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May 23, 2022

National Telecommunications and Information Administration
1401 Constitution Ave., NW
Washington, DC 20230

Re: NTIA-2022-0001-0001 - Request for Comment on Developing a Report on Competition in the Mobile App Ecosystem

Thank you for considering my testimony. My name is Josh Withrow and I am a fellow with the R Street Institutes Technology and Innovation Policy team. R Street is a nonprofit, nonpartisan public policy research organization. Our mission is to engage in policy research and outreach to promote free markets and limited, effective government in many areas, including technology and innovation. This is why the request for comment by the National Telecommunications and Information Administration is of particular interest to us.[1]

Before responding directly to several questions, there are some general points worth noting when considering the state of competition in mobile apps. First, it is important to keep in mind how young the industry still is: in 2008, Apple launched its app store with only 500 apps available to download on the still-new iPhone.[2] The same year, developers of the Android Market (the predecessor of Google's Play store) launched their platform with "over 50" apps to choose from."[3] Today, there are more than 4.8 million apps and games available in the App Store; Google Play has over 2.5 million apps, while mobile app stores as a whole saw 230 billion apps downloaded in just 2021.[4]

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[1] "Request for Comments on Competition in the Mobile App Ecosystem," National Telecommunications and Information Administration, April 21, 2022. https://www.ntia.doc.gov/federal-register-notice/2022/request-comments-competition-mobile-app-ecosystem.
[2] Mansoor Iqbal, "App Download Data (2022)," Business of Apps, last updated May 4, 2022. https://www.businessofapps.com/data/app-statistics.
[3] "Android Market: Now available for users," Android Developers Blog, Oct. 22, 2008. https://android-developers.googleblog.com/2008/10/android-market-now-available-for-users.html.
[4] L. Ceci, "Number of available apps in the Apple App Store from 2008 to 2022," Statista, last accessed May 17, 2022. https://www.statista.com/statistics/268251/number-of-apps-in-the-itunes-app-store-since-2008; L. Ceci, "Number of available applications in the Google Play Store from December 2009 to March 2022," Statista, March 21, 2022.

Second, the subject of competition in mobile app markets invariably focuses on the fact that its two leaders, Google and Apple, have dominated the U.S. market for most of app ecosystem's existence. This should not overshadow the fact that there is vigorous competition between these two leading services themselves to attract customers and developers, as well as a plethora of smaller app stores attempting to chip away at current market leaders.[5] Concerns about Apple's closed system forcing users to download software through its App Store exclusively are mitigated by the ease with which customers can (and do) choose to switch between Android and iOS devices.[6]

Questions 5 and 6: Fee and payment scuffles between profitable app developers and the app stores distract from the benefits the ecosystem has provided to small developers.

Disputes between the app stores about the fees they extract from the revenue generated by app developers have prompted some of the largest and most profitable app developers to claim anti-competitive harm (e.g., Epic's antitrust lawsuit against Apple).[7] In particular, companies such as Epic, which makes the popular game Fortnite; music-streaming service Spotify; and dating app developer Match have claimed that being forced to use Apple and Google's proprietary payment systems is unfair.[8]

Yet, the up-to-30 percent fee that Google and Apple both charge their largest apps are perfectly in line with rates charged by other similar digital platforms, from the Amazon and Samsung app stores to game marketplaces like the XBox and Playstation stores and Steam.[9] These fees are the primary revenue-generating mechanism for app stores, with gaming apps in particular accounting for 67 percent of all app revenue as of 2021.[10] By attempting to force Apple to allow sideloading, and to allow developers to bypass the Google and Apple payments systems, companies are essentially asking to receive the benefits of the app store while dodging the cost.[11] These fee requirements are in essence not

https://www.statista.com/statistics/266210/number-of-available-applications-in-the-google-play-store; L. Ceci, "Number of mobile app downloads worldwide from 2016 to 2021," Statista, last accessed May 18, 2022 https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads.

[5] See, e.g., Artyom Dogtiev, "App Stores List," Business of Apps, May 4, 2022. https://www.businessofapps.com/guide/app-stores-list.

[6] See, e.g, J.R. Raphael, "iPhone to Android: The Ultimate Switching Guide," *Computer World*, Feb. 7, 2020. https://www.computerworld.com/article/3218067/how-to-switch-from-iphone-to-android-ultimate-guide.html.

[7] *Epic Games, Inc. v. Apple, Inc*., U.S. District Court, Northern District of California, last accessed May 18, 2022. https://cand.uscourts.gov/cases-e-filing/cases-of-interest/epic-games-inc-v-apple-inc.

[8] Ashley Carman, "Epic Games and Match Group join Spotify in protesting Apple's App Store fees," *The Verge*, June 17, 2020. https://www.theverge.com/2020/6/17/21294230/epic-games-match-group-spotify-eu-apple-app-store.

[9] Tom Marks, "Report: Steam's 30% Cut Is Actually the Industry Standard," *IGN*, last updated Jan. 13, 2020. https://www.ign.com/articles/2019/10/07/report-steams-30-cut-is-actually-the-industry-standard; Ian Carlos Campbell and Julia Alexander, "A guide to platform fees: the hidden costs behind your favorite apps, games, and more," *The Verge*, last updated Aug. 24, 2021. https://www.theverge.com/21445923/platform-fees-apps-games-business-marketplace-apple-google.

[10] Mansoor Iqbal, "App revenue data (2022)," Business of Apps, last updated May 4, 2022. https://www.businessofapps.com/data/app-revenues.

[11] Wayne Brough, "The Online App Store Ecosystem," R Street Institute, April 6, 2021. https://www.rstreet.org/2021/04/06/the-online-app-store-ecosystem.

different from how physical retail stores charge distributors for shelf space; whether those fees are "fair" should remain a contract dispute between app distributors and developers.

Question 4: Competition from middleware-layer apps should be factored into any study of the app ecosystem.

Browser- and cloud-based software can absolutely be used to bypass the constraints of the app stores, a fact which may give some developers leverage in disputes with the app stores moving forward. Once again, the dispute between Epic and Apple is illustrative. After being kicked out of the Apple App Store for refusing to comply with their payment system and fee requirements, Epic has joined with XBox's cloud gaming services so that now iOS users can access Fortnite and bypass the Apple app store.[12] As ever, where there is demand for a product, markets and technology will adapt, and the app stores will have to adapt in turn, even without government intervention.

Although the progressive fee structure that charges successful revenue-generating app developers higher fees has become a point of contention, this structure has been a major boon to small and startup app developers. Developers who take in less than $1 million in revenue per year pay a 15 percent fee on any in-app purchases, while apps that do not sell a product or subscription are hosted for a small fee.[13] Small developers get the inherent benefits of the app store—audience trust in the platform, user reviews, marketing features, etc.—that large, established apps get, and a gigantic potential customer base to expand into.

As the App Association, which represents many small app developers, has written, "If large software companies are able to convince Congress to require software platforms to give them a better deal, App Association members and their clients and customers are forced to subsidize the resulting discount for these larger companies."[14] Similarly, regulatory interference that strikes at payment contracts the app stores have with developers would likely produce a similar result: the costs of access to the app ecosystem would increase, potentially discouraging many smaller apps from entering the market.

Question 17: The screening function provided by the app stores is crucial for cybersecurity and user trust.

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[12] Taylor Hatmaker, "Fortnite is back on iOS through XBox cloud gaming," *TechCrunch*, May 5, 2022. https://techcrunch.com/2022/05/05/play-fortnite-on-iphone-ipad-ios.

[13] Tim MacKenzie, "App store fees, percentages, and payouts: what developers need to know," *Tech Republic*, May 7, 2012.
https://www.techrepublic.com/article/app-store-fees-percentages-and-payouts-what-developers-need-to-know.

[14] "The Impact of Platforms on Software Distribution: What Makes an Ecosystem Work?" ACT | The App Association, Oct. 1, 2020.
https://actonline.org/wp-content/uploads/The-Impact-of-Platforms-on-Software-Distribution-2020.pdf.

There is very clear data showing that the Google Play and App Store screening processes greatly improve the cybersecurity of mobile devices—cybersecurity consultants found that "Third-party app stores host 99.9% of discovered mobile malware."[15] Meanwhile, The National Institute for Science and Technology (NIST) warns that "sideloading" apps from outside of the app stores carries some inherent level of risk for less tech-savvy users.[16] Nokia's 2020 Threat Intelligence Report found that in 2020, Android mobile devices represented 26.6 percent of all malware infestations across all platforms (including PCs, internet of things, etc.), whereas iPhones made up only 1.7 percent. Much of that gap has been attributed to sideloading on Android devices.[17]

The relative superiority of Google Play and the App Store in screening malware-containing or privacy-violating software from their services is both a competitive advantage for those companies and a crucial component of the mobile device cybersecurity ecosystem.[18] These statistics also illustrate that while closed systems like Apple's that bars third-party app stores and sideloading might restrict software choices for customers and developers alike, there are also clear user benefits. As with any product feature, the security and ease-of-use benefits of a closed system like Apple's is a trade-off, one which factors into consumer preferences between iPhones and rival devices.

The user trust that is engendered by a well-screened and regulated app store provides a tangible benefit to smaller app developers that is crucial to their ability to compete with larger, more established apps. Without that trust, consumers are inclined to stick to well-known, established software, whereas an upstart app in a well-curated app store is more likely to find users willing to download unfamiliar software because of the assurance that there is little downside to doing so.[19]

To Question 22: "User Benefit" should reflect consumer, not competitor, welfare.

To the extent that there is any government role in the app markets, it should be focused on consumer protection, not competitor (in this case, developer) welfare. That app stores continue to largely benefit their users is evident simply from the incredible consumption of apps of all kinds.

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[15] "2021 Cyber Security Statistics: The Ultimate List Of Stats, Data & Trends," PurpleSec, last accessed May 18, 2022. https://purplesec.us/resources/cyber-security-statistics.

[16] Joshua M. Franklin et al., "Guidelines for Managing Mobile Security in the Enterprise," draft NIST Special Publication 800-124, March 2020. https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-124r2-draft.pdf.

[17] "Threat Intelligence Report 2020," Nokia, last accessed May 18, 2022. https://www.nokia.com/networks/portfolio/cyber-security/threat-intelligence-report-2020.

[18] Tatyana Bolton, "Security in Antitrust: Implications of Two House Bills," R Street Institute, Nov. 13, 2021. https://www.rstreet.org/2021/11/13/security-in-antitrust-implications-of-two-house-bills.

[19] "Security and Trust from an App Maker's Point of View," The App Association, November 2021. https://actonline.org/wp-content/uploads/App-Association-Security-and-Trust-from-an-App-Makers-Point-of-View-November-2021.pdf.

As noted earlier, app markets saw 230 billion downloads in just 2021, and apps on iOS and Android devices generated $133 billion in revenue last year.[20] That total is predicted to exceed a quarter trillion dollars annually by 2025.[21] This level of explosive growth of an industry does not suggest a market where the top firms are using their market power to extract monopoly rents. Given the easy availability of competing app stores on Android devices in particular, one would expect to see user dissatisfaction expressed on those devices via migration from Google's Play Store to competing services, yet presently Google Play continues to dominate the app market in terms of downloads. [22] This comes in spite of the fact that various device manufacturers that use Google's Android OS have their own app stores preinstalled alongside Google's.

Conclusion

Overall, the app ecosystem is thriving, not only in spite of but at times because of the structure that Google and Apple provide, which has come to define the present-day mobile app market. Most proposals to regulate this market focus on forcing the app ecosystem to be more "open," and while openness and interoperability are generally good principles, forcing openness for its own sake can undermine the security and stability that has helped make mobile app markets thrive in the first place.

Respectfully submitted,

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[20] Mansoor Iqbal. https://www.businessofapps.com/data/app-revenues.
[21] Sarah Perez, "App spending to reach $270B by 2025, new forecast predicts," *TechCrunch*, Feb. 22, 2021. https://techcrunch.com/2021/02/22/app-spending-to-reach-270b-by-2025-new-forecast-predicts.
[22] Mansoor Iqbal, "App Download Data." https://www.businessofapps.com/data/app-statistics.