CMA Mobile Ecosystems Market Study

Google's Comments on the CMA's Interim Report

1.   This Response sets out Google's initial perspective on the CMA's Interim Report. **Part I** provides our thoughts on the CMA's preliminary findings to date, and **Part II** provides our view on the Interim Report's potential interventions.

2.   The Interim Report confirms that competition in mobile ecosystems has resulted in many positive outcomes for consumers.

3.   First, it finds that consumer satisfaction levels with mobile devices are very high, and recognises that our innovations in creating and developing the Android ecosystem have benefited consumers.[1] The fact that Android is a high-quality, stable, and free open-source operating system (**OS**) has enabled device manufacturers to offer a wide variety of devices with different functionalities, features, and corresponding price points.

4.   Second, the Interim Report recognises that we facilitate switching away from Android to Apple if users choose to do so. For example, we make our first-party apps[2] available on Apple's App Store, and our connected devices[3] usable with iOS as well as Android. We therefore have a strong incentive to compete intensely with Apple to provide a high quality mobile platform. This competition is marked by continuous innovation, new features, and increasingly high quality smartphones. The pressure to innovate and produce new versions and features for Android is the most significant competitive pressure we face, as the CMA recognises (¶3.13).

5.   Third, the CMA acknowledges that Android's open model fosters competition *within* the Android ecosystem (¶2.47). Established device manufacturers such as Samsung, HTC, Sony, and Motorola face increasing competition from more recent entrants such as Pixel, Xiaomi, OnePlus, and Oppo.[4] This has resulted in fierce competition on price and quality, and a huge amount of choice for consumers.[5]

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[1]   For example, the CMA finds that Android has made devices quicker and more powerful, with improved features and greater choice and functionality (¶9; ¶2.46, ¶2.61, ¶¶3.44-3.47).

[2]   E.g., Chrome, Gmail, Google Maps, Search, and YouTube. See ¶3.94.

[3]   E.g., Fitbit wearables and Nest devices. See ¶¶3.127-128.

[4]   See Andrew Williams, Adam Speight, Wired, These Are The Best Android Phones You Can Buy In 2022 (January 14, 2022).

[5]   See, e.g., Nathan Spendelow, Expertreviews, Best Android Phone 2021: The best budget, mid-range and high-end Android phones (December 1, 2021).

6.   The Android ecosystem also benefits app developers. We facilitate and support developers' access to a vast user audience; not only by investing significantly in the Android OS itself, but also by providing a vast array of developer support services,[6] hosting international events,[7] and supporting cross-platform app development through initiatives such as progressive web apps[8] and Flutter.[9] British app developers are estimated to generate around £2.8 billion in revenue from the Android app ecosystem alone, and Android supports 240,000 jobs in the UK.[10]

7.   In other respects, the Interim Report raises preliminary concerns with the extent of competition between and within mobile ecosystems. In many instances, though, we believe that Android's open structure mitigates the CMA's preliminary concerns. For example:

- The Play Store is just one of many app stores available on Android (¶4.17). In fact, most Android devices in the UK come with more than one app store "out of the box". Device manufacturers can choose to pre-install their own apps and/or app store, or those developed by third parties.

- Browser developers on Android are able to use the browser engine of their choice. This also supports app developers creating web apps that work on both the Android and iOS ecosystems (¶¶4.139-142, ¶5.65 and ¶5.72).

- We provide app developers with an array of APIs to access device hardware and software, including access to near-field communication chips by alternative payment wallet apps (¶4.236, ¶5.194, ¶5.197, ¶6.33, and ¶6.48).

- We offer developers unparalleled scope for product differentiation, and facilitate multiple distribution opportunities (e.g., through multiple app stores, sideloading, web apps, and pre-installation).

8.   In the second half of the study, we will continue to work with the CMA to understand the CMA's preliminary concerns in more detail. We will consider solutions to those concerns that allow us to keep innovating and providing users, device manufacturers, and app developers with the highest possible quality mobile ecosystem.

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[6]   Including dedicated support teams (see, e.g., Google Developers), app development, analytics, testing, and quality control tools (see, e.g., Run tests and check performance - Play Console Help).

[7]   Such as the annual Google I/O conference.

[8]   'Progressive Web Apps' (**PWAs**) are web apps with added functionalities, which can have an icon on a mobile device home screen, just like a native app (¶4.125). See **Part I.B** below.

[9]   Flutter is our open-source software development kit that allows developers to create cross-platform applications for iOS, Android, Linux, Windows, and other OSs.

[10]   Public First, Google's impact in the UK 2020, p. 9.

9. If the CMA considers that interventions are required to meet its objective of improved consumer outcomes, we believe[11] that a Code of Conduct administered by the Digital Markets Unit (**DMU**) could be beneficial in certain circumstances. We welcome the opportunity to engage with the CMA on how a Code might operate in the future.

10. In designing and evaluating the appropriateness of principles and rules, the CMA/DMU should "*ensure that the level of regulation is proportionate and does not impose any unnecessary restrictions on competition beyond securing specific policy objectives*" and bear in mind its finding that "*greater regulation is - on average - associated with less competition.*"[12] Any intervention(s) under the proposed new regime should recognise that digital business models, and the potential harms arising from them, differ from firm to firm.[13] In addition, consumer preferences and behaviours are not uniform, and interventions would result in both winners and losers. It is therefore imperative that the CMA considers fully the likely consequences of its proposed interventions to ensure that the outcome achieves the CMA's objectives.

I. Google's views on the Interim Report's preliminary findings

A. We compete intensely for users and developers

11. Through our Android platform and Play, we compete intensely with Apple's iOS and App Store to attract users and app developers. Judge R. Gonzalez for the District Court of the Northern District of California in *Epic Games v Apple* recently confirmed this view after hearing extensive evidence and expert testimony.[14] We constantly innovate and produce new versions and features for Android to encourage users and app developers to participate in the Android ecosystem, resulting in considerable benefits for consumers.

12. The Interim Report acknowledges that the costs of users switching between Android and iOS devices are asymmetric: users find it easier to switch from Android to iOS than vice versa (¶3.26). It nonetheless concludes on a preliminary basis that "*Apple and Google have substantial and entrenched market power over the users of their mobile*

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[11] See, e.g., Google, Call for Input response, and Google, Response to CMA Interim Report in digital advertising market study.

[12] See CMA, Regulation and Competition - A Review of the Evidence, ¶¶1.6 and 1.11.

[13] Google, Call for Input response.

[14] See United States District Court, Northern District of California, *Epic Games v. Apple* (Epic Games v. Apple), September 10, 2021. The Judge noted that: "*Apple has always viewed Google Play as a significant competitor*" (p. 73). Apple App Store's "main competitor" was Google (p. 130). Apple "*benchmarked the App Store against Android Market, Google Play, and other competitors in a 2017 presentation, where it listed Google Play in the "Competition" section*" (p. 83). In the same vein, Apple's testimony confirmed competition with Play: "*We* [Apple] *compete with Google Play and the other many Android marketplaces*" (p. 71).

operating systems" (¶3.191). We disagree: users can easily switch from Android devices to iOS devices, which results in us and our manufacturer partners competing intensely on both price and quality for users and developers. In addition, our stewardship of the Android ecosystem benefits users, developers, and device manufacturers.

Users can easily switch from Android to iOS

13.   The Interim Report finds that users "*do not generally switch mobile operating system, and this is particularly the case for Apple users*" (¶3.25). It correctly notes, though, that a user's unwillingness to switch may be driven by "*satisfaction with the characteristics of Android and iOS devices*" (¶3.99). The Interim Report highlights, for example, that 9 in 10 users are satisfied with their device (¶3.59). And the Interim Report acknowledges that there is "*no 'optimal' level of switching*" that demonstrates effective competition (Appendix J, ¶13).

14.   Although we compete fiercely with Apple, we facilitate switching to iOS if users want to. For example:

- **We make our apps available on both Android and iOS**. iOS users have ready access to their favourite Google apps through Apple's App Store. As of January 2022, five of our apps were among the top 30 downloaded free apps on Apple's App Store in the UK.[15]

- **We have interoperable messaging protocols**. Our messaging app, Messages, is based on the widely-adopted messaging standard known as the Rich Communication Services protocol, which enables seamless interoperability among different messaging apps using the standard. Our messaging services can therefore interoperate with other services on alternative platforms that use the standard (although Apple has not adopted it for iOS).

- **We support data and subscription portability**. We make the necessary data and interconnections available to enable Apple to distribute its "Move to iOS" app, which users can use to transfer their data to iOS.[16] In addition, the CMA notes that our billing system policies "*do not constrain developers from requiring app users to link their Android app to a developer account, which they can access from an iOS device if they choose to switch*" (¶3.117).

- **We offer hardware interoperability**. Our peripheral devices, such as Fitbits, Chromecasts, and Nest devices, as well as third-party wearables based on Wear OS, work with Android and iOS.

15.   The Interim Report notes that Apple's business model increases its incentive to make it harder for users to switch away from iOS to maximise sales of its mobile devices

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[15]   See SimilarWeb, Top Apps Ranking.

[16]   See Apple, Move from Android to iPhone, iPad, or iPod touch (September 10, 2021).

(iPhones and iPads) and peripheral hardware (Apple Watches, Apple TVs, AirPods, AirTags, and HomePods), as well as its own subscription services (¶2.38; Appendix J, ¶10). The Interim Report also notes that iOS users face greater difficulty in transferring data, apps, and subscriptions across to Android devices (¶3.120); a diminished experience of interacting with friends' and family's Apple devices after switching (for example, as a result of iMessage's reliance on SMS messaging with Android devices, offering reduced functionality); and the loss of Apple's first-party apps, services, and connected devices on Android (¶3.128). We agree that these barriers to switching to Android should be addressed.

Price competition between Android and iOS is strong from both users' and developers' perspectives

16.   The Interim Report suggests that there is limited price competition between iOS and Android devices, stating that each appears to have developed its own segment of the market, with iOS devices dominating sales of high-priced devices and Android devices dominating sales of low-priced devices (¶¶3.31-3.39; 3.84-3.89).

17.   However, Android smartphones and iPhones compete for sales across many segments. Device manufacturers such as Samsung produce premium models that compete directly with Apple's high-end devices, while Apple is increasingly competitive in the mid-tier with its "SE" range of iPhones.[17] In any event, the CMA's finding that "*there is a gap between the price at which most iOS smartphones are sold, and the price at which most Android devices are sold*" (¶3.34) does not indicate a lack of competition between Android and Apple devices.

- First, even if Android's device share is smaller for high-priced devices than for low-priced devices, this does not mean that Android devices do not exert competitive pressure on iPhones. Samsung, for example, has been at the forefront of introducing new mobile designs and innovations for a decade, such as the 'phablet' design, borderless and dual screens, and the flip-phone. Samsung competes fiercely with Apple for high-value consumers on innovation.[18]

- Second, competition for users of higher priced devices has an outsized importance. Premium device owners spend more on apps and search more

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[17]   See Macrumors, The 2020 iPhone SE (June 23, 2021) ("*Apple in April 2020 unveiled a low-cost iPhone, the iPhone SE, which is a follow-up to the 2016 iPhone SE of the same name. Like its predecessor, the 2020 iPhone SE is Apple's most affordable iPhone, priced starting at $399*").

[18]   See, e.g., Kyle Chua, Rappler, The Samsung Galaxy Note series' innovations through the years (August 7, 2019), iNews, Samsung is developing borderless screen technology, which will be commercially available by the end of 2022 at the earliest (December 30, 2021), and Samsung Newsroom, A Decade in the Making: How Samsung Foldables Are Defining the Future of Smartphone Innovation (December 30, 2021).

online, and therefore represent greater potential sources of revenue as they acquire services and content on the device.

18.   In addition, Android and iOS compete on price from the perspective of app developers. We compete with Apple's App Store and other app stores on, amongst other things, the service fees we charge to developers that charge up-front fees for their apps or for in-app purchases of digital content. We have adapted our service fees in response to competitive pressure, which is inconsistent with a lack of price competition between Android and iOS (see **Part I.B**).

Android and iOS compete intensely on quality

19.   The Interim Report finds that over time we have "*improved the features, functionality and performance*" of Android and that this "*will have benefitted users*" (¶¶3.46-3.47; 3.91). However, the Interim Report queries "*how high this level of innovation is and whether it could have been higher with greater competition*" (¶3.92). It also suggests that innovation may have been driven by exogenous technology advancements and the need to encourage users to upgrade existing devices, rather than competition between iOS and Android (¶3.92). But this ignores the vigorous competition between device manufacturers and between mobile OSs, both to win new customers and to retain existing customers renewing their devices.

20.   We constantly pursue and implement new innovations for Android. Since 2008, we have released 19 major versions of Android, with many more intermediate and minor version updates. These releases reflect Google's efforts to keep the Android OS vibrant, innovative, and attractive to device manufacturers, users and developers, and also -- critically -- competitive with iOS. Many of these innovations have been rolled out to older versions of Android and are therefore not motivated primarily by a desire to make users upgrade their existing devices (as the Interim Report suggests (¶3.92)).[19]

21.   Android and iOS compete head-to-head globally on innovation, features, and quality. This intense competition benefits UK developers and users, who constantly gain access to new innovations. Most recently, with Android 12 -- released on October 4, 2021, just two weeks after the release of iOS 15 -- commentators noted that we had introduced "*one of the biggest visual overhauls Android has seen in years,*" which made Android "*more functional and customizable.*"[20] Commentators identified various features that iOS 15 lacked in comparison to Android 12, such as OS theme customisation, privacy

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[19]   For example, since Android 10, we have started rolling out certain updates to core Android system components to end-user devices without requiring device manufacturer implementation. See XDA Developers, Everything you need to know about Android's Project Mainline (October 10, 2020).

[20]   Joe Maring, Screen Rant, Why Android 12 (Not iOS 15) Will Be The Best Smartphone Update Of 2021 (May 8, 2021).

dashboards, and quick access to settings.[21] As part of this competitive process, we introduce new tools for developers so they can incorporate new features and functionalities into their apps. For example, in 2020 we introduced our COVID-19 notifications API, which enabled the NHS to build and launch its contact-tracing app at a critical time in the pandemic.

22.   Competition on innovation, features, and quality between Android and iOS has been described by industry commentators as an "*eternal cycle*"[22] and "*one of the most hotly-contested battles in the entire mobile tech space.*"[23] It is this global competition that, as noted by one commentator, "*keeps the innovation needle moving forward.*"[24]

Android has reduced barriers to entry in the UK

23.   We welcome the CMA's finding that the ability to license the Android OS has facilitated the entry of competitors at the device level, such as Xiaomi, Oppo, and OnePlus by, amongst other things, obviating the need for "*upfront and ongoing R&D costs*" (¶3.133). We agree that Android's open source code, which is available free of charge to anyone, reduces barriers to entry for device manufacturers.

24.   The Interim Report raises a potential concern that so-called Android 'forks' (i.e., Android variants that have chosen *not to* meet the compatibility baseline) do not have access to our proprietary native apps and certain APIs, resulting in barriers to entry for new OS developers that use the open-source Android OS (¶3.172).

25.   An open-source OS such as Android comes with the risk of fragmentation, whereby devices become sufficiently differentiated that an app written to run on one device might not work properly on another device. As Android's sponsor, our solution to the threat of fragmentation is to require that device manufacturers wishing to license our apps and services (such as Google Play), enter into the Android Compatibility Commitment (**ACC**).[25] The ACC requires manufacturers to meet a minimum baseline of compatibility if they wish to market their devices under the Android brand, in order to assure developers that their apps will work consistently across all Android compatible devices.

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[21]   Christine Chan, iMore, iOS 16 should steal these 5 features from Android 12 (October 21, 2021).

[22]   Chaim Gartenberg, The Verge, iOS 14 vs Android: features the iPhone borrowed from Google (June 23, 2020).

[23]   Joe Maring, Android Central, 5 ways Android 11 is better than iOS 14 (November 20, 2020).

[24]   Joe Maring, Screen Rant, Why Android 12 (Not iOS 15) Will Be The Best Smartphone Update Of 2021 (May 8, 2021).

[25]   Under the ACC, we require device manufacturers that license our apps and services to commit to a baseline level of compatibility, set out in the Compatibility Definition Document.

26. Compatible Android variants result in benefits for developers, manufacturers, and consumers:

- **Developers**. Compatibility signals to developers that their apps will work on any compatible Android device. This provides a greater incentive for developers to design apps for Android compatible devices, resulting in a wider selection of available apps.

- **Manufacturers**. Compatibility benefits manufacturers, which can offer consumers access to the full range of Android apps rather than needing to persuade developers to create a bespoke version of their app for the forked OS. This results in a wider selection of apps available for the device.

- **Consumers**. Consumers also benefit since they have confidence that on any new Android compatible device they will be able to access the same range of apps -- and competitive developer community -- that they had access to on their old device. Consistency across the Android ecosystem also enables users of existing models to receive timely security updates. The CMA recognises the benefits to consumers of our stewardship of the Android ecosystem, which has helped to create consumer confidence and trust (¶9).

27. Far from limiting competition in mobile OSs, our compatibility program unleashed intense rivalry between device manufacturers to differentiate their devices, building on top of the minimum baseline requirements established by the ACC. Manufacturers can customise the look and feel of Android and deploy proprietary apps and APIs on top of Android, while reaping the benefits of compatibility in terms of attracting users and developers.

28. A new OS entrant that uses Android's open source code has the choice of meeting the baseline Android compatibility requirements, licensing our apps and services, and having access to the full ecosystem of Android apps and developers; or creating their own new ecosystem, as we did when we created Android.

29. Allowing Android forks to have access to our apps and services would run the risk of our apps and devices malfunctioning, creating user confusion and frustration, and damaging developer and user confidence in the Android platform as a whole.

30. The Interim Report also suggests that our commercial agreements with device manufacturers are a potential barrier to competing OSs being able to attract third-party manufacturers. We disagree that our promotional agreements for Search and Chrome, which are entirely optional, constitute a barrier to entry given that there is nothing in the ACC that would prevent a device manufacturer from pre-installing a third-party OS on some, many, or all of its devices, as long as any OSs based on Android maintained compatibility (for the reasons given above).

B. We face strong competition for the distribution of native apps

31. The Play Store has been successful in attracting consumers through the high quality service it provides. For example, Play's strong security, high level of functionality, and broad selection of apps have been cited as factors that distinguish it.[26] That said, we face competition from several sources, including Apple's App Store, alternative Android app stores (e.g., Samsung's Galaxy Store), and other app distribution channels such as preinstallation, web apps, sideloading, and app stores on alternative devices such as consoles.

32. The competitive pressure from each of these alternative app distribution channels is the driver of our continued investment and innovation in the Play Store. The Interim Report finds that this competitive environment has generated benefits to customers and high levels of consumer satisfaction (¶9). The Play Store's achievements are therefore a hard-won result of the quality of service it provides.

We compete strongly with alternative app stores

33. We disagree with the Interim Report's suggestion that the Play Store faces only a "*limited*" constraint from other app stores (¶4.62). We have to work hard to ensure Play continues to attract users and developers in the face of competition facilitated through our open platform.

34. Our competitors operate both within and outside Android:

    ● **Android app stores**. As the Interim Report recognises, several alternative app stores are available on Android (¶4.58). These app stores offer hundreds of thousands, if not millions, of apps.[27] We estimate that up to 90% of UK Android devices preinstall at least one additional app store alongside Play (¶4.59). For example, Samsung, the largest manufacturer of Android smartphones, pre-installs the Galaxy Store on all Samsung smartphones (¶4.64). The same is true of Huawei with its AppGallery (¶4.65). These app stores compete strongly with us for both developers and users, for example through special offers (¶4.60). Users can and do shop around: a recent survey of UK consumers found that the average number of app stores used by mobile users was 1.84, and that one quarter of users used multiple app stores.[28]

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[26] See, e.g., Joe Hindy, Android Authority, 10 best third party app stores for Android and other options too (January 4, 2022).

[27] E.g., Amazon Appstore has 460,619 apps (Statista, Amazon Appstore: number of available apps by quarter 2021 (December 14, 2021)), Aptoide has over 1 million apps (Aptoide, About us), SlideME has over 30,000 apps (SlideME, Users).

[28] Pinar Akman, A web of paradoxes: Empirical evidence on online platform users and implications for competition and regulation in digital markets, available at SSRN 3835280 (2021).

- **Apple's App Store**. We also face very significant competition from Apple's App Store. Apple is the largest manufacturer of mobile devices in the UK, and its App Store is the only app store available on iOS (¶4.16). Play and Android compete with the App Store and iOS at a combined system level. Should Play not maintain a high quality service, users would switch to Apple devices, and app developers would preference developing apps for the App Store, which would in turn cause more users to switch from Android to Apple. The Interim Report downplays the importance of app stores in considering consumers' motivations for choosing devices (¶4.178). But in reality, the quality of Android's app ecosystem is viewed by consumers as a critical part of our offering, and the service provided by the Play Store has been consistently contrasted to that of Apple's App Store by commentators when assessing the relative merits of our platforms.[29]

35. In our view, the CMA's suggestion that the App Store and third-party Android app stores are "*complements*" to the Play Store in the eyes of app developers (¶¶4.68 and 4.208) oversimplifies the position. Developers can choose whether to develop apps for Android devices, for iOS, or for both. They can, and do, also decide to prioritise app development for one OS over the other, as the CMA recognises (¶4.151). It is not correct that app developers need to list on both Play and the App Store. According to Statista, the Play Store listed 1.6 million more apps than the App Store in 2021,[30] so it cannot follow that both the App Store and Play Store are "*unavoidable trading partners*" for developers, as the Interim Report suggests (¶41). Similarly, within Android, developers can choose whether to promote their apps on the Play Store alone, a third-party app store alone or on multiple Android app stores. In doing so, app developers generally do not have to (re)develop an app for a new OS, as the vast majority of alternative Android app stores run on compatible versions of Android.

36. As the CMA has heard, there are several benefits for developers using different app stores (¶4.68). App store providers must therefore compete across several metrics to attract and retain developers. This has led to reductions in service fees, as well as continuous efforts to make it easier for apps to be developed for different systems, which has lowered technical and financial costs for developers (¶4.164). For example, developers can use cross-platform development tools such as Flutter to create apps that are able to run on multiple OSs. This competition has also led to targeted efforts by app store providers to attract individual developers -- such as Samsung pursuing exclusivity deals for its Galaxy Store with Epic Games, Riot Games, and Activision Blizzard (¶4.81 and footnote 215).

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[29] See, e.g., Simon Hill and Mark Jansen, Digitaltrends, Android vs iOS: Which smartphone platform is the best? (April 14, 2021), and Alan Martin, The Independent, iPhone vs Android: How to decide which smartphone is best for you (March 16, 2021).

[30] Statista, Mobile apps in the United Kingdom (UK) – statistics & facts (July 12, 2021).

![Google](Google logo)

37.   Given the choice available to both developers and users, the Play Store must relentlessly improve and innovate its service to stay competitive. Recent innovations we have rolled out to differentiate Play include:

- Introducing "Play as you download." allowing users to start playing a game while it is still downloading (July 2021).[31]

- Redesigning a new beta version of Google Play Console, including new navigation tools, clearer overviews, and easier publishing (June 2021).[32]

- Adding new metrics to help developers evaluate their apps' engagement and monetisation trends against up to 250 different peer sets (March 2021).[33]

38.   We have also added new features in response to specific actions by our competitors. For example, after Apple introduced Family Sharing, allowing users to share content and purchases with their families, we responded by launching Google Play Family Library.[34] Details of individual upgrades we make are published on a dedicated web-page.[35]

39.   The Interim Report also suggests that alternative app stores are held back by barriers to entry (¶4.70). We disagree -- in fact, alternative app stores have developed *as a result of* Android's open system. For example, device manufacturers can and do pre-install their app stores on their Android devices and benefit from a direct route to market. Additionally, as a result of our compatibility program, Android apps function across different Android devices, negating the need for developers to code different apps for different app stores. This provides alternative app stores with a ready base of users and developers, rather than requiring them to start from scratch.

App developers and app stores can and do compete for pre-installation

40.   On Android, device manufacturers can select which apps and app stores they would like consumers to have installed on the device "out of the box". Manufacturers can monetise this channel through pre-installation deals with app developers. They can also use it to distribute their own apps and app stores. Manufacturers can -- and do -- install their own apps prominently on devices' home screens. For example, Samsung pre-installs the S-Browser and places it prominently on the home screen, whereas

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[31]   Frederic Lardinois, TechCrunch, Android 12 will let you play games before they finish downloading (July 12, 2021).

[32]   Android Developers Blog, Introducing the new Google Play Console beta (June 10, 2020).

[33]   Android Developers Blog, Google Play Console powers better strategic decisions with new engagement metrics and unique benchmarks (March 2, 2021).

[34]   Google Play Help, Use Google Play Family Library.

[35]   Google Product Documentation Help, Google System Updates.

Chrome is placed within a folder of Google apps on Samsung devices. This is simply not an option on "closed" OSs like iOS.

41.   We agree with the Interim Report's conclusion that "*On Android, pre-installation can... constitute an important app distribution channel, which represents a credible alternative to app stores and other sources of app distribution*" (¶6.92). The Interim Report comments that preloading is not "*viable... for the vast majority of app developers*" (¶4.52). But it does not follow that pre-installation "*does not constrain the Play Store*" (¶4.52). Several major app developers have signed pre-installation deals with device manufacturers (¶4.51), for example, Facebook (for its Instagram and Facebook apps), Spotify, and Microsoft (for its Microsoft Office suite of apps, and LinkedIn). These developers' ability to distribute native apps outside of Play constitutes a clear competitive constraint.

We support sideloading with limited, but necessary safeguards

42.   Sideloading, the downloading of native apps from a website instead of through an app store, is a viable method of downloading apps on Android. Unlike iOS, we permit sideloading and have taken a number of steps to ensure that it is as secure and practical as possible. For example, Android users can approve an app for sideloading "once and for all": once they permit a given app (e.g., a browser such as Chrome) to sideload, users do not need to go through those steps again. Furthermore, device manufacturers can amend the steps and language involved in sideloading warnings as they see fit.

43.   That said, we believe it is necessary for users to understand the potential risks of sideloading, which -- as the CMA notes -- are well recognised (¶7.56-7.58). Pre-installed app stores generally verify the security of the apps they offer before an app is made available to consumers. But malicious actors can use sideloading to avoid security checks that app stores perform. This is why we provide users with warnings of these risks. As the CMA has heard, security is an important competitive differentiator (¶4.118) and strong security features have created consumer confidence and trust (¶9). Security features benefit app developers, and provide "*consumers with assurance that it is safe to download apps from lesser-known companies.*"[36]

44.   We have therefore sought to strike a proportionate balance between facilitating users' ability to access content through alternative mechanisms while protecting those users' security, as the Interim Report acknowledges (¶7.58). Our sideloading warnings are modest and can be disabled by users who wish to allow sideloading by default.

Web apps are a viable alternative to Play

45.   Android is a leader in facilitating web app technologies. For example, through Chromium we lead "Project Fugu," a multi-company initiative to improve browsers' web app capability, with the mission statement: "*Web apps should be able to do anything*

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[36]   ACT, Response: ACT the App Association.

native apps can."[37]   We also launched Aurora, a collaboration between Chrome and open-source web frameworks and tools, which is designed to improve web performance and benefit technology such as web apps.[38]   The steps we have taken to support web apps have been recognised across the industry.[39]

46.   The Interim Report notes that app developers have told the CMA that we offer a higher level of functionality for web apps than iOS does (¶4.138). The Interim Report also finds that Apple's restrictions impede web apps on Android as well as iOS (¶5.136).

47.   On Android, users can access web apps by several means, and although browser support for web apps will depend on individual browser developers,[40] we aim to ensure that users benefit from web apps to the highest degree possible. For example, it's easy for Android users to access web apps from their devices' home screens, and we do not impose any restrictions on which browsers can be used to access web apps. Relatedly, we provide guidance to developers on how to create PWAs,[41] as well as information to users on how to access them.[42]   Web apps (including both "regular" web apps and PWAs) are therefore a viable and attractive alternative to providing apps via the Play Store. For example, Twitter, Uber, Nvidia, and more recently, Wordle (which is not available as a native app),[43] have all launched very successful web apps on Android.

The Play Store competes with app stores on non-mobile devices

48.   The Interim Report recognises that users can access the same content through apps on mobile devices and other devices (¶4.208). This is particularly true of gaming apps, where users can play the same games on their mobiles as they can on, for example, games consoles and desktops.

49.   The Interim Report nonetheless suggests that alternative devices are complementary rather than substitutable with mobile devices, assuming that mobile devices would be limited for use 'on the go' and alternative devices wouldn't be suitable for such usage (¶4.208). This reasoning takes insufficient account of the significant development of

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[37]   See Web Capabilities (Project Fugu) and New capabilities status (November 12, 2018).

[38]   Shubhie Panicker, Addy Osmani, Houssein Djirdeh, web.dev, Introducing Aurora (June 15, 2021).

[39]   See, e.g., Brandon Russell, XDA, Installing a PWA is about to feel more native on Android (March 29, 2021); and Arthur Poot, Simplabs, The state of PWA support on mobile and desktop in 2020 (June 10, 2020).

[40]   E.g., the level of support provided for web app 'manifests', MDN Web Docs, Web app manifests.

[41]   Google Developers, Getting Started with Progressive Web Apps.

[42]   Google Chrome Help, Use Progressive Web Apps.

[43]   The Wordle web app has been hailed as "*one of the best* [ever] *uses of the power of the open web*." See Robby Payne, Chrome Unboxed (January 12, 2022).

mobile gaming in recent years, which has narrowed the gap between consoles and mobile devices across several metrics, such as performance, controls, and battery life.[44]

50. This argument also does not apply to the large sub-section of consoles which are handheld (e.g., the Nintendo Switch, which sold over 92 million units worldwide last year).[45] Moreover, there are several tools available to users which allow them to play console games on Android mobile devices (for example, the Xbox Game Pass app). The converse will also be possible via Google Play Games, which was rolled out in beta form to Windows PC users in selected countries in January 2022.[46] Hardware such as portable controllers to fit smartphones is also available, enabling users to play console games on their mobile devices with similar controls as on a console.[47]

51. The Interim Report also does not consider the fact that content for the same games can be purchased and used across different devices, on different app distribution channels (e.g., Play, PlayStation Store or Xbox Store). As Microsoft Gaming's CEO said recently, *"gamers play games, they don't play devices."*[48] As more games work across different formats (with users able to access a single account, use their already purchased content, and spend digital currencies across different platforms), users will have even greater choice of where to make those transactions.[49]

We compete on Play Store fees and they reflect the value we provide

52. Play's fee structure has contributed to the explosion of app development and innovation across the world.[50] Play charges a percentage of revenues from transactions, which means that if developers do not charge for their apps within Play,

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44 See, e.g., Wired Shopper, Why Smartphone Gaming Will Eventually Overtake Console In Popularity (September 1, 2021).

45 See Adam Vjestica, TechRadar, Nintendo 2021: another phenomenal year for Switch, but will its success continue? (December 30, 2021).

46 Google, Google Play Games on PC.

47 See, e.g., Sam Byford, The Verge, This controller turns your Android phone into a portable Xbox (January 21, 2022).

48 Stratechery, Interview with Microsoft Gaming CEO Phil Spencer (January 19, 2022). Mr. Spencer also commented that *"the idea that there are mobile games and then there are PC games and then there are console games, for me, died about seven, eight years ago."*

49 The European Commission recognised in *Activision / Blizzard / King* (2016) that *"lines between different platforms are blurring, because games are often released on several platforms, there is substantial substitutability between games"* (¶22).

50 The total number of app downloads from the Play Store has risen from 55 billion in 2016 to over 111 billion (i.e., more than doubled) in the last five years according to Statista.

they don't need to pay us a fee. Our fee structure also avoids heavy up-front charges that would be harder for small developers to bear.

53.   The vast majority (c. 97%) of apps on the Play Store do not pay any service fees. This is because we don't charge any fees to developers who offer their apps for free to consumers and don't charge for in-app digital content within Play, or those who monetise their apps through physical goods or services (e.g., ride-hailing apps). We also allow developers to operate a "consumption only" model, where they sell digital content via other channels (e.g., their own websites) and make the content available to consumers to use via Play without incurring a service fee.[51]

54.   For the minority of developers that *do* charge for their apps or in-app content, the Play service fee rates are highly competitive and reflect the value of the services we provide.[52] These services are not limited to giving developers access to the Play Store platform with efficient and ready access to billions of users. We also:

- **Provide app development tools, guidance, and support** to developers throughout the app development process, as well as tools for developers to manage the release of their apps (¶4.19).[53]

- **Hold events to bring developers together**, put developers in touch with experts to assist them, and provide training such as self-guided coding exercises and video tutorials.[54] Our dedicated blog also provides access to hundreds of insights for developers.[55]

- **Take extensive steps to ensure Play is safe**, for example, by scanning billions of apps each year with Play Protect, ensuring secure and seamless payments, and including various parental controls.

- **Provide developers with extensive reporting on their apps**, and continually invest to make metrics and visualisations more helpful. These reports help developers understand, for example, the lifecycle of their apps, from how they are discovered in Play to how users engage with them and what users pay for.

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[51]   Google, Play Console Help, Payments.

[52]   See, e.g., ACT, Response: ACT the App Association (publishing.service.gov.uk), p. 3.

[53]   For example, we offer tools, features, and functionality such as Play Points (Google Play Points), Play Pass (Google Play Pass), promotions, pre-registration, LiveOps, personalised recommendations and subscription services to help developers acquire and retain users.

[54]   Google, Google Developers.

[55]   Google, Google Developers Blog.

55. As the Interim Report finds, our rates are similar to those set by other comparator app stores (¶¶4.226 and 4.232) and have reduced over time (¶4.229), in large part due to competition with rivals such as Apple's App Store:

- In July 2021, we reduced our service fee to 15% on the first $1 million a developer earns to stay competitive with the App Store. We went even further than Apple, as all revenue generating developers paid this rate, even those that earn over $1 million.[56]

- On January 1, 2022, we decreased the service fee for all subscriptions on Play from 30% to 15%, starting from day one.[57] We introduced this lower fee to stay competitive and avoid losing developers to rival app stores.

56. The result is that 99% of developers now qualify for a service fee of 15% or less. We have had positive feedback on this change from our developer partners. Bumble, for example, stated that this change "*will allow* [Bumble] *to better invest in our products and further empower users,*" and Duolingo said that "*this reduction in subscription fees will help Duolingo accelerate our mission of universally available language learning.*"[58]

57. It is also important to note that our service fees have reduced even as our app ecosystem has grown larger, more secure, and benefitted from continuous technological improvement. We therefore strongly believe that our fees -- which have only decreased since Play was first introduced -- are incompatible with a lack of competition.

C. There is healthy competition in the supply of mobile browsers

58. Our browser (Chrome) and browser engine (Blink) are cross-platform services that facilitate free and secure access to online content, for the benefit of consumers. In 2013, Blink was released under an open source licence, contributing to competition and innovation in browsers and browser engines. Any third-party can build a browser based on Blink or adapt it to produce their own browser engine, meaning that new browsers need not bear the development costs of building a browser engine from scratch. As the CMA notes, there are now a large number of alternative browsers based on Blink and available on Android, including Microsoft Edge, Samsung Internet, Opera, Vivaldi, Puffin, DuckDuckGo, Brave, and Yandex (¶5.66). In addition to these browsers, Google faces strong competition from native apps, which allow users to view web content on in-app browsers, which have significant traffic (¶5.179).

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[56] Google, Google Developers Blog.

[57] As the CMA notes (Appendix H, ¶64), an even lower rate of 10% applies for certain developers with high content costs, through the Play Media Experience Program.

[58] See Sameer Samat, Android Developers Blog: Evolving our business model to address developer needs (October 21, 2021).

We support a range of browser engines on Android

59.   On Android, browser developers are free to choose the browser engine they wish to use. Blink is a popular choice owing to its powerful functionality and high web compatibility, as well as frequent innovations. However, browser vendors can and do choose alternatives. For example, Mozilla uses the Gecko browser engine for its Firefox browser.

60.   Our open approach to browser engines on Android promotes competition on the merits in browser apps. Competition between browser engines -- and freedom of choice for developers -- means browser apps on Android can differentiate themselves by incorporating a range of features and functionalities that are not available on iOS, where all browsers are required to use Apple's WebKit browser engine (¶5.96).

Competition for pre-installation and default status benefits all players

61.   On Android devices, there is competition among browsers to be pre-installed and to be set as the initial default browser. Manufacturers often set their proprietary browser as the default (e.g., Samsung sets Samsung Internet as the default on its devices (¶5.159)). It is also easy for consumers to install additional browsers and to change their default browser settings.

62.   Competition to be pre-installed on Android devices and to be set as the initial default browser creates benefits for all players:

   ●   **Users** will have an immediate "out of the box" experience on their devices. This is consistent with the CMA's proposed principle "*to act in customers' best interests when making choices on their behalf*" (¶8.127). As the CMA recognises, the convenience associated with pre-installation and defaults can bring real benefits, which are valued by users (¶6.92).

   ●   **Device manufacturers** can sell pre-installations and defaults in order to monetise the screen space on their devices, giving them funds to invest in new and improved devices and/or to facilitate lower prices.

   ●   **App developers** can use pre-installations and defaults as promotional opportunities to gain initial or continued exposure to users.

63.   If platform developers were prevented from allowing their own apps to compete for pre-installation and defaults, they would lose an important incentive to invest in their platforms -- for example, we give Android away for free. And it would unduly restrict device manufacturers' choices and their ability to monetise pre-installation and defaults if high quality popular apps (such as Chrome) were not allowed to compete on their own merits for these slots.

We support user choice between browsers

64.   We make switching browsers easy for users on Android devices, both at the time of unboxing and at any later stage. When users in the UK access the Play Store for the first time, they are presented with a browser choice screen which allows them to install alternative browsers alongside those that are pre-installed.

65.   At any time, a user can also set any alternative browser that they have downloaded as the default browser by navigating to the default apps page. Contrary to a suggestion in the Interim Report (Appendix G, Figure G.7), this is straightforward and can be done intuitively by navigating to "Choose default apps" through the "Settings" app. In addition, browser developers can and do prompt users to set their apps as the user's default browser.

66.   There is high awareness of alternative browsers among users, even when presented with preinstalled browsers "out of the box". For example, Chrome is widely downloaded on Windows and Apple devices despite not being pre-installed on them.[59] Further, Android users can and do change their default setting with ease. For example, although Samsung Internet is pre-installed and set as default on 56% of Android mobile devices, the Interim Report notes that it only has a share of supply in Android mobile browsers of 15%, demonstrating that most users have chosen to use an alternative browser (¶5.159). A large-scale empirical study led by Professor Pinar Akman in 2021 found that 65% of users of online platform services in the UK have changed their default browser.[60] To the extent users do not download and use an alternative browser on their mobile device, it seems likely that this is because they prefer the browser pre-installed on their device.

67.   With respect to in-app browsers, our open ecosystem gives developers freedom to build on any browser engine, including for example GeckoView. The Interim Report raises concerns about in-app browsers overriding users' chosen default browsers. However, as the CMA rightly notes, the decision on whether a native app launches an in-app browser, and if so, which browser, lies with the respective app developer, not Google (¶5.181). Having control over whether or not an in-app browser is launched allows app developers to customise their user interfaces, which can in turn improve the experience for users. There is therefore, to some extent, a trade-off between offering developers choice and offering end users choice.

68.   We also give third-party browsers access to the key APIs required to operate and compete effectively with Chrome on Android. We look forward to engaging further with the CMA on the limited instances in which third-party browsers may not have

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[59]   See, e.g., Statcounter, Desktop Browser Market Share United Kingdom, which shows that Chrome is the most popular desktop browser in the UK.

[60]   Pinar Akman, A web of paradoxes: Empirical evidence on online platform users and implications for competition and regulation in digital markets, Chapter IV, b, available at SSRN 3835280 (2021).

access to the same APIs as Chrome (¶5.195), which are generally necessitated by privacy and security concerns.

69.   Having the right choice architecture enables users to make informed choices. However, in considering the best balance between user choice, manufacturer choice, developer choice and user experience, we encourage the CMA to gather robust empirical evidence on consumer preferences and behaviour. As Akman's paper found, there may be significant blind spots in policymakers' current understanding and further quantitative and empirical research is essential to understand whether interventions in this space will have the intended effect.[61]

D.   We support competition between app developers

70.   The Android ecosystem has spurred incredible innovation by app developers. UK app developers generate billions of pounds of revenue year on year. Play allows developers to distribute their apps to many Android devices, saving them the transaction costs of having to negotiate separately with different device manufacturers and carriers to gain distribution. We charge developers a competitive fee for this service, which helps to cover costs and allows us to reinvest in the platform so that it can continue to grow and improve. Further, our fee structure keeps distribution costs low as we only apply a charge to apps that are selling digital content, meaning the vast majority of developers are distributing their apps entirely for free.

71.   However, the Interim Report raises potential concerns that control over mobile ecosystems allows OS providers to influence competition in downstream app markets (¶6.263).

We maintain open access to device hardware and software

72.   The Interim Report raises concerns that third-party apps may be blocked from accessing certain APIs controlled by OS providers. We provide third-party apps with a vast array of open APIs to access device hardware and software, including access to NFC chips to facilitate alternative payment wallets.[62] This access has given rise to innovative new apps and services on Android, such as apps that enable Android devices to act as point-of-sale terminals for retailers.[63] We have strong incentives to open APIs to third-party developers, as we benefit from the existence of a range of high quality apps in our ecosystem in line with our ad-funded business model.

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[61]   Pinar Akman, A web of paradoxes: Empirical evidence on online platform users and implications for competition and regulation in digital markets, Fig. 7, available at SSRN 3835280 (2021).

[62]   See Android for Developers, Package Index.

[63]   TechCrunch, India's Paytm turns Android smartphones into POS machines in merchants push (March 9, 2021).

Our app review process is efficient and objective

73. Play operates a robust and fair app review process to create a safe environment for users and developers. Before they are uploaded, apps are reviewed to ensure that they do not, for example, contain restricted content, infringe intellectual property rights, or mislead users.[64] As the CMA notes, app developers have recognised our efforts to run an efficient process, engage with them and provide clarity on outcomes (¶6.71). For example, ACT stated that our "*rigorous review processes have helped to protect... users and thereby create consumer trust... This trust is fundamental to the survival of small app developers.*"[65] In addition to these processes, Google Play Protect scans over 100 billion apps every day, preventing many malware installs.

Our Play Store rankings are consistent and fair

74. The Interim Report has raised potential concerns that we may have an incentive to prioritise our first-party apps in Play's rankings, especially those that are monetised, or third-party apps which depend on our proprietary in-app payment system (¶6.119).

75. Play ranks Google-owned and third-party apps consistently. The fact that we develop an app does not change the position in which it appears in response to a search query in Play. Similarly, whether an app pays us a service fee does not affect its position in the Play search rankings. The CMA provisionally finds that we have a hypothetical ability and incentive to promote apps that use our own in-app payment service, but presents no evidence that we do so in practice, other than one speculative anecdote. The Interim Report refers to one developer that noticed a drop in its apps' ratings and rankings after it introduced its own billing system (¶6.110). There may be a number of reasons why this developer's ratings and rankings have dropped, including owing to a negative reaction from users to the introduction of its third-party billing system.

76. The parameters that we apply for the purposes of ranking are made public, for example on Play Console Help and our "*How Google Play Works*" site.[66] As the Interim Report notes, we also publish periodic updates on our developer blog (¶6.102). App developers are therefore made aware of any significant changes, consistent with the CMA's proposed principle "*to give fair warning of and explain changes that are likely to have a material impact on business users*" (¶8.136). However, we note that changes having a "*material impact*" are rare. The parameters are detailed enough to enable developers to improve their rankings by improving their apps. We do not disclose the exact criteria that determine specifically how an app scores against a particular parameter, as doing so would enable developers to game the signal rather than trying

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[64] See Google Play, Developer Policy Center.

[65] See ACT, Response: ACT the App Association.

[66] See, e.g., Play Console Help, Get discovered on Google Play search, Google Play Console Help, App Discovery and Ranking, and Google Play, How Google Play Works.

to improve the user experience or quality of their app. Users would lose out if developers were able to manipulate the system in this way.

We do not collect commercially sensitive information about rival apps

77. The Interim Report raises preliminary concerns that, through the operation of Play, we have access to confidential information about rival apps and that we could use this data to favour our own apps (¶6.142). However, the information that we receive as part of our app review process is not typically commercially sensitive. Third-party developers have not, as the CMA notes, raised concerns regarding Google's use of such information to give its first-party apps a competitive advantage over their own (¶6.138). In practice, we already have formal policies in place prohibiting the company-wide sharing of identifiable data about third-party apps gathered by Play.

II.   Potential interventions

78. We believe that competition in the UK mobile sector is thriving. While we do not agree with all of the concerns in the Interim Report, we will work constructively with the CMA on the design of any proposed interventions. It is imperative these interventions are tailored to address the concerns identified, and that their consequences are fully understood. This will ensure that they do not harm our ability to continue delivering high quality, pro-competitive products, and services to consumers.

79. We believe that a Code of Conduct with high-level principles has the potential to work well in regulating industry behaviour.[67] We also agree with the CMA that firm-specific guidance -- including examples of behaviour that may breach the Code (¶8.122) -- would be helpful, provided it is regularly updated to keep pace with change.

80. However, consumer preferences and behaviours are not uniform. Interventions will therefore result in winners and losers. For example, the proposed Code principles may at times conflict, which will require trade-offs. We encourage the CMA to consider:

- **The changes in market outcomes it wants to achieve from its proposed interventions**. Specifically, the CMA should articulate what it is seeking to change in terms of consumer benefits.

- **The different impact of interventions on different stakeholders**. The CMA must be especially mindful of the fact that interventions may have asymmetric effects on different stakeholders across the ecosystem. Interventions designed to promote user choice may, for example, limit developers' and manufacturers' choices, monetisation options, and ability to differentiate themselves.

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[67]   We have set out these views in detail in our response to the Digital Markets Taskforce's Call for Information (Google, [Response to the Digital Markets Taskforce's Call for Information](#)).

- **How it will measure the success of such interventions**. This is particularly important given the already high levels of consumer satisfaction in mobile ecosystems. If improving consumer welfare is not the CMA's only metric for assessing whether an intervention is worthwhile, it should explain why not, and what else it is prioritising.

81. As the Interim Report notes, the different interventions being considered are closely linked (¶¶7.114-7.117). Some may be effective on their own, addressing a number of issues. Others may work best as part of a package of remedies. As the CMA recognises, poorly designed regulations can raise large risks to competition, and it is crucial that interventions are trialled and tested before being introduced.[68] The CMA also needs to ensure that whatever remedies package it eventually recommends is proportionate to the harms identified, and the least onerous remedies are chosen.

82. We therefore agree with the CMA's suggestion that in certain instances it may be appropriate to impose one remedy first to see if it addresses the CMA's concerns, before imposing any additional, more intrusive, measure (¶7.117). For example, we think that operational separation of our app development and app store businesses should not be considered until less intrusive remedies, such as principles in the proposed Code of Conduct, have been shown to be insufficient.

A. Remedy Area 1 - the supply of mobile devices and OSs

83. We welcome the Interim Report's proposal for a pro-competitive intervention (**PCI**) and/or Code of Conduct principles to reduce the barriers for users switching from iOS to Android, in particular through increasing the availability of Apple's apps on Android devices or requiring Apple to enable its apps (e.g., iMessage) and connected devices (e.g., Apple Watch) to interoperate fully with equivalent features on Android devices (¶7.34). As explained above, we already make necessary features and functionalities available to aid user switching (¶7.34) and the Interim Report does not suggest any intervention is required against us.

84. The Interim Report suggests that barriers to entry in mobile OSs may be reduced if we were to include proprietary Google features and functionalities, such as push notifications and/or APIs, in open source Android (¶7.42). The CMA is also considering Code principles that would require us to license our apps and services and make our placement and revenue sharing agreements available to Android forks (¶7.54). We think these suggested interventions would go too far, for the following reasons:

- First, as explained above, Android variants wishing to use our apps and services have the option of complying with the minimum compatibility requirements to ensure that our products, as well as those of third party Android developers, work on their devices.

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68 See CMA, Regulation and Competition - A Review of the Evidence (January 2020), ¶¶1.24 and 2.20.

- Second, the proposed interventions would be self-defeating: we -- like any Android app developer -- would be unable to guarantee that our apps and services would function on Android forks without breaking, and breakages would *reduce* the competitiveness of the Android fork. In addition, the proposal could result in us having to scale back the services and features that we offer in our apps and services so as not to provide low quality user experiences on Android forks.

- Third, imposing on Google a duty to license its apps and services -- intellectual property that we invested and continue to invest billions of dollars creating -- would have consequences on our incentive to continue innovating. The proposal would devalue that intellectual property and harm our reputation, as a result of users associating our apps and services with a poor user experience.

B.   Remedy Area 2 - the distribution of native apps

85.   The Interim Report proposes Code principles and PCIs to address its concerns relating to restrictions on the ability of developers to distribute, and users to access, apps by alternative means to Google's Play Store and Apple's App Store (¶7.54).

86.   Before pursuing a remedy to make sideloading even easier on Android devices, the CMA should investigate further whether the current warnings have an adverse effect on consumer behaviour through deterring a significant proportion of consumers from sideloading legitimate apps. The consequences of misjudged intervention could be severe for the security and privacy of Android users, as well as for the integrity of the Android ecosystem.

87.   Similarly, we are concerned that the CMA has not set out what it hopes to achieve from an intervention to enable third-party app stores to be downloaded through Play given that c. 90% of Android devices come with an alternative app store pre-installed (¶4.59). For example, the CMA has not performed any analysis as to whether lack of availability of third-party app stores in the Play Store in any way contributes to comparatively fewer users downloading a third-party app store. Before considering any intervention, the CMA should, at a minimum, provide such evidence. In addition, the CMA should be aware that it would be practically impossible for the Play Store to review a third-party app store and all the apps it distributes for security concerns.

C. Remedy Area 3 - the supply of mobile browsers and browser engines

88. The Interim Report proposes remedies to make it easier for consumers to switch browsers and for third-party browsers to compete effectively (¶7.64 and ¶8.144). The CMA is considering a PCI requiring browser choice screens or other requirements with regard to the way browser choices are presented to consumers (¶8.144). We have always enabled users to choose their preferred browser and set it as default (including when users are directed to a browser from Google Assistant). We would, however, be happy to engage with the CMA to explore any improvements we could make to our choice architecture to enhance users' choice of services even further.

89. The CMA should consider the following principles when looking at choice architecture:

    ● **Choice should provide real control, but shouldn't overburden users**. Requiring choice often adds more friction and confusion than control. Too many choices can lead to 'overload' and/or friction, less engaged decisions as users become frustrated, and ultimately less activity.[69]

    ● **Choice requirements should not inhibit essential security functions**. Requiring choice could be detrimental to user safety if it stops us preventing fraud, spam, and other abuses of our systems.

    ● **Choice requirements should apply to competitively significant interactions**. Any intervention should be tailored in a proportionate way to choices that are significant to competition.

90. The Interim Report notes that any intervention preventing us from entering into agreements with device manufacturers to pre-install Chrome as the default browser on their devices needs to be considered carefully (¶¶7.69-7.70). We consider that such an intervention would be disproportionate given that consumers can easily change default settings. This intervention could also result in consumer harm through a negative impact on the "out of the box" experience and potentially higher device prices.

91. We support the CMA's proposals to enhance browser competition. We already allow developers to choose their browser engine on Android.

92. The Interim Report considers requiring us to ensure that all browsers on Android have access to directly comparable features and functionality through APIs (¶7.71, 3rd bullet). As explained above, we already give third-party browsers access to the key APIs required to operate and compete effectively with Chrome on Android. In the limited instances where third-party browsers are not granted access to the same APIs, this is necessary to reduce security and privacy risks and to manage the consumption of our server infrastructure. We look forward to engaging further with the CMA on this topic in the second half of the study.

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[69]   See Sheena Iyengar and Mark Lepper, When Choice is Demotivating: Can One Desire Too Much of a Good Thing? (2000); Barry Schwartz, More Isn't Always Better (June 2006).

D.   Remedy Area 4 - competition between app developers

93.   The CMA has proposed Code principles to address potential issues with aspects of in-app payment systems (¶¶7.99-7.106). A number of these concerns -- such as the extent of control developers have over issues such as subscriptions and refunds -- do not apply to us. However, the Interim Report considers that there may be alternative methods to collect a commission for the Play Store, while allowing developers to handle payments directly (¶7.101).

94.   We consider that our in-app payment systems are fair and benefit both users and developers. Play Billing ensures that users know that their payments are safe, enables them to set budget controls and manage and monitor purchases (including subscriptions). It also provides developers with a secure and reliable process for collecting payments for their apps and in-app content, and for managing refunds and customer complaints. This is particularly valuable for the numerous app developers who do not have such in-house capabilities.[70] We look forward to further engaging with the CMA on this issue in the second half of the study.

95.   Several of the CMA's concerns regarding potential self-preferencing do not apply to Play (for example, the CMA has found no evidence of concerning practices with respect to our app review processes (¶¶6.71, 6.75 and 6.77)). The CMA is, however, considering Code principles and/or a PCI to put in place data or operational separation between our app store and app development businesses (¶¶7.107 and 8.144).

96.   Operational separation would be disproportionate, particularly because the CMA has not articulated any specific evidence of harm to consumers or developers, and given that data separation would fully address the CMA's concerns. The CMA's suggested Code principle appears -- at a high level -- to be reasonable, provided it is clearly defined.[71] In practice, we already have formal policies in place prohibiting the company-wide sharing of identifiable data about third-party apps gathered by Play. This third-party data is not shared with first-party app developers to unfairly advantage them, or for purposes other than to benefit the Play and Android ecosystem.

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[70]   See for example ACT, Response to the CMA's Statement of Scope, which states that "*ready-to-use payment, and billing services are particularly advantageous for the smallest app developers who would not otherwise have the resources to develop such features*" p. 4.

[71]   We are concerned that as currently phrased, the principle could prevent *any* cross-service use of *any* data (regardless of consent). That would have significant consequences (e.g., for security protections) that go far beyond the concern the CMA is seeking to address.