

## ESSAY

# HARMING COMPETITION AND CONSUMERS UNDER THE GUISE OF PROTECTING PRIVACY: AN ANALYSIS OF APPLE’S iOS 14 POLICY UPDATES

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*Apple’s iOS 14 update represents an anti-competitive strategy disguised as a privacy-protecting measure. Apple now prohibits non-Apple apps from using information essential to providing relevant, personalized advertising without explicit user opt-in. And users may opt in only after they are shown an ominous and misleading prompt about “tracking,” one that Apple’s own apps and services need not display, because consumers are automatically “opted in” to Apple’s own tracking. Apple’s policy will have the pernicious effects of enhancing the dominance of iOS among mobile operating systems (OSs) and the dominance of its own apps and services within the iOS ecosystem, while reducing consumer choice and devastating the free-app ecosystem.*

*A free and open internet is the backbone of the U.S. economy and society. Over 4 billion people globally use the internet on a daily basis, and 85% of Americans go online daily.<sup>1</sup> Businesses and consumers alike rely on the internet, and more specifically, on mobile devices, to communicate with one another, to keep themselves informed about news and current events, and to engage in commerce in a quick and effective way. The past two years have underscored the importance of the open internet, which allowed businesses*

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<sup>1</sup> *Global digital population as of January 2021*, STATISTA, <https://www.statista.com/statistics/617136/digital-population-worldwide/> [<https://perma.cc/253B-NWG7>] (last visited May 3, 2021); Andrew Perrin & Sara Atske, *About Three-in-Ten U.S. Adults Say They Are ‘Almost Constantly’ Online*, PEW RSCH. CTR. (Mar. 26, 2021), <https://www.pewresearch.org/fact-tank/2021/03/26/about-three-in-ten-u-s-adults-say-they-are-almost-constantly-online/> [<https://perma.cc/45KW-423R>].

*and individuals to maintain and create connections in the midst of the global pandemic. Many local brick-and-mortar businesses, for instance, opened online storefronts in order to connect with consumers who were unable to shop in person.*

*Keeping intact the internet's ability to connect people and businesses is therefore of paramount importance. Advertising—especially personalized advertising—is a key part of that dynamic. Personalized advertising delivers value to consumers and businesses by connecting them to the right products and services. Additionally, personalized advertising brings value to consumers in the form of free (or significantly lower cost) products, apps, and services.*

*A new update to Apple's mobile operating system, iOS 14, threatens to diminish the value that the free internet, subsidized by personalized advertising, provides. Under the mantle of privacy, Apple's update imposes excessive restrictions on alternative business models and distorts competition. At a high level, Apple's iOS 14 update prohibits apps from engaging in broad categories of data use unless users opt-in—often not only once, but twice—to prompts requesting “permission to track [you] across apps and websites owned by other companies.”<sup>2</sup> The categories of data use that Apple prohibits encompass many uses that would not qualify as “tracking” as the term is commonly understood (i.e., following a user around the internet). Apple does not apply these changes evenhandedly. Apple's iOS 14 update does not apply to Apple's own services, including its own apps and proprietary ads product.*

*Moreover, Apple's update goes beyond any legitimate protection of users' privacy interests. Through its so-called “privacy” update, Apple uses its market power for mobile OSs in a way that reduces consumer choice. To take but one example, if Apple can reduce the number of free news apps available to end users, that forces readers to use either paid news apps or Apple's competing news aggregation service (Apple News). That puts Apple, rather than consumers, in charge of curating the news content they see. The update creates significant competitive distortions that, while favoring Apple, will decimate the ad-based business model that enables developers to provide apps at no cost to consumers and simultaneously allows advertisers to reach consumers that would be most interested in their offerings.*

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<sup>2</sup> See *User Privacy and Data Use*, APPLE, <https://developer.apple.com/app-store/user-privacy-and-data-use/> [<https://perma.cc/P4SR-ARX8>] (last visited Mar. 28, 2022).

*Apple's update also has profound consequences for competition among mobile OSs. By degrading the ad-supported app ecosystem, Apple's update will steer consumers toward paid apps and Apple's own apps and services, and developers toward fee-based monetization and distribution through Apple's aggregation services (e.g., Apple News+ for news and Apple Arcade for games). Unlike third-party ad-supported apps, which can seamlessly transition between mobile operating systems, Apple's proprietary apps and services are generally unavailable on operating systems other than iOS. As such, Apple's update—which steers iOS users toward its proprietary apps and services—raises iOS users' costs of switching to non-Apple devices and entrenches Apple's iOS monopoly.*

*This Essay identifies how Apple's iOS 14 strategy serves to reinforce Apple's dominance over the mobile ecosystem by significantly reducing—if not effectively precluding—the ability of third-party apps to create value through personalized advertising. This move to stifle competition is consistent with Apple's established track record of engaging in conduct that protects and extends the dominance of iOS at the expense of developers, small businesses, and consumers.<sup>3</sup>*

*This Essay explains: (i) Apple's dominance in mobile OSs and the competitive dynamics in the industry, including the critical role that personalized advertising plays in today's mobile app ecosystem; (ii) how Apple's iOS 14 updates dramatically alter today's mobile OS ecosystem, wrongfully preference Apple's own products and services, and help Apple protect and augment its dominance over iOS and more broadly over mobile OSs; and (iii) why such actions harm competition, and by extension, iOS users and consumers more broadly.*

## I

### BACKGROUND: APPLE'S DOMINANCE IN THE MOBILE OS MARKET AND INDUSTRY DYNAMICS

A mobile OS, such as Apple's iOS 14, is a digital platform. A digital platform acts as an intermediary between groups on different sides of the platform that depend on the platform to interact (e.g., a developer creates an app compatible with iOS, and a consumer uses iOS, installed on her iPhone, to download and interact with that app).<sup>4</sup> A mobile OS is an OS specifically

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<sup>3</sup> See *infra* note 66 (citing examples).

<sup>4</sup> See Mark Rysman, *The Economics of Two-Sided Markets*, 23 J. ECON. PERSP. 125, 126 (2009).

designed for mobile devices, such as smartphones and tablets. The mobile OS manages the device's hardware resources and provides apps a stable, consistent way to interact with these resources without having to know their details.<sup>5</sup>

To create a well-functioning and secure/safe mobile OS, an OS owner must set design rules that govern the ecosystem (in other words, govern how apps and websites may use the OS to reach users) and create stability for the system's design architecture.<sup>6</sup> These design rules create the greatest value for users when they encourage competition and innovation. But an OS owner with significant market power may manipulate governance rules in ways that exclude providers of complementary products and services, entrench the OS's market power, and harm consumers.<sup>7</sup> An OS owner that manipulates governance rules in this way can stymie innovation and worsen outcomes for both businesses and end consumers.<sup>8</sup> Whether a given set of governance rules has these effects is a fact-specific inquiry.

An app's commercial success depends on its availability on two mobile operating systems—Apple's iOS and Google's Android. From an antitrust standpoint, Apple has an absolute monopoly over the iOS ecosystem,<sup>9</sup> including Apple's App Store, as well as substantial market power over mobile OSs more broadly. Specifically, in the United States, Apple's iOS maintains a substantial market share of about 60% among mobile OSs.<sup>10</sup> Google's Android, in comparison, commands about a 40% share.<sup>11</sup> Apple's iOS is available only on Apple devices—Apple does not license iOS to third-party device manufacturers, and iOS is the only operating system available on Apple devices. Adding to the complexity of the mobile OS ecosystem, Apple offers apps and services on its mobile OS that

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<sup>5</sup> Tim Fisher & Ryan Perian, *Operating System (OS) Definition & Examples*, LIFEWIRE (Updated Jan. 24, 2022), <https://www.lifewire.com/what-is-a-mobile-operating-system-2373340> [<https://perma.cc/3GQT-FHXU>].

<sup>6</sup> MARCO IANSITI & ROY LEVIEN, *THE KEYSTONE ADVANTAGE: WHAT THE NEW DYNAMICS OF BUSINESS ECOSYSTEMS MEAN FOR STRATEGY, INNOVATION, AND SUSTAINABILITY* 27–39 (2004).

<sup>7</sup> Feng Zhu, *Friends or Foes? Examining Platform Owners' Entry into Complementors' Spaces*, 28 J. ECON. & MGMT. STRATEGY 23, 23 (2019).

<sup>8</sup> See, e.g., Feng Zhu & Qihong Liu, *Competing with Complementors: An Empirical Look at Amazon.com*, 39 STRATEGIC MGMT. J. 2618, 2622 (2018).

<sup>9</sup> *Apple v. Pepper*, 139 S. Ct. 1514, 1519 (2019).

<sup>10</sup> *Statcounter*, GLOBALSTATS, <https://gs.statcounter.com/os-market-share/mobile/united-states-of-america> [<https://perma.cc/HUD9-43RX>] (last visited May 3, 2021).

<sup>11</sup> *Id.*

compete with third-party developers' apps. For instance, Apple Music competes with Spotify, Apple Fitness competes with Aaptiv, and Apple Arcade competes with independent game developers and studios.

Prior to Apple's recent iOS 14 changes, developers could choose to monetize iOS apps using three models (or a combination of those models): (i) "fee-supported," which involves charging consumers fees (of which Apple takes a 15–30% cut) for downloads, subscriptions, or in-app purchases ("IAPs"); (ii) "ad-supported," which involves offering apps for free or at a heavily subsidized price and generating revenue via advertising; and/or (iii) "freemium," a blend of the fee- and ad-supported models, which offers users a basic, ad-supported version of an app at no cost and charges them fees to access richer app functionality.<sup>12</sup> Currently, most apps fully or partially rely on ad-based monetization. According to an AdColony survey, non-gaming apps derive 66% of their revenue, and gaming apps derive 63% of their revenue, from advertising.<sup>13</sup> The ad-supported model has enabled the open internet to flourish, and impacts the financial viability of not just apps, but entire sectors.<sup>14</sup> Critically, the ad-supported model enables the free apps and content that mobile device users have come to expect and rely on.

**Businesses (advertisers)—particularly small businesses—and developers benefit from the free model made possible through personalized advertising.** Personalization enables an advertiser to send the right ad to the right consumer (based on relevance and interest) and to

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<sup>12</sup> See Anja Lambrecht et al., *How do firms make money selling digital goods online?*, 25 MKTG. LETTERS 331, 342–43 (2014).

<sup>13</sup> Dean Takahashi, *AdColony: 89% of Mobile App and Game Publishers Use Video Ads*, VENTUREBEAT (Feb. 12, 2020), <https://venturebeat.com/2020/02/12/adcolony-89-of-mobile-app-and-game-publishers-use-video-ads/> [https://perma.cc/6H6R-DRAY].

<sup>14</sup> See JOHN DEIGHTON & LEORA KORNFELD, INTERACTIVE ADVERT. BUREAU, *THE SOCIOECONOMIC IMPACT OF INTERNET TRACKING* 24–30 (2020), <https://www.iab.com/wp-content/uploads/2020/02/The-Socio-Economic-Impact-of-Internet-Tracking.pdf> [https://perma.cc/R3VD-E42Q]; *An Open Letter to Apple from the Media and Advertising Industry*, P'SHIP FOR RESPONSIBLE ADDRESSABLE MEDIA (Sept. 14, 2020), <https://www.responsibleaddressablemedia.com/pram-open-letter-apple> [https://perma.cc/5JJ6-6ZPW]; IAB EUROPE, *WHAT WOULD AN INTERNET WITHOUT TARGETED ADS LOOK LIKE?* 6 (Apr. 23, 2021), [https://iab europe.eu/wp-content/uploads/2021/04/IAB-Europe\\_What-Would-an-Internet-Without-Targeted-Ads-Look-Like\\_April-2021.pdf](https://iab europe.eu/wp-content/uploads/2021/04/IAB-Europe_What-Would-an-Internet-Without-Targeted-Ads-Look-Like_April-2021.pdf) [https://perma.cc/BE74-5RQ2] (study finding that subscription-based models would leave news sites and apps particularly vulnerable, but that there would also be an outsized impact on other services).

measure desired outcomes (conversions) to determine what works and what does not.<sup>15</sup> In particular, personalized advertising offers smaller businesses—without multimillion-dollar advertising budgets—a way to find an audience for their products and services; many advertisers can't afford to foot the bill for television commercials that are irrelevant to most of the millions of viewers of an NFL game or "The Voice."<sup>16</sup> Therefore, personalized ads deliver a higher return on investment than non-personalized ads, because personalized advertising allows businesses to find (and connect with) consumers who are actually likely to be interested in the products and services they offer.<sup>17</sup> Enhancing matching efficiency of ads for direct-to-consumer and other small, new, or niche brands provides competition to incumbent national and international brands, which leads to lower prices, innovation, and improved quality.<sup>18</sup> In addition, advertisers and publishers must be able to measure the effectiveness of an advertisement—personalized or not—to determine whether the ad campaign is working and how to optimize it.<sup>19</sup> Reductions of matching effectiveness may limit the ad-based revenue

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<sup>15</sup> See Catherine E. Tucker, *The Economics of Advertising and Privacy*, 30 INT'L J. INDUS. ORG. 326, 326 (2012); Avi Goldfarb & Catherine E. Tucker, *Online Display Advertising: Targeting and Obtrusiveness*, 30 MKTG. SCI. 389, 402 (2011); Bharat N. Anand & Ron Shachar, *Targeted Advertising as a Signal*, 7 QUANTITATIVE MKTG. & ECON. 237, 238–39 (2009).

<sup>16</sup> See Dean Takahashi, *The DeanBeat: What's at Stake in Apple's Potentially Apocalyptic IDFA Changes*, VENTUREBEAT (Oct. 9, 2020), <https://venturebeat.com/2020/10/09/the-deanbeat-whats-at-stake-in-apples-potentially-apocalyptic-idfa-changes/> [<https://perma.cc/6KE7-4BPV>] ("With the change that Apple is proposing, we're leaving performance advertising behind and going back to the world of Nielsen and brand advertising.").

<sup>17</sup> See J. Howard Beales & Jeffrey A. Eisenach, *An Empirical Analysis of the Value of Information Sharing in the Market for Online Content*, NAVIGANT ECON. (Jan. 2014), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2421405](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2421405) (finding where more information about users is available, transaction price increased by at least 60% relative to average price) [<https://perma.cc/93XW-YMHW>].

<sup>18</sup> See *generally In re 1-800 Contacts, Inc.*, FTC Dkt. No. 9372, at 20–21 (Nov. 14, 2018) (opinion of the Commission) (synthesizing relevant legal precedents and economic literature and observing that "[e]conomic theory indicates that restrictions on [truthful] advertising are likely to harm competition," that "[e]mpirical studies confirm the anticompetitive effects of advertising restrictions," and that "[c]onsistent with the economic literature," both courts and antitrust enforcement agencies have "repeatedly found that advertising restrictions harm competition and consumers").

<sup>19</sup> Deighton & Kornfeld, *supra* note 14, at 21 ("If an advertiser wants to attribute the effect of an ad shown on any one of these media and contexts to a sale, it must know what was shown on every one of them. Otherwise the advertiser's perspective will be myopic or distorted, and its belief about what caused the sale will be a poor guide to future ad spending.").

model. As we describe herein, we believe that Apple's conduct is likely to have such consequences.

**Consumers get free apps and services.** Advertisements allow developers to offer mobile apps to consumers free of charge or at heavily discounted prices.<sup>20</sup> To offer apps to consumers free of charge, developers must generate the revenue needed to run their businesses through means other than charging consumers fees. If advertisers and app developers cannot show the right ad to the right user, consumers are the ultimate losers—advertising will be significantly less effective and efficient (a reduction in quality), developers' and publishers' revenues will plummet, and consumers will no longer receive the free apps and services that advertising makes possible.<sup>21</sup>

**Consumers discover relevant products and services; and small businesses find customers.** Personalized ads benefit consumers, not only by subsidizing the costs of apps, but also by intensifying competition in the markets in which advertised products are sold.<sup>22</sup> Personalized ads enable consumers to locate products that are interesting to them in an efficient manner (both by narrowing the universe of ads and showing more relevant ads)—resulting in consumer surplus.<sup>23</sup> This match benefits the parties on both sides of the transaction, because the advertiser has made a sale and the consumer has discovered and purchased a product he or she desired. Furthermore, personalized advertising enhances

<sup>20</sup> See David Evans & Richard Schmalensee, *The Antitrust Analysis of Multi-Sided Platform Businesses*, in 1 THE OXFORD HANDBOOK OF ANTITRUST ECON., 405 (Roger D. Blair & D. Daniel Sokol, eds. 2014).

<sup>21</sup> *Data-Driven Advertising*, IHS MARKIT (2021), <https://datadrivenadvertising.eu/> (finding that in the EU, data-driven advertising increases the value of ads by 500% and the digital advertising economy would lose 40% of its value without the use of data for advertisements) [<https://perma.cc/U9FX-LYSE>]; Garrett A. Johnson, Scott K. Shriver, & Shaoyin Du, *Consumer Privacy Choice in Online Advertising: Who Optes Out and at What Cost to Industry?*, 39 MKTG. SCI. 1, 2–3 (2020); Deighton & Kornfeld, *supra* note 14, at 24 (finding that if data tracking were lost, “a conservative assumption is that publisher ad revenues and associated employment will fall by an average of 50%”).

<sup>22</sup> David S. Evans, *The Online Advertising Industry: Economics, Evolution, and Privacy*, 23 J. ECON. PERSP. 37, 57 (2009).

<sup>23</sup> SIGURD NÆSS-SCHMIDT, BRUNO BASALISCO, SIGNE RØLMER, KATRINE POULSGAARD, BENJAMIN BARNER CHRISTIANSEN, & LÆRKE KILSDAL, COPENHAGEN ECON., EMPOWERING THE EUROPEAN BUSINESS ECOSYSTEM—AN IMPACT STUDY OF BUSINESSES USING FACEBOOK APPS AND TECHNOLOGIES, 28 (2020), [https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/2/522/1579535391/empowering-the-european-business-ecosystem\\_copenhagen-economics.pdf](https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/2/522/1579535391/empowering-the-european-business-ecosystem_copenhagen-economics.pdf) [<https://perma.cc/MGG7-GX68>]; see generally ANINDYA GHOSE, TAP: UNLOCKING THE MOBILE ECONOMY 135–180 (2017).

consumer choice by lowering advertising costs and allowing new entrants to market their products effectively—without a massive marketing budget.<sup>24</sup>

**Apple has significant incentives to reduce use of ad-supported business model.** In Apple’s current ecosystem, Apple faces competition from ad-supported apps along several dimensions:

- *First*, within iOS, some of Apple’s apps (both paid and free) face competition from ad-supported third-party apps.<sup>25</sup> Apple’s move weakens these third-party apps’ ability to compete.
- *Second (and related)*, ads offer app developers an alternative way to **monetize** and promote their apps (rather than relying on fees subject to Apple’s 15–30% charge and on Apple’s proprietary advertising service).<sup>26</sup>
- *Third*, from a consumer perspective, iOS as a whole faces competition from other mobile OSs (notably Android). Ad-supported apps are relevant to inter-OS competition, because they lower barriers to **switching** between mobile OSs; that is, free, ad-supported apps make it easier for consumers to switch away from iOS and use alternative mobile OSs, like Android. Unlike Apple’s own apps (which users generally cannot transfer to another mobile OS) and paid apps (which often require users switching to a different mobile OS, either to repurchase the apps themselves or to forfeit certain in-app purchases),<sup>27</sup> ad-supported apps lower

<sup>24</sup> See, e.g., Victoria Turk, *How Glossier Turned Itself into a Billion-dollar Beauty Brand*, WIRED (Feb. 6, 2020), <https://www.wired.co.uk/article/how-to-build-a-brand-glossier> [<https://perma.cc/W2Z4-VCAE>]; Yuyu Chen, *How Brooklinen used word-of-mouth to grow a \$15 mil. bedding business*, DIGIDAY (July 20, 2016), <https://digiday.com/marketing/brooklinen-used-word-mouth-grow-15m-bedding-business/> [<https://perma.cc/J8Z3-TFUN>].

<sup>25</sup> *App Store Preview*, APPLE, <https://apps.apple.com/us/developer/apple/id284417353?mt=12> [<https://perma.cc/7QYA-QNBY>] (last visited May 3, 2021) (showing Apple apps).

<sup>26</sup> See Ian Carlos Campbell & Julia Alexander, *A Guide to Platform Fees*, THE VERGE, <https://www.theverge.com/21445923/platform-fees-apps-games-business-marketplace-apple-google#:~:text=Apple%20App%20Store%3A%2030%20percent,15%20percent%20after%20one%20year> [<https://perma.cc/Y2DN-ADND>] (last visited Mar. 28, 2022); *App Store Small Business Program*, APPLE, <https://developer.apple.com/app-store/small-business-program/> [<https://perma.cc/DTC3-88LZ>] (last visited May 3, 2021) (discussing Apple’s 15% commission on paid apps and in-app purchases for existing developers who made up to \$1 million in proceeds in 2020).

<sup>27</sup> See JR Raphael, *iPhone to Android: The Ultimate Switching Guide*,

switching costs and thus promote competition among mobile OSs.

## II

### APPLE'S IOS 14 POLICIES INVOLVE OPT-IN REQUIREMENTS AND PROMPTS ABOUT "TRACKING" FOR NON-APPLE APPS

#### A. Explanation of iOS 14 Policy Changes

Two features of Apple's iOS 14 policy update impact personalized advertising. The first feature, Apple's so-called "privacy nutrition label[]" requirement,<sup>28</sup> requires app developers to report, in a new section of their apps' App Store pages, every data type their apps might "link" to a user. Developers must report these data types in a format that Apple has unilaterally pre-defined and that fails to provide critical context.<sup>29</sup>

The second element, Apple's "AppTrackingTransparency" framework, prohibits apps from engaging in any activity that Apple defines as "tracking," unless the apps prompt users for "permission to track [them] across apps and websites owned by other companies" and users explicitly opt in to "tracking."<sup>30</sup>

Apple broadly, and misleadingly, defines "tracking" to include displaying targeted ads "based on user data collected from apps and websites owned by other companies," sharing email lists or other IDs with a third-party ad network that uses that information to retarget, and "[p]lacing a third-party SDK in your app that combines user data from your app with user data from other developers' apps to target advertising or

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COMPUTERWORLD (Feb. 7, 2020), <https://www.computerworld.com/article/3218067/how-to-switch-from-iphone-to-android-ultimate-guide.html> (explaining that iPhone apps will not automatically transfer over to Android and apps paid for on iOS will have to be paid for again on Android) [<https://perma.cc/N4ZV-S69D>].

<sup>28</sup> See *Transparency is the Best Policy*, APPLE, <https://www.apple.com/privacy/labels/> [<https://perma.cc/92CV-K4RL>] (last visited Mar. 28, 2022)].

<sup>29</sup> See *App Privacy Details on the App Store*, APPLE, <https://developer.apple.com/app-store/app-privacy-details/> [<https://perma.cc/3L6S-ZJWS>] (last visited May 3, 2021). Apple's prescribed format, for example, offers developers no place to explain the purposes for which they collect data or steps they take to safeguard the data they collect.

<sup>30</sup> *User Privacy and Data Use*, APPLE, <https://developer.apple.com/app-store/user-privacy-and-data-use/> [<https://perma.cc/CTC5-9XQC>] (last visited May 3, 2021) ("Tracking refers to the act of linking user or device data collected from your app with user or device data collected from other companies' apps, websites, or offline properties for targeted advertising or advertising measurement purposes. Tracking also refers to sharing user or device data with data brokers.") .

measure advertising efficiency, even if you don't use the SDK for these purposes.”<sup>31</sup> As these examples illustrate, Apple's definition of “tracking” extends well beyond what most users would consider “tracking” (i.e., following their activity throughout the internet). Moreover, Apple restricts advertisers and developers from engaging in these activities, even when consumers have previously consented to such data use (e.g., by consenting to use of their email addresses for advertising purposes in an app, on a website, or at a cash register in a brick-and-mortar store).

If a user does not opt-in to “tracking” by a given app, Apple will, among other things, deny the app access to the Identifier for Advertisers (“IDFA”), an anonymous identifier linked to the user's device. Most app developers, however, do not use the IDFA to “track” users, as most users would understand “tracking.” As its name suggests, IDFA is an identifier for *advertisers* that allows them to personalize ads and measure their effectiveness. For example, an app (e.g., the Facebook app) that displays an ad for another app (e.g., the NBA Live Mobile app) can collect the IDFA of the device on which the ad was shown. If the user clicks on the ad and installs the app, the installed app (the NBA Live Mobile app) can pass the IDFA back to the app that displayed the ad (the Facebook app), allowing the purchase to be attributed to the ad. In other words, it lets both the NBA Live Mobile app and the Facebook app know that the ad worked and that the ad was valuable to the user who downloaded the NBA Live Mobile app.

Apple's policy is even more problematic, because it requires *double* opt in: Unless an iOS user affirmatively “opts in” to “allow tracking” (as Apple defines it) *twice*—in the app serving them an ad (e.g., Facebook) and subsequently in the app they installed or in which they made a purchase as a result of that ad (e.g., the NBA Live Mobile App)—the latter cannot send data that would allow the former to determine whether a particular ad led to an app installation or other valuable event. If users, puzzled by the NBA's apparent desire to track them, do not affirmatively opt in to “tracking” by the NBA, the NBA Live Mobile App cannot share ad-measurement data with Facebook (even if the same users previously opted-in to “tracking” by Facebook). Nor can the NBA Live Mobile App prompt its users for permission to “track” a second time. Users who have been shown the prompt and declined to opt in can

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<sup>31</sup> See *id.* An SDK (software development kit) is a package of software tools that helps developers create software applications with advanced functionality.

thereafter change their preferences only by wading through their device settings (conveniently, where Apple keeps its own “opt out” control).

Data about which ads did, or did not, lead to valuable events (such as app downloads, clicks on targeted ads, and/or sales), is critical to effective advertising (personalized or otherwise). If a user does not opt in to “tracking,” Apple not only denies the app access to the IDFA, but also prohibits the app from using other means to measure which ads led to valuable events. For example, it would violate Apple’s policy for a news app and a clothing store to determine that an ad led to a purchase using an email address that a user voluntarily provided to each. Apple’s policy thereby impairs the ability of ad publishers and advertisers to measure the effectiveness of ads.

We expect that these prompts will shift consumer behavior by pushing people (twice) to choose a setting they may otherwise not have chosen through the use of a “tracking” warning for a wide array of data use that Apple has lumped together as “tracking.”

Figures 1 and 2 provide examples of Apple’s warning labels and opt in prompts and an illustration of the double opt in that Apple’s iOS 14 policy requires.

**Figure 1** provides snapshots of App Privacy warning labels and “Allow Tracking” opt ins on iPhone apps.

Figure 1: Privacy Warnings and Opt Ins

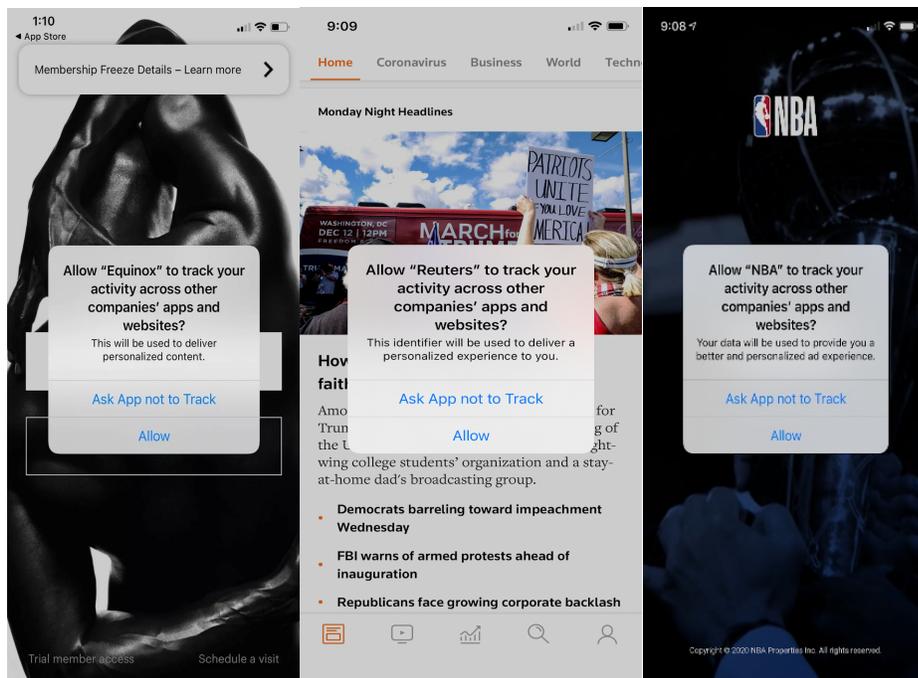
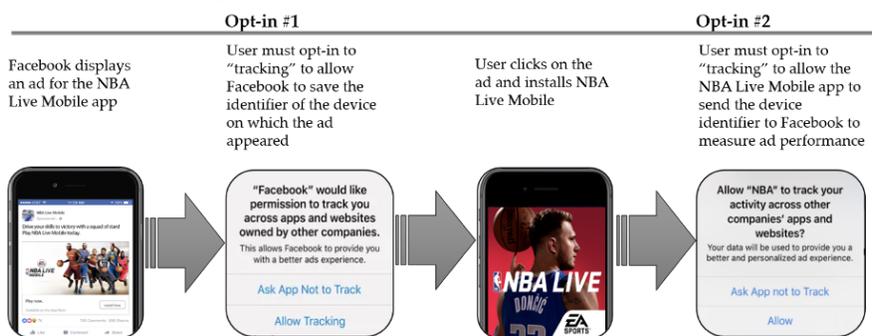


Figure 2 illustrates how Apple’s policy will require iOS 14 users to opt in to “tracking” twice—in this example, on both the Facebook app and the NBA Live Mobile App—to enable measurement of a single ad.

Figure 2: Double opt in illustration



B. iOS 14 Policies Do Not Apply to Apple

The iOS 14 opt in requirement does not apply to Apple’s own apps and services, including its ads service. The default is that consumers are automatically “opted in” to Apple’s

tracking.<sup>32</sup> Notably, Apple's default opt in status for users of its own apps and services applies even though Apple *does* personalize ads by using data collected in other companies' apps (for instance, data from consumers' in-app purchases on third-party apps).<sup>33</sup> This data use, if undertaken by a third-party developer or ads service, would be deemed "tracking" under Apple's definition ("Displaying targeted advertisements . . . based on user data collected from apps and websites owned by other companies.").<sup>34</sup> Apple retains the ability to engage in such data use, however, unless a user opts out through device settings (*not* through a mandatory prompt).

Moreover, the device-settings menu that allows users to opt out of Apple ads does not request permission to "track" users. Instead, in that menu (buried under a host of other settings), Apple refers only to "personalized advertising." While Apple uses pejorative terms to describe practices that allow other apps to deliver personalized ads, Apple uses very different terms to describe its own personalized ads. Specifically, rather than characterize its own data use as "tracking," Apple instead emphasizes the benefits that personalized ads provide consumers: "Turning off personalized ads will limit Apple's ability to deliver relevant ads to you. It may not reduce the number of ads you receive."<sup>35</sup> (Apparently, Apple considers personalized ads much more beneficial to consumers when they come from Apple.)

**Figure 3** below compares the placement and labeling of the privacy control applicable to third-party apps and the control applicable to Apple advertising.

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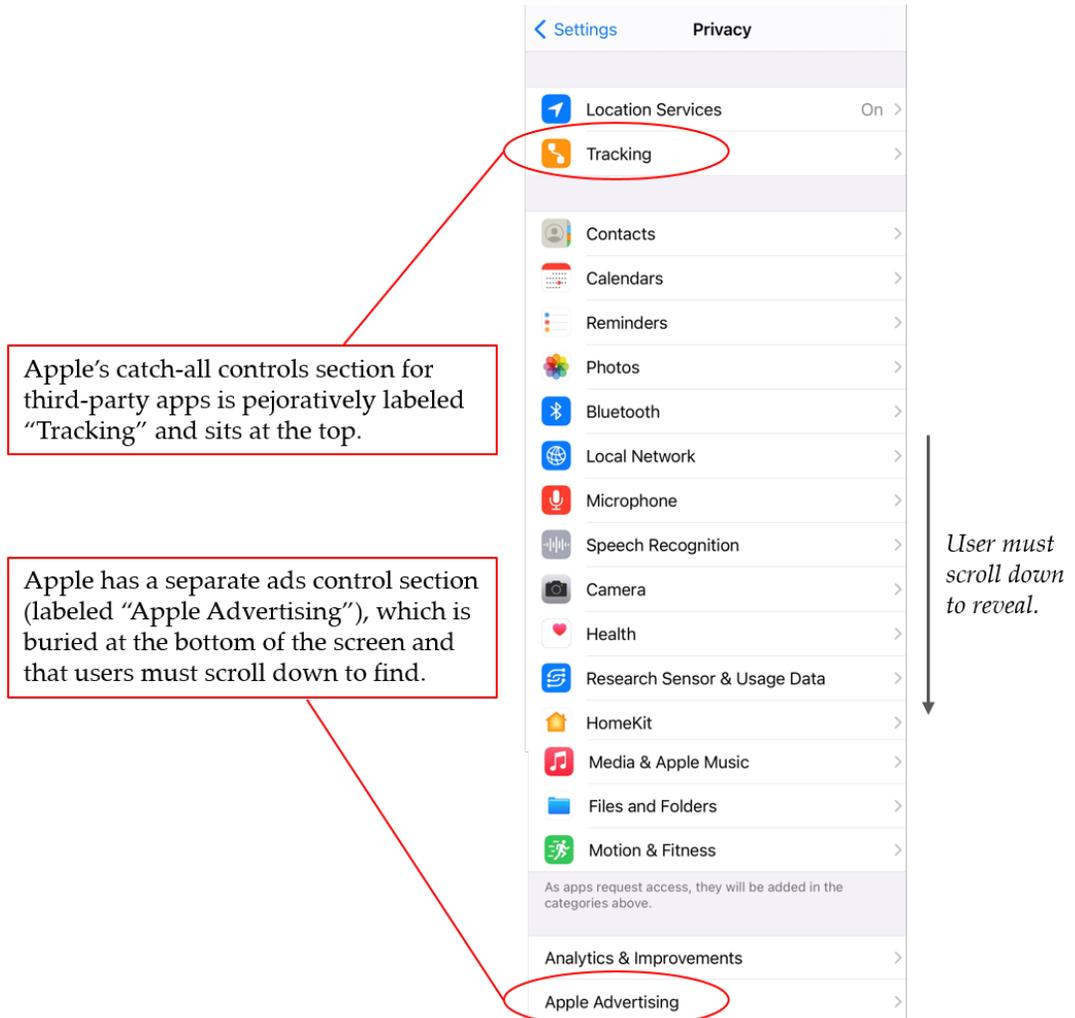
<sup>32</sup> See generally Punam Anand Keller, Bari Harlam, George Loewenstein, & Kevin G. Volpp, *Enhanced Active Choice: A New Method to Motivate Behavior Change*, 21 J. CONSUMER. PSYCH. 376 (2011).

<sup>33</sup> See *Apple Advertising & Privacy*, APPLE (Sept. 18, 2020), <https://www.apple.com/legal/privacy/data/en/apple-advertising/> [<https://perma.cc/9WDB-GPUG>].

<sup>34</sup> See *User Privacy and Data Use*, *supra* note 30.

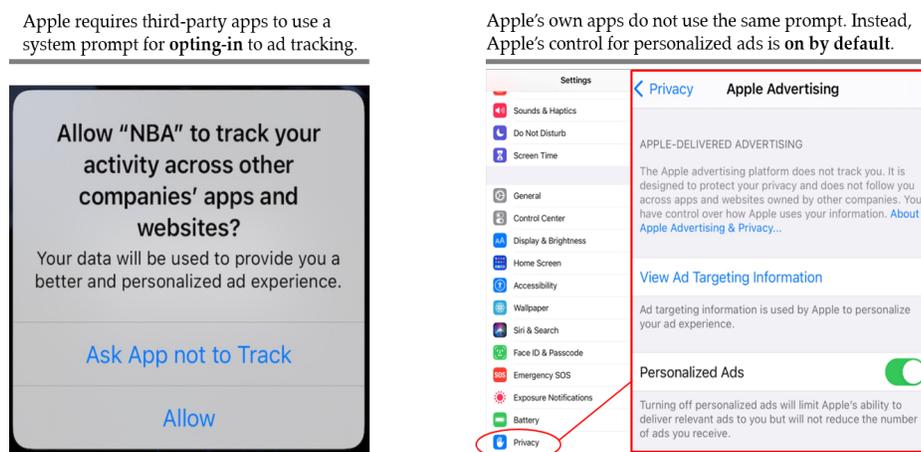
<sup>35</sup> See *iPhone User Guide*, APPLE, <https://support.apple.com/guide/iphone/control-how-apple-delivers-advertising-to-you-iphf60a6a256/ios> [<https://perma.cc/MX4R-L7VM>] (last visited May 3, 2021); *Reviving Competition, Part 1: Proposals to Address Gatekeeper Power and Lower Barriers to Entry Online: Hearing Before the Subcomm. on Antitrust, Commercial, and Admin. L. of the H. Comm. on the Judiciary*, 117<sup>th</sup> Cong. 5-6 (2021) (statement of J. Thorne), <https://docs.house.gov/meetings/JU/JU05/20210225/111247/HHRG-117-JU05-Wstate-ThorneJ-20210225.pdf> [<https://perma.cc/MU36-5SES>] [hereinafter Testimony of J. Thorne].

Figure 3: Placement and labeling of iOS privacy controls applicable to third-party apps and to Apple's apps and services



**Figure 4** below compares the iOS 14 prompt that third-party apps must use to request *opt in* to “tracking” with the control that users must locate to *opt-out* from Apple’s “personalized ads.” Apple does not require its own apps or services to display the prompt, and the control for personalized advertising is automatically toggled on.

*Figure 4: Third-party apps’ opt in prompt for “tracking” and Apple’s opt out control for “personalized ads”*



Apple’s own advertising service, Apple Search Ads (“ASA”), will also play by a different set of rules than any other ad providers. With iOS 14, Apple is imposing its SKAdNetwork (an Apple ad attribution tool) as the only source of mobile ad analytics reporting to advertisers for opted-out consumers. The SKAdNetwork drastically limits ad providers’ ability to provide advertisers with ad attribution and other metrics—the very type of data used by advertisers to measure and optimize effectiveness of ad campaigns.<sup>36</sup> But the SKAdNetwork will not apply to ASA. Instead, ASA will have its own API—Apple Ads Attribution<sup>37</sup>—which will enable Apple to provide advertisers with greater and more granular ad attribution feedback than

<sup>36</sup> Eric Benjamin Seufert, *Apple Privileges Its Own Ad Network with ATT. What’s Its Privacy Endgame?*, MOBILE DEV MEMO (Feb. 1, 2021), <https://mobiledevmemo.com/apple-privileges-its-own-ad-network-whats-its-privacy-end-game/> [<https://perma.cc/TNP3-YXHL>].

<sup>37</sup> *Apple Ads Attribution API*, APPLE, <https://searchads.apple.com/help/advanced/0028-apple-search-ads-attribution-api/> [<https://perma.cc/HX2L-WRW7>] (last visited May 3, 2021).

any other competitors.<sup>38</sup>

**Figure 5** provides a description of Apple Ad Attribution, showing that it provides for granular data in its own network that is not available in SKAdNetwork.<sup>39</sup>

Figure 5: Apple's better ad attribution API

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3/ The payload contains the kind of data an advertiser would use to optimize ad campaign performance: click date for cohorting, creative ID, etc.

```

{
  "creativeSetId": 12345678
}

```

Standard Payload:

```

{
  "attribution": true,
  "orgId": 55555,
  "campaignId": 12345678,
  "conversionType": "Download",
  "adGroupId": 12345678,
  "countryOrRegion": "US",
  "keywordId": 12345678,
  "creativeSetId": 12345678
}

```

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4/ I highlight those two parameters specifically because: they are not present for SKAdNetwork, Apple's attribution framework for non-App ad campaigns. Apple is providing much more granular campaign data in postbacks from its own network than for postbacks from other networks

**SKAdNetwork postback**

- Ad Network ID
- Campaign ID (1-100)
- Advertising App ID
- Transaction ID
- Signature
- Version ("2.0")
- Redownload
- Source App ID
- Conversion Value

<sup>38</sup> Seufert, *supra* note 36.

<sup>39</sup> Eric Seufert (@eric\_seufert), TWITTER (Jan. 28, 2021, 11:34 AM), [https://twitter.com/eric\\_seufert/status/1354830186194358274](https://twitter.com/eric_seufert/status/1354830186194358274) [<https://perma.cc/C6NG-X2TK>]; Eric Seufert (@eric\_seufert), TWITTER (Jan. 28, 2021, 11:34 AM), [https://twitter.com/eric\\_seufert/status/1354830189054799872](https://twitter.com/eric_seufert/status/1354830189054799872) [<https://perma.cc/S5R5-ZLQM>].

C. iOS 14 is All or Nothing—Eliminating Incentives and Aspects of Consumer Choice That Would be Part of a Pro-privacy, Procompetitive Approach

Apple’s so-called “privacy” update<sup>40</sup> offers consumers a binary and misleading “choice”: “privacy” or “no privacy”—a “choice” that applies to all apps and services except Apple’s own, for which Apple offers consumers a choice on markedly different terms. Apple’s update presents consumers with an all-or-nothing choice, mischaracterizes that choice, *and* gives Apple’s own products and services a unique advantage that its rivals lack.

Apple’s policies prohibit developers from offering any privacy-enhancing alternative to Apple’s unduly restrictive approach, and—inexplicably—even from offering users incentives to opt-in. This is presumably because Apple fears users might *actually* “opt in” (despite Apple’s discouraging prompt) if offered an incentive to do so—to the detriment of Apple’s proprietary competitive offerings.

### III

ANTICOMPETITIVE EFFECTS: iOS 14 POLICY CHANGES—APPLE WILL PREFERENCE ITS OWN APPS AND AD SERVICES, WHILE DEVASTATING THE FREE APP ECOSYSTEM

Apple’s iOS 14 policies fundamentally threaten the ad-supported business model of app distribution, a model that benefits both advertisers and consumers. In instituting its new policy changes, Apple uses its monopoly position to foreclose rivals in a way that harms competition and consumers. Apple’s policies unilaterally push the app ecosystem from an open and free ad-supported model toward a paid model that will enable Apple to impose a 15–30% surcharge on formerly free ad-supported apps, enhance the dominance of Apple’s own apps and services within the iOS ecosystem, and entrench the dominance of iOS among mobile operating systems.

A. Apple Wins

Apps—which today are free to consumers—will be forced to monetize through download fees, subscription fees, or in-app purchases (IAPs), a model that benefits Apple—and Apple alone—in several ways:

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<sup>40</sup> iOS 14, APPLE, <http://web.archive.org/web/20210514084821/https://www.apple.com/ios/ios-14/> (last visited May 3, 2021).

- Subscription or fee-based apps on iOS will be subject to Apple's 15–30% cut,<sup>41</sup> thus increasing developers' costs while putting money directly into Apple's pocket. Importantly, Apple has benefited from the value that ad-supported apps have brought to the iOS ecosystem; the rich, ad-supported ecosystem has driven sales of Apple products, and personalized ads have driven app downloads, subscriptions, and in-app purchases subject to Apple's 15–30% fee. But now that Apple has reaped those benefits, Apple is changing the rules to the detriment of the apps that have contributed to its success.
- Apple's iOS 14 policies will favor its proprietary apps in two ways. First, by compelling formerly free apps to charge fees, which are subject to Apple 15–30% surcharge, Apple's iOS 14 policies will make those third-party apps less competitive against Apple's own apps, which are not subject to that surcharge. At least some consumers are therefore likely to switch to Apple's competing apps. Second, many third-party apps will be unable to migrate to a stand-alone, subscription model. Because consumers do not want to maintain large numbers of standalone subscriptions,<sup>42</sup> many third-party developers that now rely on advertising support will be forced to distribute their apps through Apple's proprietary aggregation services, such as Apple News+ (for news) and Apple Arcade (for games). Analysts have recognized the impact of the iOS 14 change on Apple News+, calling the policy change a “disruptive event” that, along with “leveraging ASA . . . could accelerate ad revenue from Apple News in the coming years.”<sup>43</sup> Apple similarly seems to recognize the impact the iOS 14 policies will have on its business—in the run-up to enforcement of the iOS 14 update, Apple has launched its “biggest

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<sup>41</sup> See Sarah Perez, *Apple lowers commissions on in-app purchases for news publishers who participate in apple news*, TECHCRUNCH, <https://techcrunch.com/2021/08/26/apple-lowers-commissions-on-in-app-purchases-for-news-publishers-who-participate-in-apple-news/> (last visited Mar. 28, 2022) [<https://perma.cc/7PQT-8NNM>].

<sup>42</sup> See *infra* p. 17 & note 58; IAB EUROPE, *supra* note 14, at 4 (finding that most Europeans would only be willing to subscribe to a maximum of three sites or apps).

<sup>43</sup> Mike Peterson, *Apple News Could Reach 19M Subscribers, \$2.2B in Revenue by 2023 Analyst Says*, APPLEINSIDER (Apr. 6, 2021), <https://appleinsider.com/articles/21/04/06/apple-news-could-reach-19m-subscribers-22b-in-revenue-by-2023-analyst-says> [<https://perma.cc/W8MW-Q8VK>].

expansion yet” of Apple Arcade.<sup>44</sup>

- Apple will also face less competition for its ASA ad services, because ASA does not require prior consent to access activity data to run ad personalization and therefore will be able to provide greater ad attribution feedback to advertisers than everyone else, through using data that constitutes “tracking” pursuant to its policy. Similar to Apple’s expansion of Apple Arcade, Apple plans to expand its advertising business in the face of its iOS 14 policy changes.<sup>45</sup>
- Finally, Apple’s iOS 14 policies will have cross-platform effects; the policies will entrench Apple’s iOS monopoly by raising the costs to consumers of switching from iOS to other mobile operating systems, such as Android. By degrading the ad-supported app ecosystem, Apple’s policies steer iOS users toward paid apps and—more importantly (from Apple’s perspective)—Apple’s proprietary apps. The policies likewise steer developers toward fee-based monetization and ultimately toward Apple’s proprietary aggregation services. These shifts increase consumer switching costs. Unlike ad-supported apps, which are easily transferable across platforms, paid apps often require users switching from iOS to another mobile OS to forfeit fees paid for subscriptions, downloads, and in-app purchases.<sup>46</sup> More importantly, by shifting consumers to *Apple’s* apps and services, and app developers to *Apple’s* proprietary aggregation services, Apple powerfully compounds consumer “lock-in.” Most Apple apps and services are unavailable (by design) on other OSs, and iOS users will find it difficult or impossible to transfer user data, history, and/or purchases made within these apps and services—e.g., messaging threads

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<sup>44</sup> *Apple Arcade Launches Its Biggest Expansion Yet, Growing Its Award-Winning Catalog to More Than 180 Games*, APPLE (Apr. 2, 2021), <https://www.apple.com/newsroom/2021/04/apple-arcade-expands-its-award-winning-catalog-to-more-than-180-games/> [https://perma.cc/N5VK-LZXE].

<sup>45</sup> See Hannah Murphy & Patrick McGee, *Apple to Boost Ads Business as iPhone Changes Hurt Facebook*, FIN. TIMES (Apr. 22, 2021), <https://www.ft.com/content/5527ddd1-77a8-4cd0-82fd-4568be5da80f> [https://perma.cc/DL3P-CH63]; *Apple Search Ads Introduces a New Way to Promote Apps*, APPLE (May 4, 2021), <https://developer.apple.com/news/?id=p5kjwfnf> [https://perma.cc/DSM8-838F].

<sup>46</sup> See Raphael, *supra* note 27.

from iMessage, premium content purchased within Apple News+, and gaming histories from Apple Arcade—to their new devices.<sup>47</sup>

- These shifts directly advance Apple’s stated desire to build a moat around iOS to prevent cross-platform competition. In internal documents, senior Apple executives have recognized that third-party, cross-platform apps lower switching costs and pose a threat to Apple’s dominant mobile OS position:

I just watched a new Amazon Kindle app ad on TV. It starts with a woman using an iPhone and buying and reading books with the Kindle app. The woman then switches to an Android phone and still can read all her books. While the primary message is that there are Kindle apps on lots of mobile devices, **the secondary message that can’t be missed is that it is easy to switch from iPhone to Android. Not fun to Watch.**<sup>48</sup>

In other internal documents, the same executives have recognized the role that Apple’s proprietary apps and services play in raising switching costs and maintaining Apple’s dominant position. Apple initially planned, for instance, to make iMessage available on Android, so that iOS and Android users “would have been able to exchange messages with one another seamlessly.”<sup>49</sup> Senior executives vetoed these plans, reasoning that, while a cross-platform offering would benefit consumers, it would undermine Apple’s ability to lock users into iOS devices. Responding to an email from an Apple employee who remarked that “the #1 most difficult [reason] to leave the Apple universe app is iMessage” and that “iMessage amounts to serious lock-in,” a senior Apple executive concluded that “moving iMessage to Android will hurt us more

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<sup>47</sup> See Jonathan Barnett, *Antitrust Overreach: Undoing Cooperative Standardization in the Digital Economy*, 25 MICH. TELECOMM. & TECH. L. REV. 163, 236 (2019).

<sup>48</sup> Documents from the Hearing on “Online Platforms and Market Power: Examining the Dominance of Amazon, Apple, Facebook, and Google,” HJC-APPLE-014701 at 702, HOUSE COMM. ON THE JUDICIARY (2010) (Email from P. Schiller to S. Jobs on Nov. 22, 2010), <https://judiciary.house.gov/uploadedfiles/014701.pdf> (emphasis added) [<https://perma.cc/XV2Z-P3JZ>].

<sup>49</sup> Findings of Fact and Conclusions of Law Proposed by Epic Games, Inc. ¶ 58, *Epic Games, Inc. v. Apple Inc.*, No. 4:20-cv-05640-YGR (N.D. Cal. Apr. 8, 2021), ECF No. 407.

than help us, this email illustrates why.”<sup>50</sup>

In an email exchange on pricing strategy, Apple executives likewise stressed the critical role that paid apps and proprietary apps and services play in getting consumers “hooked to the [Apple] ecosystem” and raising their costs of switching to other mobile devices:

Getting customers using our stores (iTunes, App and iBookstore) is one of the best things we can do to get people hooked to the ecosystem. The more people use our stores the more likely they are to buy additional Apple products and upgrade to the latest versions. **Who’s going to buy a Samsung phone if they have apps, movies, etc already purchased? They now need to spend hundreds more to get to where they are today.**<sup>51</sup>

#### B. App Developers, Advertisers, and the Ads Ecosystem Lose

Apple’s restrictions on personalization will tangibly impact developers, advertisers, and the broader ads ecosystem. Apple’s introduction of a one-sided and misleading prompt—that consumers must often opt into *twice* to enable the display and measurement of a single ad—is likely to result in a very low opt-in rate among consumers; as many as 80–85% of users will choose not to opt in, according to two estimates.<sup>52</sup>

If consumers, as expected, do not opt in after Apple puts the iOS 14 policy changes into effect, developers’ ability to monetize via ad personalization will be severely diminished, because advertisers will have no way of matching relevant advertising to the right consumers or measuring success. Without personalization, publisher revenue and revenue for mobile ad campaigns will be greatly reduced.<sup>53</sup> Developers will

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<sup>50</sup> *Id.*

<sup>51</sup> Trial Ex. PDX-0142.15, *Epic Games, Inc. v. Apple Inc.*, No. 4:20-cv-05640-YGR (N.D. Cal. May 11, 2021) (Email from E. Cue to P. Schiller on Feb. 14, 2013), <https://app.box.com/s/6b9wmjvr582c95uzma1136exumk6p989/file/809527181770> [<https://perma.cc/6KMU-BC72>] (emphasis added).

<sup>52</sup> Testimony of J. Thorne, *supra* note 35, at 6; *see also* Takahashi, *supra* note 16 (noting that “most observers predicted that no more than 20% of users would opt-in”); Andrew Blustein, *Apple Has Finally Implemented Its Privacy Overhaul, Here’s What You Need to Know*, ADWEEK (Apr. 26, 2021), <https://www.adweek.com/programmatic/apple-has-finally-implemented-its-privacy-overhaul-heres-what-you-need-to-know/> [<https://perma.cc/V8BB-QYYJ>] (Although the Adweek preliminary study estimates 32% opt-in rates, it found lower rates, nearly 20%, for gaming apps.).

<sup>53</sup> *See* Facebook for Developers, *The Value of Personalized Ads to a Thriving App Ecosystem*, FACEBOOK (June 18, 2020), <https://developers.facebook.com/blog/post/2020/06/18/value-of->

be forced to monetize apps through paid models—all of which are subject to Apple’s 15–30% fee (and those apps in direct competition with Apple’s apps will have higher costs and be more expensive than their Apple counterparts). Because consumers are willing to maintain only a limited number of stand-alone app subscriptions, Apple’s policy changes will force smaller developers to distribute apps through Apple’s proprietary aggregation services or force them out of business altogether.<sup>54</sup> Notably, the categories of apps likely to be hardest hit (games and news apps) are (conveniently) the categories of apps that Apple aggregates through proprietary services (Apple Arcade and Apple News+).<sup>55</sup>

By impairing advertisers’ ability to reach prospective customers through personalized advertising, Apple’s iOS 14 policy changes will have a particularly pronounced effect on small and medium-sized businesses (SMBs). SMBs rely heavily on personalized advertising. A 2020 study found that personalized advertising is especially important for SMBs seeking to identify and win new customers: “US SMBs who reported using targeted advertising on social media were twice as likely to target new customers.”<sup>56</sup> SMBs also increased their use of personalized advertising on social media during the COVID-19 pandemic.<sup>57</sup> A different 2020 survey focused on Europe found that 69% of small and medium-sized enterprises in the EU “found lower costs of marketing to be the main benefit of using digital tools and social media for business

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personalized-ads-thriving-app-ecosystem/ [https://perma.cc/E38R-LRXW]; Erin Egan, *A Path Forward for Privacy and Online Advertising*, FACEBOOK (Oct. 2, 2020), <https://about.fb.com/news/2020/10/a-path-forward-for-privacy-and-online-advertising/> [https://perma.cc/CT72-T6LS] (removing personalization from the ads delivered on off-Facebook apps resulted in “a greater than fifty percent drop in revenue for mobile app install campaigns”).

<sup>54</sup> See Takahashi, *supra* note 16 (warning that iOS 14 policy change “could result in thousands of layoffs at the mobile-app advertising ecosystem, including game companies, mobile ad measurement firms, mobile marketing, user acquisition, and ad networks”).

<sup>55</sup> See Sheila Dang, *Snap Shares Plunge 25% as Apple Privacy Changes Hit Ads Business*, YAHOO NEWS, October 21, 2021, available at <https://www.reuters.com/technology/snap-revenue-falls-short-apple-privacy-changes-hurt-ads-business-2021-10-21/> [https://perma.cc/SMJ5-YCQZ]; Dean Takahashi, *How Apple’s privacy changes affected mobile game revenues in Q3*, VENTUREBEAT (Nov. 2021), <https://venturebeat.com/2021/11/16/how-apples-privacy-changes-affected-mobile-game-revenues-in-q3/> [https://perma.cc/3GJ3-GYXP].

<sup>56</sup> DELOITTE LLP, DIGITAL TOOLS IN CRISIS AND RECOVERY, SMALL AND MEDIUM BUSINESS REPORT 33 (Oct. 2020), <https://about.fb.com/wp-content/uploads/2020/10/Deloitte-Digital-Tools-in-Crisis-and-Recovery-SMB-Report-Oct-2020.pdf> [https://perma.cc/Y4RK-B44V].

<sup>57</sup> *Id.* at 13–14.

purposes.”<sup>58</sup> The efficiency of personalization benefits SMBs more than it does larger companies. Unlike larger companies, SMBs often market their products to niche, rather than mass, audiences and rely on personalized ads to stretch limited marketing budgets.<sup>59</sup>

Developers’ ability to promote their apps through channels other than Apple’s own ASA also will be diminished as a result of the new policy changes. Rival ad networks (which will be denied access to relevant data) will be hobbled, and developers will have fewer options. Advertisers seeking to optimize their campaigns with granular data will be forced to turn to Apple’s ad network, foreclosing competition for other online advertising services.<sup>60</sup>

### C. Consumers Lose

Personalized ad-based monetization allows apps to offer “high-quality services to consumers for free.”<sup>61</sup> Consumers value the free services that result from ad-supported apps. For instance, a recent study in the EU found that an overwhelming 75% of Europeans prefer “[t]oday’s internet with mostly free content and targeted ads” to an internet with “[n]o targeted ads with most content paid for.”<sup>62</sup> Similarly, a study conducted last year found that consumers assigned \$116.99 monthly value to free content and services that are ad-supported.<sup>63</sup> Additional evidence suggests that most consumers have little appetite for paying for apps—a 2019 consumer survey found that 64% of respondents do not believe they should pay for

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<sup>58</sup> NÆSS-SCHMIDT, BASALISCO, RØLMER, POULSGAARD, CHRISTIANSEN, & KILSDAL, COPENHAGEN ECON., *supra* note 23, at 11.

<sup>59</sup> Egan, *supra* note 53; Dan Levy, *Speaking Up for Small Businesses*, FACEBOOK (Dec. 16, 2020), <https://about.fb.com/news/2020/12/speaking-up-for-small-businesses/> [<https://perma.cc/MKW8-ZM5E>] (noting findings that “without personalized ads powered by their own data, small businesses could see a cut of over 60% of website sales from ads”).

<sup>60</sup> See Patience Haggin, *Apple’s Privacy Changes Are Poised to Boost Its Ad Products*, WALL ST. J. (Apr. 25, 2021), [https://www.wsj.com/articles/apples-privacy-changes-are-poised-to-boost-its-ad-products-11619485863?mod=hp\\_lead\\_pos2](https://www.wsj.com/articles/apples-privacy-changes-are-poised-to-boost-its-ad-products-11619485863?mod=hp_lead_pos2) [<https://perma.cc/EZL7-4D8T>]; Testimony of J. Thorne, *supra* note 33, at 7.

<sup>61</sup> D. Daniel Sokol & Roisin Comerford, *Antitrust and Regulating Big Data*, 23 GEO. MASON L. REV. 1129, 1134 (2016).

<sup>62</sup> *What Would an Internet Without Targeted Ads Look Like?*, *supra* note 14 at 9.

<sup>63</sup> *Consumer Value Ad Supported Services*, DIGIT. ADVERT. ALL. 1 (Sept. 2020), [https://digitaladvertisingalliance.org/sites/aboutads/files/DAA\\_files/Consumer-Value-Ad-Supported-Services-2020Update.pdf](https://digitaladvertisingalliance.org/sites/aboutads/files/DAA_files/Consumer-Value-Ad-Supported-Services-2020Update.pdf) [<https://perma.cc/AN3D-SULS>].

their online content.<sup>64</sup>

Apple's change in policy will force many consumers, contrary to their preferences, to pay for apps that previously were free, as app developers shift from ad-supported to paid models for monetization. Many apps will be unable to make this shift. While consumers may be willing to pay a modest fee for certain apps, they are unlikely to pay a fee for each and every app they use.<sup>65</sup> For apps that continue to rely on ad support, user experience likely will deteriorate, because Apple's iOS 14 changes will force developers to show less relevant (or irrelevant) advertising, even as consumers continue to receive personalized ads from Apple. Apps can scarcely afford to lose targeted ads for 85% of their users. Worse, because Apple's changes will sharply reduce the volume of data available for ad-campaign optimization, even ads shown to users who *opt in* (and for whom IDFAs or other identifiers remain available) will elicit lower demand from advertisers and therefore lower advertising revenues for app developers.

#### D. Apple's iOS 14 Policies Reduce Consumer Choice Under the Guise of Privacy

Consumers, who have heterogeneous preferences, presumably want some amount of control over data use. However, while Apple claims that it is implementing changes to promote consumer "privacy" and "choice," the real consequence is that its conduct will decimate free, ad-supported apps and push users to fee-based apps and, ultimately, to Apple's proprietary apps and services. More broadly, Apple would lock consumers into iOS by building a moat around them, using a combination of fee-based apps, Apple's own proprietary apps and services, and a host of other restrictions<sup>66</sup> that make switching to another mobile operating

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<sup>64</sup> Network Advert. Initiative, *Consumer Survey on Pricing and Digital Advertising* 4 (Oct. 22, 2019), [https://www.networkadvertising.org/sites/default/files/final\\_nai\\_consumer\\_survey\\_paper\\_22oct2019.pdf](https://www.networkadvertising.org/sites/default/files/final_nai_consumer_survey_paper_22oct2019.pdf) [<https://perma.cc/H3TE-WVRH>].

<sup>65</sup> *Id.* at 6-7.

<sup>66</sup> For instance, Apple faces charges from the European Commission stemming from Spotify's 2019 complaint about Apple's unfair treatment of Spotify's streaming service on the App Store and large commissions, which led Spotify to "artificially" increase monthly subscriptions for its premium service to cover the extra costs." Aoife White, *Apple May Face Antitrust Complaint as EU Steps Up Spotify Probe*, BLOOMBERG (Mar. 4, 2021), <https://www.bloomberg.com/news/articles/2021-03-04/apple-may-face-antitrust-complaint-as-eu-steps-up-spotify-probe> [<https://perma.cc/PS5R->

system that much harder.

The value that consumers attach to the use of their data in the mobile ecosystem varies significantly, particularly when one considers that in order to attain maximum privacy (at least in Apple’s view), consumers must sacrifice other things that they value—like, for example, free goods. The vast majority of consumers are aware that advertising funds apps they use and content they consume for free, and believe that websites and apps should continue to be financed through advertising.<sup>67</sup> Data has also shown that many consumers value free services *more* than they value restrictions on data collection.<sup>68</sup> A September 2020 study found that 84% of respondents would prefer “[a]n ad-supported internet where . . . content is free.”<sup>69</sup> These studies, and others, show that, at the very least, the consumer should be allowed to decide whether to pay for additional data-use restrictions, after being offered a meaningful choice.<sup>70</sup>

Accordingly, the “pro-consumer” position provides consumers transparency about data use, as well as the ability to self-determine the right level of data use. Apple’s policies are not in line with this position. Apple’s approach is not only discriminatory, but also presents consumers with a binary choice, frames that choice in misleading terms that discourage

JHF3]; See *Antitrust: Commission Opens Investigations into Apple’s App Store Rules*, EUR. COMM’N, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1073](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1073) [<https://perma.cc/N4VD-A7FW> (last visited Mar. 28, 2022)]. Apple has also received criticism for its app store policies that have prevented users from using cloud gaming services on iOS. See Tom Warren, *Facebook Slams Apple’s App Store Policies, Launches Facebook Gaming on iOS Without Games*, THE VERGE (Aug. 7, 2020), <https://www.theverge.com/2020/8/7/21358355/facebook-apple-app-store-policies-comments-facebook-gaming-ios> [<https://perma.cc/YP3L-9XXA>]. There are also reports that the DOJ is investigating Apple’s “Sign in With Apple” button, which Apple requires for all developers who have other “sign in with” options. See Josh Sisco, *Apple’s App Sign-in Button Becomes Hot-Button Issue in U.S. Antitrust Probe*, THE INFO. (Feb. 23, 2021), <https://www.theinformation.com/articles/apples-app-sign-in-button-becomes-hot-button-issue-in-u-s-antitrust-probe> [<https://perma.cc/BF8F-LBZ2>].

<sup>67</sup> Network Advert. Initiative, *supra* note 64, at 4–5.

<sup>68</sup> Geoffrey A. Manne & R. Ben Sperry, *The Problems and Perils of Bootstrapping Privacy and Data into an Antitrust Framework*, CPI ANTITRUST CHRON. 5–6 (May 2015), <https://laweconcenter.org/wp-content/uploads/2017/09/bootstrapping-privacy.pdf> [<https://perma.cc/M3C9-6MP4>].

<sup>69</sup> *Consumer Value Ad Supported Services*, *supra* note 63, at 3.

<sup>70</sup> Deighton & Kornfeld, *supra* note 14, at 24 (“[W]hen it comes to allowing or rejecting tracking, peoples’ choices are highly contextual, and in these contexts, people know their minds on the balancing of costs and benefits.”).

consumers from opting in, and supplies consumers no context about “tracking” or the benefits of personalized advertising. Many developers already offer consumers more effective tools to manage autonomously off-site usage of their data. For instance, Facebook provides the “Off-Facebook Activity” feature, which allows users to review apps and websites that have shared the user’s activity, disconnect from unwanted activity, and turn off future activity.<sup>71</sup> Apple’s all-or-nothing approach provides consumers with less choice than these existing tools. As a result, consumers will likely have fewer apps from among which to choose (to the particular detriment of smaller developers), and the apps that remain will more often require consumers to pay fees. This is a clear reduction in choice.

Furthermore, it is hard to imagine how Apple’s double opt-in approach—that requires users to opt in twice (e.g., on Facebook and on the NBA Live Mobile App) to enable the display and measurement of a single ad—is a reasonable measure to “improve” privacy. Prompting iOS users twice causes confusion and is likely to elicit a different response from users who have already opted-in to “tracking.”

If Apple’s goal were to enhance privacy, there would be many far less restrictive alternatives for achieving that goal; some of those alternatives are described above. Apple’s action will not enhance privacy, but rather reduce competition and innovation in the guise of enhancing privacy. The economic literature shows that even non-deceptive opt-in/out rules impose costs on mobile advertising. This includes work by Goldfarb and Tucker that identifies how opt-in rules mandated by the Privacy and Electronic Communications Directive reduced the effectiveness of online ads by roughly 65 percent, which adversely affected both advertising functionality and innovation.<sup>72</sup> Similarly, in the United States, the AdChoices opt-out program limited the effectiveness of mobile ads such “that the inability to behaviorally target opt-out users results in a loss of about \$8.58 in ad spending per American opt-out consumer, which is borne by publishers and the exchange.”<sup>73</sup> More recent work on the impact of the EU General Data Protection Regulation (GDPR) suggests a loss of innovation as

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<sup>71</sup> *Introducing Off-Facebook Activity*, FACEBOOK, <https://www.facebook.com/off-facebook-activity> [https://perma.cc/C83R-KMRH] (last visited May 3, 2021).

<sup>72</sup> Avi Goldfarb & Catherine E. Tucker, *Privacy Regulation and Online Advertising*, 57 MGMT. SCI. 57, 58 (2011).

<sup>73</sup> Johnson, Shriver & Dun, *supra* note 21, at 1.

a result of an opt-in mechanism, finding that the GDPR has had a negative effect on venture capital investment in Europe in terms of the number of and amounts raised in financing deals.<sup>74</sup> This empirical work suggests that opt-in mechanisms have to proceed cautiously so as not to chill innovation and reduce welfare to consumers.

#### CONCLUSION

While thinly veiled as a privacy-protecting measure, Apple's iOS 14 policy changes harm the entire ad-supported ecosystem—from developers to advertisers to end consumers. By sharply limiting the ability of third-party apps to create value through personalized advertising, Apple's policy changes undermine competition: They threaten to enhance the dominance of Apple's apps and services within iOS, to weaken independent advertising services to the benefit of Apple's own advertising service, and to entrench iOS's dominance among mobile operating systems by raising the costs to iOS users of switching to another mobile OS. Apple's policy changes will have an outsized impact on particularly vulnerable businesses: small- and medium-sized businesses, which rely heavily on personalized advertising, and developers of newer apps that may be unable to transition from ad-supported to paid business models. Apple's conduct will leave consumers with fewer choices for apps and services and, by framing choices about personalized advertising in stark, biased, and misleading terms, diminish consumers' abilities to make meaningful and informed choices about data use. Without convincing explanations of how its policy changes represent the least competition-restrictive means of enhancing consumer privacy and why those changes do not apply to Apple's own apps and services, Apple may have a hard time justifying its exclusionary conduct.

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<sup>74</sup> See Jian Jia, Ginger Zhe Jin & Liad Wagman, *The Short Run Effects of GDPR on Technology Venture Investment* 30 (Nat'l Bureau of Econ. Rsch., Working Paper No. 25248, 2022), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3282948](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3282948).