api-os-versions.html>. Luke Larson, *Can Google Solve Android Fragmentation for Good?*, PASTE, May 19, 2017, <https://www.pastemagazine.com/articles/2017/05/can-google-solve-android-fragmentation-for-good.html>. Prateek Phoenix, *What is Android Fragmentation and How Google Fixes It*, TECHLILA, May. 19, 2017, <https://www.techlila.com/android-fragmentation/>. Lewis Leong, *Does Google Care About Android Fragmentation?*, APPLOVIN, June 6, 2018, <https://blog.applovin.com/google-android-fragmentation-analysis/>. Zach Epstein, *Google's Android Fragmentation Fix Still isn't Working at All*, BGR, May 8, 2019, <https://bgr.com/2019/05/08/android-q-vs-ios-12-features-pie-adoption-fragmentation-still-sux/>. Damien Wilde, *Comment: Android's Fragmentation Also Happens to be its Core Strength*, 9TO5GOOGLE, AUG. 16, 2019, <https://9to5google.com/2019/08/16/android-fragmentation/>. Marguerite Reardon & Stephen Shankland, *Google Engineers: We're Trying to fix Android Fragmentation*, CNET, May 16, 2013, <https://www.cnet.com/news/google-engineers-were-trying-to-fix-android-fragmentation/>. Nate Swanner, *Android Fragmentation a Huge Problem: Study*, DICE, Nov. 16, 2017, <https://insights.dice.com/2017/11/16/android-fragmentation-real-problem/>.

⁹⁵ Damien Wilde, *supra*, note 64.

⁹⁶ Simon Hill, *supra*, note 64.

⁹⁷ Team AA, *supra*, note 64

⁹⁸ Nate Swanner, *supra*, note 64.

⁹⁹ Zach Epstein, *supra*, note 64.

¹⁰⁰ Lewis Leong, *supra*, note 64.

number of older, not fully compatible devices running various versions of Android.¹⁰¹

Perhaps more importantly, one might question why Google should be **treated differently than rivals that operate closed platforms**, such as Apple, Microsoft and BlackBerry (before the last two mostly exited the Mobile OS market). By definition, these platforms limit all potential forks (because they are based on proprietary software).

The Commission argued that Apple, Microsoft and BlackBerry opted to run “closed” platforms, which gave them the right to prevent rivals from copying their software:

(1161) In the third place, it is irrelevant that alternative smart mobile OS providers may have more restrictive business models as:

(1) Apple, BlackBerry and Microsoft have not decided to adopt an open source business model.

While this answer has some superficial appeal, it is incomplete. Android may be an open source project, but this is not true of Google’s proprietary apps. Why should it be forced to offer them to rivals who would use them to undermine its platform? The Commission did not meaningfully consider this complex question.

And yet, industry insiders routinely compare the fragmentation of Apple’s iOS and Google’s Android OS, in order to gage the state of competition between both firms. For instance, one commentator noted:

[T]he gap between iOS and Android users running the latest major versions of their operating systems has never looked worse for Google.¹⁰²

Likewise, an article published in Forbes argued that Google’s OEMs were slow at providing users with updates, and that this might drive users and developers away from the Android platform:

For many users the Android experience isn't as up-to-date as Apple's iOS. Users could buy the latest Android phone now and they may see one major OS update and nothing else. [...] Apple users can be pretty

¹⁰¹ Lucas Mearian, *supra*, note 64.

¹⁰² Jeremy Horwitz, *As iOS 13 hits 50% Adoption, Android Fragmentation Keeps Getting Worse*, VENTUREBEAT, Oct. 17, 2019, <https://venturebeat.com/2019/10/17/as-ios-13-hits-50-adoption-android-fragmentation-keeps-getting-worse/>.

sure that they'll get at least two years of updates, although the company never states how long it intends to support devices.

However this problem, in general, **makes it harder for developers and will almost certainly have some inherent security problems**. Developers, for example, will need to keep pushing updates - particularly for security issues - to many different versions. This is likely a time-consuming and expensive process.¹⁰³

To recap, the Commission's decision paints a world that is either black or white: either firms operate closed platforms, and they are then free to limit fragmentation as they see fit, or they create open platforms, in which case they are deemed to have accepted much higher levels of fragmentation.

This stands in stark contrast to industry coverage, which suggests that users and developers of both closed and open platforms care a great deal about fragmentation, and demand that measures be put in place to address it. If this is true, then the relative fragmentation of open and closed platforms has an important impact on their competitive performance, and the Commission was wrong to reject comparisons between Google and its closed ecosystem rivals.

D. Google's revenue sharing agreements

The last part of the Commission's case centered on revenue sharing agreements between Google and its OEMs (as well as a series of mobile network operators, who sold Android-based devices). According to the Commission:

13.3. Google's portfolio-based **revenue share payments constituted exclusivity payments**

(1195) Between at least 1 January 2011 and 31 March 2014, Google granted **payments to OEMs and MNOs on condition that they pre-installed no competing general search service on any device within an agreed portfolio**. With the exception of the agreement between Google and [revenue share partner], the agreed portfolio consisted of at least all GMS devices.

(1196) As a result, **if an OEM or MNO had pre-installed a competing general search service on any device within an agreed portfolio, it**

¹⁰³ Ian Morris, *Android Is Still Failing Where Apple's iOS Is Winning*, FORBES, Apr. 13, 2018, <https://www.forbes.com/sites/ianmorris/2018/04/13/android-is-still-failing-where-apples-ios-is-winning/#5425231c7447>.

would have had to **forego the revenue share payments** not only for that particular device but also **for all the other devices in that portfolio**.

The Commission found that these payments reduced the incentives of OEMs and MNOs to pre-install competing general search apps.¹⁰⁴ However, to reach this conclusion, the Commission had to make the critical (and highly dubious) assumption that rivals could not match Google's payments.¹⁰⁵ In its own words:

(1227) In the first place, **pursuant to the MADA, the Google Search app had to be pre-installed on all GMS devices** (which includes all devices of the portfolio of each OEM and MNO), **and placed on the devices' home screen**. Therefore, the app of the **competing general search service could only have been pre-installed in addition to the Google Search app**, and could not have been displayed more prominently.

(1234) (1) An OEM or MNO could not reasonably have expected a **competing general search app to capture** from the Google Search app **more than a share of queries that was typically obtained by competing general search services on PCs worldwide** during the period in which portfolio-based revenue share agreements were in place.

(1249) Finally, **competing general search services would have had to compensate an OEM or MNO for the loss of Google's payments across its entire portfolio of Google Android devices while being pre-installed only on new devices**. This is because a competing general search service could not have been pre-installed on the devices already sold to users and on which an OEM or MNO obtained portfolio-based revenue share payments from Google.¹⁰⁶

Even on the assumption that the Commission's factual findings were correct (Google contested its reading of the MADA¹⁰⁷), the above conclusions are far from certain.

For a start, the Commission argued that Google's MADA required Google Search to be pre-installed, placed on the home screen, and, according to some firms¹⁰⁸, set as the default search engine on users' devices.¹⁰⁹ But this raises a critical question: if

¹⁰⁴ *Google Android*, *supra* note 1, at 1208.

¹⁰⁵ *Id.* at 1225.

¹⁰⁶ *Id.* at 1227, 1234 & 1249.

¹⁰⁷ *Id.* at 1233-1236

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 1227

Google's MADA already achieved all of these ends, **why did Google also offer revenue sharing agreements to OEMs?**

Under the Commission's interpretation of Google's MADAs, the only thing rival search apps could hope for was to be pre-installed and placed alongside Google's Search app. If this was insufficient for rivals to gain a foothold, then Google had no anticompetitive reason to outbid them with its revenue sharing agreements. The revenue sharing payments from Google to OEMs should thus have been relatively small. Conversely, large payments to OEMs would suggest that that rivals had ample scope to compete for placement (either because Google's MADA was less stringent than the Commission claimed, or because placement alongside Google sufficiently improved rivals' competitive position). Unfortunately, the Commission did not focus on the size of Google's payments.

Second, the Commission assumed that rival search engines would be **unable to increase their share of *mobile search results* beyond their share of *desktop search results***. The underlying intuition appears to be that users who freely chose Google Search on desktop (Google Search & Chrome are not set as default on desktop PCs) could not be convinced to opt for a rival search engine on mobile.

For one thing, this ignores the possibility that rivals might offer an innovative app that swayed users away from their preferred desktop search engine. More importantly, this reasoning cuts against the Commission's own claim that pre-installation and default placement were critical. If most users, dismiss their device's default search app and search engine in favor of their preferred ones, then pre-installation and default placement are largely immaterial, and Google's revenue sharing agreements could not possibly have thwarted competition (because they did not prevent users from independently installing their preferred search app). On the other hand, if users are easily swayed by default placement, then there is no reason to believe that rivals could not exceed their desktop market share on mobile phones.

Lastly, the Commission fell prey to the double counting fallacy¹¹⁰, when it claimed that rival search engines were at a disadvantage because of the **structure of Google's**

¹¹⁰ R.H. BORK, ANTITRUST PARADOX 141 (Simon & Schuster. 1993). ("Judge Wyzanski must have assumed that United could capture X in rental dollars and capture it a second time in exclusionary lease terms. Implicit in his reasoning, therefore, is the elementary fallacy of counting the same degree of market power twice.").

revenue sharing payments.¹¹¹ According to the Commission, OEMs (and MNOs) lost *all* of their revenue sharing payments if they accepted to place a rival search app on a single line of handsets.¹¹² The Commission also claimed that pre-installation could not be replicated via over-the-air updates. As a result, it concluded that devices were no longer contestable once they were sold.¹¹³

The key question is the following: could Google tilt the scales to its advantage by structuring the revenue sharing payments in this way? The answer appears to be no. Going on Commission's factual conclusions, Google seems to have purchased exclusivity from its OEMs. But exclusivity comes at a cost. By locking themselves to Google, OEMs could expect to receive less advantageous terms down the road. And Google would have had to offer something that compensated these expected losses. In other words, exclusivity did not automatically shift revenue to Google and enable it to outbid its rivals.

The Commission should thus have performed a more detailed analysis to determine whether the structure of Google's revenue sharing agreements *necessarily* stifled competition from its rivals. For instance, it has been argued that exclusivity may intensify competition for distribution.¹¹⁴ The structure of Google's revenue sharing payments might thus have been due to pressure from OEMs. Conversely, other scholars have claimed that exclusivity may deter entry in network industries.¹¹⁵ Unfortunately, the Commission did not examine whether Google's revenue sharing agreements fell within this category.

It thus provided insufficient evidence to support its conclusion that the revenue sharing agreements reduced OEMs' (and MNOs') incentives to pre-install competing general search apps, rather than merely increasing competition "for the market".

To summarize, the Commission overestimated the effect that Google's behavior might have on its rivals. It almost entirely ignored the justifications that Google put forward and relied heavily on statements made by its rivals. The result is a one-sided

¹¹¹ *Google Android*, *supra* note 1, at 1249.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ See Benjamin Klein & Kevin M Murphy, *Exclusive Dealing Intensifies Competition for Distribution*, 75 ANTITRUST L.J., 433 (2008). See also, Joshua D. Wright, *Antitrust Law And Competition for Distribution*, 23 YALE J. REG., 177 (2006).

¹¹⁵ See Carl Shapiro, *Exclusivity in Network Industries*, 7 GEO. MASON L. REV. 678 (1998).

decision that puts undue strain on the Android Business model, while providing few, if any, benefits in return.

IV. The Commission's economic analysis

The above has mostly focused on the Commission's factual and legal conclusions. However, the case's economic underpinnings also suffer from important weaknesses.

Two problems are particularly salient: First, the economic models cited by the Commission (discussed in an official paper, but not directly in the decision) poorly match the underlying facts.¹¹⁶ Second, the Commission's conclusions on innovation harms are out of touch with the abundant economic literature regarding the potential link between market structure and innovation.

A. The wrong economic models

The Commission's Chief Economist team outlined its economic reasoning in a paper released shortly after the Android decision was published.¹¹⁷ The Commission cited three economic papers to support its conclusion that Google's tying harmed consumer welfare.

Each of these three papers attempts to address the same basic problem. Ever since the rise of the Chicago-School, it is widely accepted that a monopolist cannot *automatically* raise its profits by entering an adjacent market (*i.e.* leveraging its monopoly position), for instance through tying.¹¹⁸ This has sometimes been called the single-monopoly-profit theory. In more recent years, various scholars have refined this Chicago-School intuition, and identified instances where this theory fails.¹¹⁹

While the single monopoly profit theory has been criticized in academic circles, it is important to note that the three papers cited by the Commission accept its basic premise. They thus attempt to show why the theory fails in the context of the Google

¹¹⁶ See Rossitza Kotzeva, David Kovo, Szabolcs Lorincz, Geza Sapi, Lluís Sauri & Tommaso Valletti, *Recent Developments at DG Competition: 2018/2019*, REVIEW OF INDUSTRIAL ORGANIZATION, 15 (2019).

¹¹⁷ *Id.*

¹¹⁸ Ward S Bowman Jr, *Tying Arrangements and the Leverage Problem*, 67 YALE LJ, 19 (1957).

¹¹⁹ See, e.g., Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194 (2002). See also, Jay Pil Choi & Christodoulos Stefanadis, *Tying, Investment, and the Dynamic Leverage Theory*, 32 RAND J. ECON., 52 (2001).

Android case. Unfortunately, the assumptions upon which they rely to reach this conclusion markedly differ from the case's fact pattern. These papers thus offer little support to the Commission's economic conclusions.

For a start, the authors of the **first paper** cited by the Commission concede that their own model does not apply to the Google case:

Actual antitrust cases are fact-intensive and our model does not perfectly fit with the current Google case in one important aspect.¹²⁰

The authors thus rely on important modifications, lifted from a paper by Federico Etro and Cristina Caffara (the second paper cited by the Commission), to support their conclusion that Google's tying was anticompetitive.¹²¹

The **second paper** cited by the Commission, however, is equally problematic.¹²² The authors' underlying intuition is relatively straightforward: because Google bundles its suite of Google Apps (including Search) with the Play Store, a rival search engine would have to pay a premium in order to be pre-installed and placed on the home screen, because OEMs would have to entirely forgo Google's suite of applications.¹²³ The key assumption here is that OEMs cannot obtain the Google Play app *and* pre-install and place favorably a rival search app.

But this is simply not true of Google's contractual terms. The best evidence is that rivals search apps have indeed concluded deals with OEMs to pre-install their search apps, without these OEMs losing access to Google's suite of proprietary apps. Google's contractual terms simply do not force OEMs to choose between the Google

¹²⁰ See Jay Pil Choi & Doh-Shin Jeon, *A Leverage Theory of Tying in Two-Sided Markets with Non-Negative Price Constraints*, AM. ECON. J. MICROECONOMICS, 18. ("Actual antitrust cases are fact-intensive and our model does not perfectly fit with the current Google case in one important aspect.")

¹²¹ *Id.*

¹²² See Federico Etro & Cristina Caffarra, *On the Economics of the Android Case*, 13 EUR. COMPETITION J., 296 (2017). ("The key condition for this result is that in the absence of tying, Google forgoes collecting some surplus from OEMs through its commitment to a zero price for the GP/GPS suite. This "uncollected surplus" is then used to capture the tied good market.")

¹²³ *Id.* at 296. ("While an entrant can still bid for exclusive pre-installation on forked Android devices without GP/GPS, the difference in quality makes it possible for Google to pay OEMs enough to use its bundle. [...] In practice, the difference in quality between "normal" Android devices with the GP/GPS suite, and "bare" Android devices without it is so large that through small financial incentives Google can convince OEMs to adopt the GP/GPS suite, and rival search engines cannot outbid Google.")

Play app and the pre-installation of a rival search app. Etro and Caffara's model thus falls flat.

More fundamentally, even if Google's contractual terms did prevent OEMs from pre-loading rival apps, the paper's conclusions would still be flawed. The authors essentially assume that the only way for consumers to obtain a rival app is through pre-installation. But this is a misreading of the prevailing market conditions.

Users remain free to independently download rival search apps. If Google did indeed purchase exclusive pre-installation, users would not have to choose between a "full Android" device and one with a rival search app but none of Google's apps. Instead, they could download the rival app and place it alongside Google's applications.

A more efficient rival could even provide side payments, of some sort, to encourage consumers to download its app. Exclusive pre-installation thus generates a much smaller advantage than Etro and Caffara assume, and their model fails to reflect this.

Finally, the **third paper** by Alexandre de Cornière and Greg Taylor, suffers from the exact same problem. The authors clearly acknowledge that their findings only hold if OEMs (and consumers) are effectively prevented from (pre-)installing applications that compete with Google's apps. In their own words:

Upstream firms offer contracts to the downstream firm, who chooses which component(s) to use and then sells to consumers. **For our theory to apply, the following three conditions need to hold: (i) substitutability between the two versions of B leads the downstream firm to install at most one version.**¹²⁴

The upshot is that all three of the economic models cited by the Commission cease to be relevant in the specific context of the Google Android decision. The Commission is thus left with little to no economic evidence to support its finding of anticompetitive effects.

Critics might argue that direct downloads by consumers are but a theoretical possibility. Yet nothing could be further from the truth. Take the web browser market: The Samsung Internet Browser has more than 1 Billion downloads on Google's Play Store. The Opera, Opera Mini and Firefox browsers each have over a 100 million

¹²⁴ See Alexandre De Cornière & Greg Taylor, *Upstream Bundling and Leverage of Market Power*, CEPR Discussion Paper No. DP13083 at 2 (2018) available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3222597.

downloads. The Brave browser has more than 10 million downloads and is growing rapidly.¹²⁵

In short the economic papers on which the Commission relies are based on a world that does not exist. They thus fail to support the Commission's economic findings.

B. Unsubstantiated claims of reduced innovation

The Commission also repeatedly claimed that Google's behavior stifled innovation by preventing rivals from entering the market. However, it offered no evidence to support its assumption that reduced entry on the market would lead to a decrease in innovation:

(858) For the reasons set out in this Section, the Commission concludes that the **tying of the Play Store and the Google Search app** helps Google to maintain and strengthen its dominant position in each national market for general search services, **increases barriers to entry, deters innovation and tends to harm, directly or indirectly, consumers.**

(859) First, Google's conduct **makes it harder for competing general search services to gain search queries** and the respective revenues and data needed to improve their services.

(861) Second, Google's conduct **increases barriers to entry by shielding Google from competition from general search services** that could challenge its dominant position in the national markets for general search services:

(862) Third, by **making it harder for competing general search services to gain search queries** including the respective revenues and data needed to improve their services, Google's conduct **reduces the incentives of competing general search services to invest in developing innovative features**, such as innovation in algorithm and user experience design.¹²⁶

¹²⁵ These download numbers can be viewed on Google's Play Store.

¹²⁶ *Google Android*, *supra* note 1, at 858-862. The Commission reached similar conclusions at numerous points throughout its decision. *Google Android*, at 970, 1139-1142 & 1313-1322.

In a nutshell, the Commission's findings rest on the assumption that barriers to entry and more concentrated market structures necessarily reduce innovation. But this assertion is simply not supported by the empirical economic literature on the topic.¹²⁷

For example, a paper published by Richard Gilbert in 2006 surveys 24 empirical studies on the topic.¹²⁸ These studies examine the link between market structure (or firm size) and innovation. Though earlier studies tended to identify a positive relationship between concentration, as well as firm size, and innovation, more recent empirical techniques found no significant relationship. Gilbert thus suggests that:

These econometric studies suggest that **whatever relationship exists at a general economy-wide level between industry structure and R&D is masked by differences across industries in technological opportunities, demand, and the appropriability of inventions.**¹²⁹

This finding is confirmed by another high-profile empirical paper by Aghion, Bloom, Blundell, Griffith, and Howitt.¹³⁰ The authors identify an inverted-U relationship between competition and innovation. Perhaps more importantly, they point out that this relationship is affected by a number of sector-specific factors.¹³¹

Finally, reviewing fifty years of research on innovation and market structure, Wesley Cohen concludes that:

Even before one controls for industry effects, the variance in R&D intensity explained by market concentration is small. Moreover, whatever relationship that exists in cross sections becomes imperceptible with the inclusion of controls for industry characteristics, whether expressed as industry fixed effects or in the form of survey-based and other measures of industry characteristics such as technological opportunity, appropriability conditions, and demand. In parallel to a decades-long accumulation of mixed results, theorists have also spawned an almost

¹²⁷ For a more detailed discussion, see Dirk Auer, *Structuralist Innovation: A Shaky Legal Presumption in Need of an Overhaul*, CPI ANTITRUST CHRONICLE, Dec. 17, 2018, available at <https://www.competitionpolicyinternational.com/structuralist-innovation-a-shaky-legal-presumption-in-need-of-an-overhaul/>.

¹²⁸ Richard Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?*, 6 INNOVATION POL'Y & ECON. 159-215 (2006).

¹²⁹ *Id.* at 191.

¹³⁰ Philippe Aghion, Nick Bloom, Richard Blundell, Rachel Griffith & Peter Howitt, *Competition and Innovation: An Inverted-U Relationship*, 120 Q. J. ECON. 701-728 (2005).

¹³¹ *Id.* at 702.

equally voluminous and equivocal literature on the link between market structure and innovation.¹³²

The Commission's stance is further weakened by the fact that investments in the Android operating system are likely affected by a weak appropriability regime.¹³³ In other words, because of its open source nature, it is hard for Google to earn a return on investments in the Android OS (anyone can copy, modify and offer their own version of the OS).

Loosely tying Google's proprietary applications to the OS is arguably one way to solve this appropriability problem.¹³⁴ It argued that Google could earn some revenue from the Google Play app, as well as other potential venues.¹³⁵ However, the Commission did not question whether these sources of income were even comparable to the sums invested by Google in the Android OS. It is thus possible that the Commission's decision will prevent Google from earning a positive return on some future investments in the Android OS, ultimately causing it to cut back its investments and slowing innovation.

The upshot is that the Commission was simply wrong to assume that barriers to entry and more concentrated market structures would necessarily reduce innovation. This is especially true, given that Google may struggle to earn a return on its investments, absent the contractual provisions challenged by the Commission.

V. Conclusion

"If all you have is a hammer, everything looks like a nail", or so the saying goes. This idiom neatly summarizes the Commission's case against Google and the Android OS.

As has been explained in detail throughout this paper, the Commission's groundbreaking decision pushed European competition law to its very limits. The result is a decision that is flawed on many levels, including the definition of the relevant

¹³² Cohen, *HANDBOOK OF THE ECONOMICS OF INNOVATION*, 154-155 (2010).

¹³³ On appropriability in general, see David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 *RES. POL'Y*, 285 (1986). On the appropriability investments in Android, see Dirk Auer, *Appropriability and the European Commission's Android Investigation*, 23 *COLUM. J. EUR. L.*, 647 (2017).

¹³⁴ Auer at 647 (2017).

¹³⁵ *Id.*

market, the assessment of Google's dominance, the analysis of anticompetitive exclusion, and the underlying economic reasoning.

This is all the more worrying, given that the Commission is expected to significantly ramp up its enforcement of competition law in digital markets. If the Android decision serves as a template for this drive, then large tech firms, especially the so-called GAFAM (Google, Amazon, Facebook, Apple and Microsoft), will be in for a tough time.

Indeed, a key feature of the Android decision is that the Commission repeatedly overlooked the complex business environment in which Google and its competitors were operating. The Commission failed to grasp how this environment influenced their respective business models and competitive strategies. By following this same approach in future cases, the Commission could thus significantly hamper the emergence of both product and business model innovations.

In short, while the Android decision arguably benefited Google's rivals, there is little sense that the underlying behavior was in any way deleterious to competition or consumers (at least not according to the record put forward by the Commission). The Commission thus missed the opportunity to lay the foundations for a sensible competition policy pertaining to digital markets in Europe.