

Paranoid Android. Everything the Commission got wrong in its war on Google

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The Commission's decision to fine Google for unfair practice was based off of a misunderstanding of the Android ecosystem and a mistaken definition of the relevant market. This allowed Google's activities to be wrongly cast as those of a monopoly abusing its position.

Furthermore, such action as the Commission has taken is unlikely to be effective in achieving the Commissions stated goals.

This paper examines the background to the case and goes through the flaws in the Commissions approach, and the arguments used to justify the fines imposed on Google.

Introduction

On April 15, 2015, less than six months into the job, EU Commissioner for Competition Margrethe Vestager picked Google as the opponent which would define her tenure as chief of the European Union Competition Authority. She did so by waging war on the company through a pincer movement: on one side, she formalized charges in the *Shopping* case (European Commission, Google Search (Shopping), 2017), regardless of the fact that on three different occasions her predecessor Joaquín Almunia had almost closed the proceedings by accepting the binding commitments offered by Google; on the other side, she started a separate fight with the *Android* case (European Commission, Google Android, 2018), launching an investigation into Google's alleged abuses in the market for smartphone OSs.¹

When the *Shopping* case concluded in June 2017 with a € 2,42 billion fine, the highest in antitrust history at the time, the amount of the penalty mostly captured the public's interest; similarly, when the € 4,34 billion fine levied by the same authority on the same undertaking in the *Android* case crashed the previous record on July 18, all reactions focused on the [decision](#)'s monetary impact.

It is a tempting, albeit superficial interpretation: not only because that figure will hardly pose a challenge to a conglomerate which recorded an operating income of [\\$ 7,88 billion](#) (or € 6,74 billion) in Quarter 2 2018, but more importantly because the actual meaning of an antitrust decision lies in its market analysis and in its remedies, namely in the conduct rules it imposes on the undertakings in order for them to stop abusing their market power. Furthermore, as some of the sharpest analyses quickly remarked, while the Commission's remedies in the *Shopping* case addressed practices and services which weren't in fact central to Google's mission, the ones formulated in the *Android* case threaten the foundation of its current and prospective market strategy.

Even the corporate point of view, so to speak, can't fully explain the controversy, which isn't just about Google and its few direct competitors in the market for mobile OSs or for general search and online advertising, but rather affects hundreds of satellite activities, employing hundreds of thousands of workers, catering to hundreds of millions of consumers: that is, the whole mobile industry, in Europe and elsewhere.

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In addition, it is clear that such a major case will impact the European market as a whole, in at least three ways: a) first, by showing the increasing distance between EU and US approaches to antitrust regulation; b) second, by highlighting the weaknesses embedded in the institutional framework of European competition law (Sileoni, 2014); c) finally, these two trends contribute to a growing politicization of antitrust, both at a general level (at a time when the commercial tension between Europe and the United States is of concern) and at an individual level. In 2017, for instance, *The Economist* wondered whether Ms. Vestager's Google crusade had more to do with advancing the interests of consumers or her own career (The Economist, 2017).²

The paper is organized as follows: the following section will provide an introduction to the Android ecosystem; the Commission's findings will then be summed up, and their shortcomings described; finally, the likely implications of the decision will be briefly discussed. It must be noted that, as is always the case, the full decision will only be made available in a few months: thus, our remarks are based on the Commission's [press release](#), which doesn't present in detail the evidence behind the Commission's determination, but displays nonetheless the gist of its reasoning.

¹ A third investigation dealing with Google's online advertising business has been underway since July 2016 (European Commission, Google Search (AdSense), 2016) It feels unlikely that the Commission might be able to close the proceedings before the May 2019 EU Parliament election.

What Android is and what it is not

In July 2005, Google reportedly spent over \$ 50 million to buy Android, a start-up founded less than two years earlier with the goal of competing with Symbian and Windows Mobile in the market for mobile OSs, through a more effective exploitation of location information and user preferences. In November 2007, a few months after the iPhone was launched, Google created the Android Open Source Project, thus adopting an open distribution model for its own OSs, in stark contrast with the proprietary and vertically integrated model selected by Apple. At the same time, Google promoted a new Open Handset Alliance, an agreement between a number of device manufacturers and mobile carriers who would take part both in developing the platform and in producing and marketing Android-based devices.

As any OS, Android only provides those basic features which are essential to making the hardware work; over this first software layer, the actual applications are based, which provide users with more advanced features. Of course, the boundary between OS and apps is far from being set in stone: it depends on the way market players interact with each other, so that features that have traditionally been associated with OSs may become so specific that externalizing their provision might be required; on the other hand, some apps may become so indispensable for users as to be integrated in the OS.

It is far from obvious that barriers to entry are especially high in these markets.

Besides the OS, Google distributes a collection of apps (Google Mobile Services, or GMS), which currently includes, among others, the Google Play app store, the Google Chrome browser, the self-explanatory Google Search and Google Maps, as well as the Google Play Services APIs (for localization, messaging, in-app purchases...), which independent developers can use to build their apps while keeping the process as quick and cheap as possible.³ The GMS package, unlike the

Android OS, is distributed under a proprietary licence: manufacturers are thus expected to secure Google's permission in order to use it, which in turn requires subjecting devices to compatibility tests to ensure that the software would run smoothly on them.

In principle, then, manufacturers can employ Android in one of three different ways: a) they can freely download its source code and even alter it to make it better suited to their needs, just like Amazon does (its Kindle Fire tablet run Fire OS, a modified version of Android—or a fork); b) they can use the “official,” Google-sanctioned version, in which case they will be allowed to use the Android trademark as well, provided of course that they satisfy the compatibility requirements; c) they can employ a compatible version of the OS and couple it with the GMS package, by acquiring a licence. In most cases, the use of a compatible version of Android implies the installation of the GMS package, but this is by no means necessary. Finally, it should be pointed out that, irrespective of the applicable legal regime, both the Android OS and the GMS package are free to use, so it is accurate to say that they don't produce any (direct) revenues for Google.

The decision

Relevant markets and dominant position

The Commission's analysis focuses on three separate markets: a) the market for generic internet search; b) the market for licensable smart mobile OSs; c) the market for app stores for the Android mobile OS.

The first one is the market for so-called horizontal search engines (such as Google Search, Bing, DuckDuckGo...). While it is true that Google's market share is around or over 90% in most EEA countries, it is far from obvious that barriers to entry are especially high in these markets, as the Commission contends by making reference to its own conclusions in the Shopping case.

As to the market for licensable smart mobile OSs, the Commission finds that “Google is dominant in the worldwide market (excluding China) [...] with a market share of more than 95%” and that potential competitors face high barriers to entry, due to network effects as well as to the significant resources required to build an alternative OS.

In this regard, the Commission endeavours to prevent any objections to its view according to which proprietary, non-licensable OSs make up a distinct market, instead of competing with Android within the same market for smartphone OSs (licensable or otherwise).⁴ In particular, the Commission rejects the argument that Apple's competition might curb the effects of Google's dominance, by maintaining that Apple devices tend to be more expensive and that “Android device users face switching costs when switching to Apple devices, such as losing their apps, data and contacts.”

Finally, the Commission concludes that Google “is dominant in the worldwide market (excluding China) for app stores for the Android mobile OS [as] Google's app store, the Play Store, accounts for more than 90% of apps downloaded on Android devices”, and it reiterates that such dominance is in no way threatened by Apple's app store, which is only available for iOS devices.

³ For instance, if a developer meant to create an Android app (be it a gaming app, a social network, or an app for restaurant reviews...) requiring a mapping service, he wouldn't have to build it by himself or to buy it from a third party, as he could simply recall the relevant GPS APIs.

⁴ One might wonder whether OSs for tablets should also be included in the same market.

Practices

According to the Commission, Google abused its dominance by engaging in three different types of practices: a) it tied the Google Search app and the Google Chrome browser to the Google Play app store; b) it provided financial incentives to manufacturers (in the form of revenue-sharing agreements) on the condition that they exclusively pre-installed Google Search across their entire production of Android devices; c) it prevented the development and distribution of Android forks.

Furthermore, just like the “real” Android isn’t the whole Android ecosystem, the Android ecosystem isn’t the whole mobile ecosystem.

With regard to the first allegation, Google licenses its GMS package through a Mobile Application Distribution Agreement (or MADA) which prescribes that all of its components must be installed: manufacturers aren’t allowed to only pre-install some of its apps, while discarding the others. The Commission believes that the Play Store “is a ‘must-have’ app, as users expect to find it pre-installed on their devices (not least because they cannot lawfully download it themselves)”. It follows that manufacturers would be willing to feature the whole collection on their devices, just to be able to supply them with the app store.

In particular, the Commission focuses on two instances of illegal tying, regarding the Chrome browser and the Google Search app, as both “represent an important entry point for search queries on mobile devices.” According to the decision, “pre-installation can create a status quo bias”, giving Google a decisive edge over competing search engines, as shown by the fact that more than 95% of the queries originated from Android devices are made via Google Search, while over 75% of the queries originated from Windows Phone devices are made via Bing, Microsoft’s pre-installed search engine.

In the Commission’s view, this incentive policy penalized competing search services, unable to match that level of compensation.

The second illegal practice – which ceased in 2014 – was offering manufacturers and mobile carriers who agreed to pre-install Google Search as the exclusive search service on their devices a share of the revenues generated by the app. In the Commission’s view, this incentive policy penalized competing search services, unable to match that level of compensation.

Finally, the Commission punished Google for concluding so-called Anti-Fragmentation Agreements (AFA) with manufacturers, under which the GMS licensees committed not to produce or distribute non-compatible Android devices. This policy might have had the effect of hindering the development and distribution of Android forks and, as a consequence, the emergence of an alternative outlet for competing apps, especially search apps. According to the Commission, then, “it was Google – and not users, app developers and the market – that effectively determined which OSs could prosper.”

The Commission’s mistakes

Preliminary remarks

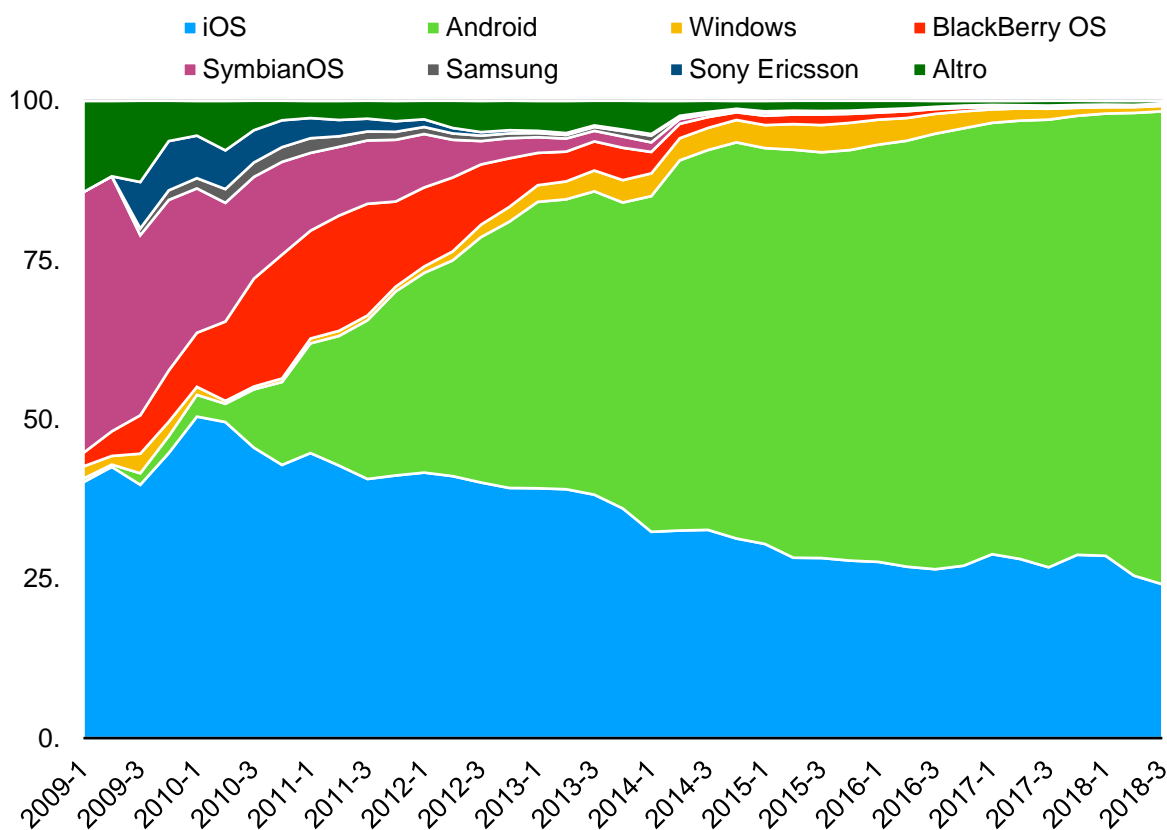
Before addressing in detail the specific problems with the Commission’s perspective, it is necessary to examine a few fundamental issues which affected its whole approach to the matter. First of all, the decision doesn’t reflect adequately the unsettled nature of the Android ecosystem and ends up treating the OS as a monolithic product: in particular, it fails to grasp the relationship between the basic Android (which Google makes available for free to anyone) and what passes as the “real” Android (still available for free, but subject to constraints) and it doesn’t really look at competition inside the ecosystem itself. Fire OS, for instance, is only mentioned in passing to point out that Google might have hampered its growth, but failing to remark that the relative success of Amazon’s mobile OS is precisely a vindication of Android’s open source model – Google allowed for its creation, but it didn’t reap any of the benefits.

This leads us to highlight another aspect of the Commission’s approach: that is, how the decision deals with the distinction between open and closed business models: in this regard, it’s easy to conclude that the Commission ended up penalizing open models, by implicitly charging the players who take this route with the responsibility to facilitate the development of the entire ecosystem—at some points, the Commission’s press release appears to criticize Google for failing to compete with itself. Not only is this approach short-sighted from a fairness perspective (why would Google keep developing a freely available mobile OS at the risk of having it cannibalize its own services?), but more so from an efficiency point of view (why would Google keep developing a freely available mobile OS, which doesn’t generate any revenues on its own, instead of focusing on the GMS package, ultimately leaving Android an empty shell?).

Furthermore, just like the “real” Android isn’t the whole Android ecosystem, the Android ecosystem isn’t the whole mobile ecosystem (see Chart 1 for its historical development). This must be stressed for two reasons: on the one hand, from a diachronic perspective, because it illustrates in what kind of environment Google pursued the market policies which the Commission deemed to be illegal; on the other hand, from a synchronic point of view, because it raises doubts on the market definitions adopted by the

Commission—in a rather eloquent comment on the decision, Nicholas Petit used the expression *regulatory gerrymandering*,⁵ to explain that almost any company could look like a monopolist if markets are defined too narrowly (Petit, N., 2018).

Chart 1 Mobile OS Market Shares in Europe, 2009-2018



Source: Statcounter

Finally, the Commission’s perspective simply ignores the role of consumers, as if they were doomed to passively conform to the choices of manufacturers and mobile carriers. On the contrary, the available evidence shows that users do their homework when they need to pick a new device and that they actively modify its configuration to make it better suited to their needs. It is a misleading simplification to assume that market shares depend entirely on Google’s alleged abuses and that consumer preferences don’t matter.

The evolution of the mobile market and the rise of Android

In 2007, the market for the first rudimentary smartphones was dominated by Symbian, the proprietary mobile operating system developed by Nokia, which controlled a 64 percent share of the world market, followed by Microsoft’s Windows Mobile with 12% and RIM’s Blackberry OS with 10 percent (Picker, R., 2018). Apple and Google were preparing to enter the market with two opposing strategies: the former with its own device, the iPhone, which would use a proprietary, vertically integrated OS; the latter with an open, freely available OS that anyone could use—which in turn would generate an indefinite number of devices produced by third parties, with very limited room for integration between hardware and software.

On closer inspection, we might identify a third model: Microsoft distributed a proprietary but non-vertically-integrated operating system, which device manufacturers could license for about 20 to 30 dollars. However, despite its somewhat erratic efforts to tweak the model over the years (first, it tried to distribute the OS for free in 2014; then, it acquired Nokia and set out to design a range of vertically integrated devices, while still distributing the OS to third parties), Microsoft failed to build Windows Mobile into a credible competitor, so much so that at the end of 2017 the company announced it was shutting it down.

Competition between iOS and Android (despite the latter’s false start) soon took off: while in 2009 iOS and Symbian still controlled most of the market, with market shares of 40 percent each, within the next two years Android overtook Nokia’s OS (at that point, Symbian had also switched to an open model) and targeted Apple’s. In other words, in 2011, right when it was emerging as

⁵ In American politics, the term “gerrymandering” refers to the practice of redrawing electoral districts in order to gain a political advantage.

dominant and engaging in illegal practices in the Commission's view, Android was still a long way from exercising significant market power in the broader mobile OS market.

It was only at the end of 2012 that Android overtook iOS, whose market share fell for the first time below 40 percent and stands now at around 25 percent. At the same time, the penetration of all alternative OSs (including Blackberry and Symbian) plummeted, leaving Android with a market share of 75 percent.

The current mobile OS market could be described as an asymmetrical duopoly, with a couple of caveats: first, Android's share covers both the "real" Android and the Android forks; second, market shares are calculated in terms of devices instead of revenues for practical reasons⁶—we'll touch upon the implications of different price strategies in the next chapter. Both remarks point to the conclusion that, while Android's dominance can be hardly debated, its actual extent seems to have been overstated.

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Competition between Android and iOS

The Commission has deployed four arguments to refute the idea that competition from Apple in the downstream market (the consumer market) puts significant competitive pressure on Google in the upstream market (the manufacturer market): (1) the existence of "a variety of factors" influencing purchasing choices "which are independent from the mobile OS"; (2) the higher price of Apple devices, which would make them inaccessible to "a large part of the Android device user base"; (3) the presence of significant switching costs for Android users who decide to migrate to Apple devices, "such as losing their apps, data and contacts, and having to learn how to use a new operating system"; (4) the switching would still have "limited impact on Google's core business [since] Google Search is set as the default search engine on Apple devices. Let's address them one by one.

The first argument is a matter of empirical evidence: in the absence of data, it is impossible to determine whether consumers looking to buy a device mostly pick between Android and iOS first or whether they tend to compare devices from both ecosystems. This has important consequences: if the former was true, then the other factors identified by the Commission ("such as hardware features and device brand") could hardly affect OS competition, as they would come into play at a later stage; if the latter was true, however, this would weaken the Commission's broader assumption that the manufacturers are helpless vis-à-vis Google since the availability of Android is the sole or main factor that consumers ultimately value.

The second argument appears to be flawed both from a theoretical and practical point of view. While it's far from obvious that a plausible distinction between market segments should be turned into a distinction between separate markets, one is left wondering whether such a distinction can stand careful scrutiny to begin with. First of all, it makes little sense to deal with the issue in terms of average prices. Secondly, Apple's high-end devices are only slightly more expensive than, say, Samsung's high-end devices. Thirdly, while it's true that Apple doesn't distribute any entry-level devices, it also offers mid-range ones. Finally, the launch of new products does not automatically lead to the termination of older products, which continue to provide some price competition (Smith, C., 2017).

In any case, these considerations only affect list prices, but consumers can purchase their devices in many ways: they can secure financing; they can exploit the device subsidies which mobile carriers usually offer them; they can turn to the major retailers, which are often able to procure large stocks of devices at a considerable discount; they can even resort to the secondary market. Nevertheless, while it is undeniable that Android smartphones are sometimes sold at incredibly cheap prices, this is primarily due to Google's distribution policy: the free availability of the operating system and the basic apps allows manufacturers to meet even the least profitable demand—something the Commission failed to point out.

The third argument is, to put it mildly, bizarre: not only because data and contacts are increasingly stored in the cloud through services which can be accessed from any device, but even more so because there's literally an app for that: Apple's Move to iOS, which allows users to migrate their photos, contacts and other data easily (and for free) from an Android device to an iPhone. As for the learning curve, the competition between OSs means that both prize usability and tend to replicate each other's new features: switching from one ecosystem to the other is no more burdensome than going from a Mercedes to a BMW and it certainly doesn't require any driving lessons.

The fourth argument, while true, is hardly relevant. The fact that Google Search is the default search service on iOS devices doesn't imply that it will be so in the future; moreover, Google pays Apple a hefty price for the privilege (rumours have it at more

⁶ According to Alphabet CEO Sundar Pichai, there are 24,000 models of Android smartphones on the market today, produced by 1300 different manufacturers—collecting accurate sales data for all of them would be an excessively demanding endeavor. But there's a more fundamental problem with measuring Android's revenues from sales: there aren't any. Google's mobile business model implies that the company doesn't take a penny from the sale of devices (with the obvious exception of the handful of models it distributes on its own), so it would be misleading to attribute those revenues to Android, even figuratively.

than three billion dollars a year). It isn't clear why this should weaken either Apple's or especially Google's incentive to maximize the penetration of their respective OSs; after all, if this expensive parachute could provide the company with the same amount of benefits as Android, Google would not have bothered developing a competing ecosystem in the first place.

Platform competition and the problem of fragmentation

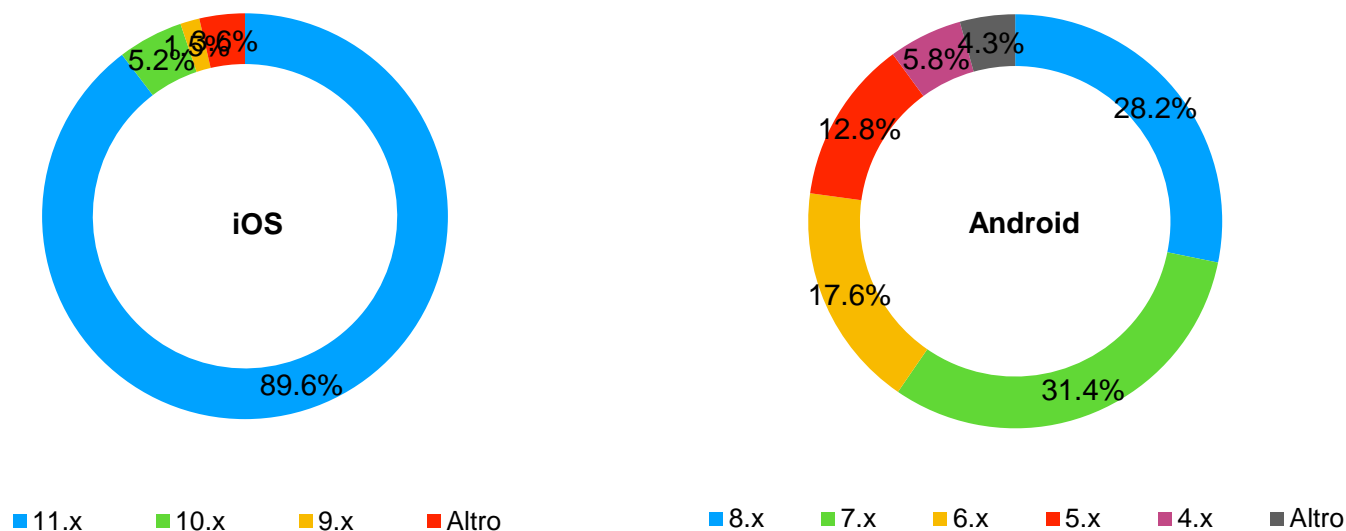
This approach, however, overlooks a crucial point: irrespective of the significant differences, Apple and Google's business models in the mobile OS market have a lot in common: while the Commission's analysis merely frames them from the point of view of consumers (at best, through the intermediary of manufacturers), both platforms designed to bring together two distinct groups: users and app developers. In other words, we are dealing with a so-called two-sided market. Looking at the matter this way makes it even clearer that Apple and Android compete in the same market and that the former can and does pressure the latter—for instance, as soon as Apple announced its decision to reduce its fee for app subscriptions from 30 to 15 percent, Google followed suit (Statt, N., 2017).

In addition, looking at both sides of the market reinforces the notion that competition between Apple and Google is actually stronger than it would appear from the Commission's analysis.

In addition, looking at both sides of the market reinforces the notion that competition between Apple and Google is actually stronger than it would appear from the Commission's analysis. According to Sensor Tower research, for instance, the App Store and the Google Play Store generated 28 billion and 64 billion downloads respectively in 2017, at a ratio that resembles the one between iOS and Android devices; however, the picture changes dramatically if we look at the revenues, which amounted to \$38.5 billion for Apple, compared to a mere \$ 20.1 billion for Google.

This depends on several factors: some demand-driven, such as a higher willingness to spend on the part of iOS users or the larger presence of piracy in the Android ecosystem, whose screening process for apps is somewhat less rigorous and can in some cases be circumvented altogether by consumers; others, however, are supply-driven, such as the higher integrity of the platform, which makes it easier for developers to do their job. As shown in Chart 2, Apple's stricter control over the iPhone ensures that 90 percent of iOS devices run the current version of the OS, while the higher fragmentation of the Android ecosystem means that less than a third of the devices in circulation employ the latest version of the OS—something that developers must take into account when building their apps.

Chart 2 Platform fragmentation for iOS and Android (August 2018)



Source: Mixpanel

The chart only takes into account Android compatible devices, providing a rough but significant estimate of the extent of Android's fragmentation, perhaps a necessary by-product of the variety of devices and manufacturers populating the ecosystem, but one which could easily have made it unmanageable, if Google hadn't devised some ways to balance the absolute freedom to use and reuse the OS source code. This is something the open-source community has been debating for decades: on the one hand, open models reward flexibility and empower a variety of contributions which closed models couldn't possibly match; on the other hand,

the lack of unambiguous direction opens the door to the balkanization of software projects, which in turn reduces the incentive to participate in them. In other words, ensuring a certain degree of consistency within the platform not only protects the consumers' interest in a reliable and familiar user experience, but it also aims to attract more developers with the prospect of being able to serve as wide an audience as possible with a measured effort.⁷

Just like the success of a platform depends on its ability to strike the optimal balance between the interests of the different groups it caters to, regulators should take into consideration both sides of the market when assessing the impact of different market strategies on competition, since a practice which might appear anti-competitive in nature when looked at from one side might have pro-competitive effects on the other one. In the case of mobile OSs, if Android couldn't attract developers, it would be of very limited value to consumers and, therefore, it could hardly compete with iOS in the downstream market. For all these reasons, when one looks at the sector as a whole, it looks obvious that Apple and Google compete in a single market (something both the consumers and the developers have realized a long time ago) and that the need to limit the fragmentation of the ecosystem must play a role in the evaluation of Google's market practices.

Google's practices in light of a different definition of the relevant markets

We have contended that the Commission's decision relies on an unsatisfactory definition of the relevant markets—and that this sort of original sin irreparably affects its conclusions. Let's now look briefly at the practices the Commission deemed to be in breach of EU antitrust law. As we'll see, this part of the analysis raises significant concerns as well.

First of all, in relation to the tying of the Google Search app and the Google Chrome browser with the Google Play Store, we must point out that tying is not illegal per se. In the case at hand, the Commission argues that pre-installation gave Google a decisive edge, as appears from the fact that 95 percent of searches made by Android smartphones in 2016 used Google's search services. In order to rebut this argument, one might look at user preferences—Google is the dominant search engine in the desktop environment, where pre-installation is hardly an issue—but that is not even necessary, since the Google Search app never enjoyed default status because of the tying.

The agreements between Google and the manufacturers merely preserved the integrity of the GMS package, by preventing the installation of some apps at the expense of others, but it did not include any additional requirements in terms of placement, let alone exclusivity. In other words, no contractual provision prevented the manufacturers from pre-installing an alternative search app, giving it default status, or even prominent visibility. Furthermore, the users could always vote with their thumbs, by downloading different search apps or by simply reviewing the default settings. There's no reason to claim that the tying of Google Search and the Google Play Store hindered competition.

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Nor can the Commission's finding that "Google achieves billions of dollars in annual revenues with the Google Play Store alone, it collects a lot of data that is valuable to Google's search and advertising business from Android devices, and it would still have benefitted from a significant stream of revenue from search advertising without the restrictions" suffice to deprive the tying of its economic justification, since even assuming this is true now, there was no reason to believe it could be true back when Android was launched—not to mention that the job of regulators is to punish abuses by dominant undertakings, not to limit their revenues to an utterly arbitrary threshold.

The second practice—granting financial incentives to those manufacturers who agreed to pre-install Google Search as the only search service on their entire smartphone offering—is perhaps more controversial in principle, since (unlike the first one) it actually involved exclusivity with no apparent justification from a technical point of view. However, it should be noted that competing search engines might have taken similar steps to secure such a valuable advantage. In addition, Google did so between 2011 and 2014, at a time when it was far from being dominant and needed to consolidate its market position, by prompting operators to invest in the development and marketing of Android devices.

Finally, the Commission found Google liable for hindering the emergence of alternative operating systems through its anti-fragmentation agreements with manufacturers. We have already discussed the rationale for these practices, which aimed to grasp the upsides of an open model while avoiding its downsides, for the benefit of consumers (who demand access to a predictable environment) and developers (who prize the opportunity to offer their apps to as many users as possible).

Indeed, according to the Commission, this policy "prevented a number of large manufacturers from developing and selling devices based on Amazon's Android fork called 'Fire OS'", with a "direct impact on users". While it is true that Amazon had to outsource the production of its own devices to a manufacturer which wasn't bound by any outstanding commitments to Google, it is also true that the choice fell on Quanta, a company with 34 billion dollars in revenues and 110 thousand employees, which also supplies

⁷ It is no coincidence that the developers themselves were among the most vocal critics of the Android investigation, as their trade association, the Developers Alliance, detailed in an [open letter](#) addressed to the Commission (Developers Alliance, 2018).

(among others) Apple. In addition, Amazon's impeccable distribution makes the Kindle Fire easily available to consumers across Europe, so it's not clear what the damage would be to them.

In addition, the Commission argued that "Google did not provide any credible evidence that Android forks would be affected by technical failures or fail to support apps." However, Amazon itself reported that 85 percent of the apps for Android (tablets) that its labs tested could run on Fire OS without any modification: a significant share, to be sure, but far from all of them; the remaining 15 percent required some additional work, as they included unsupported services or features.⁸

Finally, the Commission states that "Google could have ensured that Android devices using Google proprietary apps and services were compliant with Google's technical requirements, without preventing the emergence of Android forks", but it doesn't clarify how. Compatibility requirements are precisely that: technical requirements which provide for third-party applications to run smoothly on all devices. Is the Commission implying that the Google Play Services (which is built on proprietary technologies) should be part of the Android OS (which is an open-source project)? Licensing issues aside, this would further reduce the demand for forks: an Android version can either be compatible or non-compatible—*tertium non datur*.

There's every reason to assume that Google will continue to be the default search engine for the vast majority of Android devices.

Again, the Commission's decision seems to misconstrue the nature of the Android project, its trade-offs, its need to find a sustainable balance for all of its stakeholders. The competing versions which the Commission has in mind are not pieces of software that solve the same technical problems in different ways or even different problems: they are in essence Android versions just like the ones in circulation, only allowing for competing search services and a redistribution of resources. But there is no need for forks to achieve this goal, as the "real" Android already provides the required flexibility: manufacturers and mobile carriers can customize the appearance as well as the technical features of their devices, provided that they conform to the compatibility requirements, and they can pre-install as many apps as they want—Samsung Galaxy devices, for instance, come equipped with their own app store, virtual assistant, and apps.

Conclusion

The problems discussed so far would be enough to frustrate the meaning of the decision, if it were intended to stimulate competition in the mobile OS market. However, as the Commission stated repeatedly, by punishing Google it meant to spur competition in the Android ecosystem not as an end in itself, but because it sees Android forks as the most effective venue to enhance competition in the market for general search services. Whether or not that purpose is desirable, it's a broad question which can't be dealt with extensively in this paper. However, we can briefly discuss whether the remedies imposed by Commission appear to be consistent with this view.

In other words, can we expect that the Commission's decision will enhance the market share of competing search engines? That's hardly the case. While its appeal against the decision is pending, Google has announced the steps it will take in Europe to comply with it in the short term: a) it will no longer prevent its partners from distributing Android forks; b) it will allow manufacturers to license the GMS suite separately from the Google Search app and the Chrome browser; c) it will offer them new commercial agreements (that is, financial incentives) for the non-exclusive pre-installation and placement of Google Search and Chrome.⁹

There's every reason to assume that Google will continue to be the default search engine for the vast majority of Android devices. That's because Google is still able to monetize search services (or rather user data, collected through search services) more effectively than any other player: therefore, as Randy Picker pointed out, even if manufacturers are no longer bound by MADA and AFA agreements, Google will still be in an ideal position to buy the right to be on their devices (Picker, R., 2018). This won't be a painless transition of course (no one wants to start paying for something they could always get for free), but the manufacturers and mobile carriers will reap most of the benefits, not the competing search engines.

In this regard, the Android case can really be said to remind one of the Microsoft cases of the past decade, to which several observers hastily compared it in the wake of the decision. Humongous fines make headlines and put up a great smoke screen, but the remedies can be toothless at best, damaging at worst. And all of this is based on a severely outdated notion of the markets and competition itself, and on a stubborn belief that making consumers happy in Europe is something to be blamed for, while

⁸ Also, the 85 percent figure must be taken with caution: many developers, knowing that their apps cannot pass the test without changes, will not even bother submitting them.

⁹ What about the long term? Google has been reportedly working for years on a new OS (Bergen, M. & Gurman, M., 2018). Some manufacturers have been going down the same route: Samsung, for instance, has been working on a standalone OS, Tizen, which isn't based on Android and was first used for smartwatches and smart TVs. In 2017, the company also used Tizen for the first time on a smartphone, the Z4, only available in India.

those who fail to keep up with their competitors can always count on the interested support of regulators. As the song goes, “ambition makes you look pretty ugly.”

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