UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

EPIC GAMES, INC.,

Plaintiff,

v.

APPLE INC.,

Defendant.

APPLE INC.,

Counterclaimant,

v.

EPIC GAMES, INC.,

Counter-Defendant.

Case No. 4:20-cv-05640-YGR

RULE 52 ORDER AFTER TRIAL ON THE MERITS

Plaintiff Epic Games, Inc. sued Apple, Inc. alleging violations of federal and state antitrust laws and California's unfair competition law based upon Apple's operation of its App Store. Broadly speaking, Epic Games claimed that Apple is an antitrust monopolist over (i) Apple's *own system* of distributing apps on Apple's *own devices* in the App Store and (ii) Apple's *own system* of collecting payments and commissions of purchases made on Apple's *own devices* in the App Store. Said differently, plaintiff alleged an antitrust market of one, that is, Apple's "monopolistic" control over its own systems relative to the App Store. Apple obviously disputed the allegations.

Antitrust law protects competition and not competitors. Competition results in innovation and consumer satisfaction and is essential to the effective operation of a free market system. Antitrust jurisprudence also evaluates both market structure and behavior to determine whether an actor is using its place in the market to artificially restrain competition.

Central to antitrust cases is the appropriate determination of the "relevant market." Epic Games structured its lawsuit to argue that Apple does not compete with anyone; it is a monopoly of one. Apple, by contrast, argues that the effective area of competition is the market for all digital video games in which it and Epic Games compete heavily. In the digital video game market, Apple argues that it does not enjoy monopoly power, and therefore does not violate federal and state law.

The Court disagrees with both parties' definition of the relevant market.

Ultimately, after evaluating the trial evidence, the Court finds that the relevant market here is ***digital mobile gaming transactions***, not gaming generally and not Apple's own internal operating systems related to the App Store. The mobile gaming market itself is a *$100 billion industry*. The size of this market explains Epic Games' motive in bringing this action. Having penetrated all other video game markets, the mobile gaming market was Epic Games' next target and it views Apple as an impediment.

Further, the evidence demonstrates that most App Store revenue is generated by mobile gaming apps, not all apps. Thus, defining the market to focus on gaming apps is appropriate. Generally speaking, on a *revenue basis*, gaming apps account for approximately 70% of all App Store revenues. This 70% of revenue is generated by less than 10% of all App Store consumers. These gaming-app consumers are primarily making in-app purchases which is the focus of Epic Games' claims. By contrast, over 80% of all consumer accounts generate virtually no revenue, as 80% of all apps on the App Store are free.

Having defined the relevant market as digital mobile gaming transactions, the Court next evaluated Apple's conduct in that market. Given the trial record, the Court cannot ultimately conclude that Apple is a monopolist under either federal or state antitrust laws. While the Court finds that Apple enjoys considerable market share of over 55% and extraordinarily high profit margins, these factors alone do not show antitrust conduct. Success is not illegal. The final trial record did not include evidence of other critical factors, such as barriers to entry and conduct decreasing output or decreasing innovation in the relevant market. The Court does not find that it is impossible; only that Epic Games failed in its burden to demonstrate Apple is an illegal monopolist.

Nonetheless, the trial did show that Apple is engaging in anticompetitive conduct under California's competition laws. The Court concludes that Apple's anti-steering provisions hide critical information from consumers and illegally stifle consumer choice. When coupled with Apple's incipient antitrust violations, these anti-steering provisions are anticompetitive and a nationwide remedy to eliminate those provisions is warranted.

The Court provides its findings of facts and conclusions of law below.[1]

PART I

FINDINGS OF FACT

To determine the relevant market, the Court must first understand the industry and the markets in that industry. This is a heavily *factual* inquiry. Thus, in this Order, the Court explains in detail, the facts underpinning each parties' theory and other relevant facts uncovered during the trial. These details include the background of the parties, their products, the industry, and the markets in which they compete.[2] To assist the reader, given the length of this Order, an outline is included in an Appendix hereto.

I. THE PARTIES

A. Overview

Some basic background information may be helpful. Epic Games is a multi-billion dollar video game company. It defines the relevant market by way of Apple's own internal operating system. Apple has maintained control of its own operating system for mobile devices, called iOS, since its inception in 2007. Apple's creation and cultivation of the iOS device (and its ecosystem) has been described as a walled garden. Said differently, it is a closed platform whereby Apple controls and supervises access to any software which accesses the iOS devices (defined as iPhones and iPads; also referred to collectively as iOS devices). Apple justifies this control primarily in the name of consumer privacy, security, as well as monetization of its intellectual property. Evidence supports the argument that consumers value these attributes.

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[1] The Court notes several pending administrative motions to seal relating to the parties' proposed findings of facts and conclusions of law, pending motions, and submitted and docketed materials. *See* Dkt. Nos. 517, 650, 656, 696, 702, 707, 777, 778, 810. These motions are **GRANTED** to the extent that they remain sealed and are not referenced in this Order. Otherwise, to the extent the information is referenced and included in this Order, the motions are **DENIED**. Previously sealed documents remain sealed unless otherwise noted in this Order.

[2] In considering these issues, the Court conducted a sixteen-day bench trial, admitted over 900 exhibits, and, to expedite the in-court proceedings, considered pre-trial submissions including written testimony of the experts and designations of deposition transcripts. The Court in this Order refers to the findings of facts ("FOF") and conclusions of law ("COL") for the parties' arguments as these documents effectively served as the parties' post-trial briefs. *See* Dkt. Nos. 777-4 (Epic Games' filing), 778-4 (Apple's filing).

Due in part to this business model, Apple has been enormously successful and its devices are now ubiquitous.

Both Apple and third-party developers like Epic Games have symbiotically benefited from the ever-increasing innovation and growth in the iOS ecosystem. There is no dispute in the record that developers like Epic Games have benefited from Apple's development and cultivation of the iOS ecosystem, including its devices and underlying software. Nor is there any dispute that developers like Epic Games have enhanced the experience for iOS devices and their consumers by offering a diverse assortment of applications beyond that which Apple can or has provided.

Until this lawsuit, Epic Games' flagship video game product, *Fortnite*, could be played on iOS devices. The product generated an immensely profitable revenue stream for Epic Games. However, Epic Games was also required by contract to pay Apple a 30% commission on every purchase made through the App Store, whether an initial download or an in-app purchase. Consequently, *Fortnite* generated a profitable revenue stream for Apple as well. Epic Games tried to use *Fortnite* as leverage to force Apple to reduce its commission fee and to open its closed platform. When Apple refused, Epic Games breached its contract, which it concedes, and filed this lawsuit. Apple countersued for breach of contract.

Plaintiff focuses its challenge on Apple's control over the distribution of apps to its users and the requirement that developers of apps use Apple's in-app purchases or in-app payments ("IAP") system[3] if purchases are offered in the app. Under this IAP system and under its agreements with app developers, Apple collects payments made to developers, remits 70% to the developers, and keeps a 30% commission. This rate has largely remained unchanged since the inception. The trial also contained evidence of Apple's use of anti-steering provisions to limit information flow to consumers on the payment structure related to in-app purchases.

Once acceptable, Apple's commission rate is now questioned by some consumers and some developers, like Epic Games, as being overly burdensome and violative of competition laws. Indeed, two related lawsuits were already pending before the Court well before the commencement of this action. The first, *In Re Apple iPhone Antitrust Litigation*, 4:11-cv-6714-YGR (*Pepper*), was filed in 2011 on behalf of a class of iOS device consumers alleging harm from the commission rate. The second, filed in 2019 after *Pepper* returned from the Supreme Court of the United States, *Donald Cameron v. Apple Inc.*, 4:19-cv-3074-YGR (*Cameron*), on behalf of a class of iOS app developers also alleging violations of antitrust and competitions laws.

The Court begins the analysis with Epic Games.

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[3] The Court notes that it uses the term IAP in this Order to refer exclusively to Apple's IAP systems, as described and discussed later herein. *See supra* Facts § II.C. The Court clarifies, however, that certain witnesses use the term IAP to refer generically to any app purchases or payments made in games and apps. The Court notes that the underlying transcripts and cited materials in which IAP is being referenced clarifies which of the two is being discussed.

B. Plaintiff Epic Games

Epic Games is a video game developer founded in 1991 by Tim Sweeney.[4] It is headquartered in Cary, North Carolina, has more than 3,200 employees in offices around the world, and was recently valued at $28.7 billion. Mr. Sweeney serves as the controlling shareholder and chairman of the Board of Directors.[5] Other notable shareholders include: (1) Tencent Holdings, Ltd., a Chinese video game company and one of the largest gaming companies in the world, which owns about thirty-seven percent of Epic Games, with two board seats; and (2) Sony Corporation, a major player in the console gaming market, which also owns about 1 to 2 percent of Epic Games.[6]

Epic Games first began publishing games for other developers when the company started.[7] Around 1998, it moved away from publishing other companies' products to developing its own product.[8] During the mid-2000's, the company, which had been focused on personal computers ("PC") games up to that point, shifted to developing for game consoles.[9]

In addition to game development, Epic Games offers software development tools and distributes apps.[10] Epic Games now touts a number of different lines of business, much of which occurred during the pendency of this lawsuit and on the eve of trial, such as distribution of non-game apps.

The Court summarizes each of the three significant areas of its business: (1) gaming software development (*e.g.*, *Unreal Engine*, Epic Online Services); (2) game developer (*e.g.*, *Fortnite* and other video games); and (3) gaming distributor (*e.g.*, the Epic Games Store). The Court thereafter summarizes the prior relationship between Epic Games and Apple.

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[4] Trial Tr. (Sweeney) 89:19, 112:18–25.

[5] *Id.* 112:18–113:14, 165:17–166:1, 179:7–8.

[6] *Id.* 178:24–179:6, 179:21–180:3.

[7] *Id.* 172:6–8.

[8] *Id.* 172:21–173:3.

[9] DX-3710.005–.006.

[10] Trial Tr. (Sweeney) 93:22–94:17 ("Epic is in a variety of businesses all tied to the common theme of building and supporting real-time 3D content, both through consumer products and to developers, and . . . other services that socially connect users together."), 166:6–12.

1. *Gaming Software Developer: Unreal Engine and Epic Online Services*

As a gaming software developer, Epic Games licenses two notable products to other developers: *Unreal Engine* and Epic Online Services.[11]

The first, *Unreal Engine*, is a software suite that allows developers to create three-dimensional and immersive digital content.[12] It is not used by *consumers* and is not an app on the App Store.[13] Developers wishing to use *Unreal Engine* must be licensed by nonparty Epic S.A.R.L. ("Epic International"), an Epic Games Swiss subsidiary.[14] Epic International licenses *Unreal Engine* because it sought to protect their intellectual property rights.[15] Licensed developers are governed by the End User License Agreement.[16]

Epic Games profits from *Unreal Engine* by charging fees for paid content.[17] Separately, Epic International charges a royalty on products that use any version of the *Unreal Engine* (typically 5% of gross revenue).[18] In the past, developers were required to pay royalties after a product exceeded $3,000 in revenue per quarter. After a change in policy in 2020, Epic International is now owed royalties after a product earns $1,000,000 through the product's life.[19]

Epic International therefore profits in perpetuity from any success a developer enjoys using the *Unreal Engine*.[20] As Epic Games' former chief financial officer stated, this model

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[11] *Id.* 94:5–7; Trial Tr. (Grant) 662:8–13.

[12] *Id.* 116:17–22 ("The *Unreal Engine* is a development tool aimed at content creators rather than consumers. It contains content creation tools, real-time 3D graphics, capabilities, and real-time physics and simulation technology that is used by a wide variety of industries to make a variety of 3D content.").

[13] *Id.* 162:19–163:14.

[14] *Id.* 162:5–12; Trial Tr. (Grant) 724:11–16.

[15] Trial Tr. (Grant) 754:13–19.

[16] DX-4022; Trial Tr. (Grant) 667:3–11, 753:19–754:7.

[17] DX-4022.006–.007 (§ 4).

[18] DX-4022.007–.008 (§ 5).

[19] Trial Tr. (Grant) 681:4–7, 754:20–755:4.

[20] DX-4022.008 ("The royalty will be payable under this Agreement with respect to each Product for as long as any Engine Code or Content (including as modified by you under the License) incorporated in or used to make the Product are protected under copyright or other intellectual property law."); Ex. Depo. (Penwarden) 30:7–8.

ensures that if developers succeed, Epic Games "can participate in that success."[21] For instance, in 2019, *Unreal Engine* generated about $97 million in revenue for Epic International,[22] which enjoys a 100 percent gross margin on its "engine business."[23]

Although *Unreal Engine* itself is not available on the App Store, Epic Games develops apps that work in conjunction with *Unreal Engine*, including *Unreal Remote* and *Live Link Face*, and distributes on iOS. These apps "provide[] a means for people who work in the movie or TV industry to capture performances and view them on *Unreal Engine*."[24] They do not include competitive game play.[25] Separate and apart from the App Store, Epic Games also provides *Unreal Marketplace*, a store for pre-created two-dimensional and three-dimensional assets for purchase by *Unreal* developers.[26]

Second, in addition to *Unreal Engine*, Epic Games offers third-party developers a suite of back-end online gaming services through Epic Online Services. These services include matchmaking, Epic Games' friends system, and voice system.[27]

2. *Game Developer: Fortnite*

With respect to Epic Games' primary business of development and release of its own video games including its flagship video game, *Fortnite*, Epic Games develops and owns through its subsidiary, other apps, such as *Houseparty*, which incorporates some optional gaming elements into its video chat application.[28]

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[21] Ex. Depo. (Babcock) 180:5–9.

[22] DX-3795.009.

[23] DX-3359.003.

[24] Trial Tr. (Grant) 664:21–665:17.

[25] Trial Tr. (Sweeney) 304:25–305:2 (noting there is no competitive game play associated with *Unreal Engine*).

[26] Trial Tr. (Ko) 799:18–21.

[27] Trial Tr. (Sweeney) 120:7–14 ("Epic Online Services . . . provides many of the social features that we built for *Fortnite* and makes them available to other companies, such as Epic's account system, Epic's matchmaking system, to put players together into a shared game session. It includes Epic's friends system. And we're soon to release the Epic Games voice system for voice chat.").

[28] *Id.* 161:10–112 ("[W]e make *Houseparty*, which is a social video application, sort of like a version of Zoom that's for friends."), 117:8–12, 305:14–21. The record does not contain any information, financial or otherwise, with respect to these other games.

a. *Fortnite*'s Game Modes

Fortnite is Epic Games' most popular game and app, with over 400 hundred million registered players worldwide.[29] Originally a cooperative shooter game consisting of player-versus-environment ("PVE") mechanics, *Fortnite* now has four main game modes: (i) *Save the World*, (ii) *Battle Royale*, (iii) *Creative*, and (iv) *Party Royale*.[30] Of these four game modes, "nearly half of the players coming into [*Fortnite*] on a daily basis," around 15 million users, "are playing Creative and Party Royale Modes."[31]

Save the World launched in July 2017 as the original game mode. It is a cooperative campaign consisting of PVE mechanics. Squads of up to four players team up to build forts and fight non-playable, computer monsters.[32] *Save the World* is *not available* on mobile platforms, including the iOS platform, or on the Nintendo Switch.[33]

Battle Royale is a player-versus-player ("PVP") elimination and survival match involving up to 100 players.[34] It is the most popular *Fortnite* game play mode with storylines and game play that evolve over time, as new chapters and seasons are released.[35] A season typically lasts around ten weeks and is a subset of a larger chapter.[36] This mode also offers a "sit out" feature, permitting players to observe *Battle Royale* matches instead of competing.[37] Importantly, and as discussed below, although the *Battle Royale* game play mode is available to download and play free of charge,[38] players can make in-app purchases for digital content, including digital avatars, costumes, dance moves, and other cosmetic items.[39]

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[29] Trial Tr. (Sweeney) 99:5–6, 100:5–7. Epic Games also owns and/or develops other games, including *Rocket League*, *Fall Guys*, *Battle Breakers*, *Spyjinx*, and the *Infinity Blade* series. Trial Tr. (Sweeney) 89:22–90:5, 116:8–12; Trial Tr. (Grant) 664:13–14.

[30] DX-5536; Trial Tr. (Sweeney) 99:5–10, 328:4–8; Trial Tr. (Weissinger) 1354:23–24.

[31] Trial Tr. (Weissinger) 1296:5–8.

[32] DX-5536.004.

[33] Trial Tr. (Weissinger) 1354:18, 1354:21.

[34] DX-5536.001–002.

[35] Trial Tr. (Sweeney) 99:5–10, 105:21.

[36] Trial Tr. (Weissinger) 1393:14–19.

[37] *Id.* 1296:14–1297:5.

[38] Trial Tr. (Sweeney) 108:15–16.

[39] *Id.* 108:23–109:3.

Creative mode allows players to create their own content in *Fortnite*.[40] According to Epic Games' website: "Included free with Battle Royale, Fortnite Creative puts you in charge of your own Island . . . . Creative is also a great place for just creating your own scenery. . . ."[41] Content generated in *Creative* mode can be more broadly shared by other *Fortnite* players.[42] With the aid of avatar Agent Peely, an anthropomorphic banana man,[43] and Mr. Weissinger's testimony, the Court was walked through different gaming and experiences islands within the *Creative* mode hub, including "Prison Breakout," "Rockets vs. Cars," "Cars Now With Snipers," and "Creative Mayhem Regional Qualifier."[44]

The final mode, *Party Royale*, is described as "an experimental and evolving space that focuses on no sweat, all chill fun. Attractions include aerial obstacle courses, boat races, movies, and even live concerts from top artists[.]"[45]

In 2017, *Fortnite* debuted on a number of platforms—including Windows, Mac, Xbox One, and PlayStation 4—with only the *Save the World* game mode. Later that year, Epic Games released *Battle Royale*—a free-to-play game mode with features available for in-app purchase. With *Battle Royale*'s success, *Fortnite* quickly "became more about Battle Royale" and, thus, a primarily "free-to-play game." The success of *Fortnite* has been profitable for both Epic Games and its partners. For instance, the Epic Games-Microsoft partnership generates hundreds of millions of dollars for both parties.[46]

b. Key Features of *Fortnite*

Fortnite has many distinct features. First, most of its game play is multiplayer and requires an Internet connection. Users can play *Fortnite* online with friends and family, with

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[40] *Id.* 328:4–8.

[41] DX-5536.003.

[42] DX-5539.

[43] With respect to the appropriateness of Peely's "dress," the Court understood Apple merely to be "dressing" Peely in a tuxedo for federal court, as jest to reflect the general solemnity of a federal court proceeding. As Mr. Weissinger later remarked, and with which the Court agrees, Peely is "just a banana man," additional attire was not necessary but informative. Trial Tr. (Weissinger) 1443:17.

[44] Matthew Weissinger is Vice President of Marketing at Epic Games. Trial Tr. (Weissinger) 1365:16–1366:1, 1367:25–1368:10, 1368:12–1371:20, 1373:22–1374:12, 1374:13–1376:6 (testimony agreeing that *Creative* mode includes game play and game mechanics).

[45] DX-5536.002; *see also* Trial Tr. (Allison) 1246:20–1247:7. The Court viewed a portion of this mode whereby Peely participated in a game called "Skydive Glide Drop," before engaging in dance to celebrate a B rank finish. Trial Tr. (Weissinger) 1363:13–1364:12.

[46] Trial Tr. (Wright) 590:5–9, 592:12–17.

teams, or with other gamers of similar skill levels with whom they are matched.[47] Second, in order to play together online, users must have the same "version" of *Fortnite* software installed on their device or platform.[48] Third, *Fortnite* releases new content and updates, including major changes to the map and game play, on a regular basis. These updates ensure that users can enjoy new and surprising in-game experiences each time they open the app. Having a purely static environment without these updates would materially degrade the player experience.[49]

Fourth, *Fortnite* features cross-play, allowing players on different platforms to play with one another.[50] Since September 2018, cross-platform play for *Fortnite* has been available on Sony's PlayStation, Microsoft's Xbox, the Nintendo Switch, Windows PCs, Mac computers, certain Android devices, and (until recently) certain iOS mobile devices.[51] In fact, Epic Games pioneered cross-platform play for the gaming industry. It persuaded both Sony and Microsoft to erase the artificial barriers between players on their console platforms, making *Fortnite* the first game to achieve full cross-play functionality across those devices, as well as PCs and mobile devices.[52] Epic Games believed so strongly in cross-platform play that it threatened litigation against Sony for using policies and practices to restrict the same.[53]

Other cross-platform innovations featured on *Fortnite* include cross-progression and cross-purchase or cross-wallet. Cross-progression allows users to access the same account and maintain their progress, regardless of the platform on which they play. Thus, for users who play *Fortnite* on multiple platforms, cross-progression is an important feature.[54] Nevertheless, most *Fortnite* users play on a single platform.[55] Cross-purchases allows *Fortnite* users to buy V-

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[47] Trial Tr. (Sweeney) 107:12–18.

[48] *Id.* 158:17–19.

[49] *Id.* 105:21–106:14.

[50] *Id.* 106:18–24, 196:8–22. Cross-platform scenarios also occur when games on one platform access "content, subscriptions, or features" acquired on other platforms or on a developer's website. PX-2790.011 (§ 313(b)).

[51] Trial Tr. (Sweeney) 107:2–10, 237:15–18.

[52] *Id.* 106:23–107:10, 196:18–22, 198:22–199:6.

[53] DX-3125.007; Trial Tr. (Sweeney) 107:2–10, 234:3–238:12, 252:22–255:16.

[54] Trial Tr. (Sweeney) 108:3–11 ("Cross-progression refers to . . . a user who owns multi devices to connect with *Fortnite* on . . . different platforms, and to have the same . . . state [of] ownership of virtual items on all different platforms . . . .").

[55] PX-1054.

Bucks, or virtual currency, on one platform and spend them on another platform. Cross-purchases are not available on Sony or Nintendo platforms.[56]

Fifth and finally, as evidenced above, *Fortnite* features gaming and non-gaming experiences.[57] For instance, *Party Royale* allows players to watch movies or TV shows, attend concerts, and participate in global cultural events within the app itself.[58] *Fortnite*'s capacity to bring people together has been particularly important during the COVID-19 pandemic.[59] Notable events include:

- Travis Scott's in-game concert in April 2020, viewed by 12.3 million concurrent users, including two million iOS users;[60]
- Three of Christopher Nolan's feature-length films—*The Dark Knight*, *Inception*, and *The Prestige*—virtually screened in June 2020;[61]
- Exclusive episodes of ESPN's *The Ocho*, viewed by more than two million users, and the Discovery Channel's *Tiger Shark King*, viewed by more than 900,000 users;[62]
- *We the People*, a series of discussions on racial equality and voter suppression in the United States, viewed by 1.5 million users;[63] and
- DJ Kaskade hosted a virtual concert in March 2021.[64]

Based on these in-game experiences, Epic Games considers *Fortnite* to compete not only with gaming companies but also with other social media companies such as Facebook and Netflix.[65]

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[56] Trial Tr. (Sweeney) 197:1–5, 198:1–3, 239:3–14.

[57] *Id.* 98:6–8.

[58] *Id.* 98:12–99:3.

[59] *Id.* 107:14–18; Trial Tr. (Weissinger) 1295:8–16.

[60] Trial Tr. (Weissinger) 1294:10–22.

[61] Trial Tr. (Sweeney) 103:12–16; Trial Tr. (Weissinger) 1289:8–25.

[62] Trial Tr. (Sweeney) 104:16–24; Trial Tr. (Weissinger) 1290:5–7, 1290:16–23.

[63] Trial Tr. (Sweeney) 105:5–7; Trial Tr. (Weissinger) 1291:5–11.

[64] Trial Tr. (Weissinger) 1293:25–1294:1.

[65] Trial Tr. (Sweeney) 94:4–7, 98:16–99:3.

c. *Fortnite*'s Business Model: In-App Purchases and V-Bucks

Fortnite uses the "freemium" game model, under which a game is largely free to download and play but certain additional in-game features can be purchased.[66] Epic Games primarily generates revenue by selling V-Bucks, which can be used to obtain items in *Fortnite*.[67] V-Bucks can be purchased in-app or directly from Epic Games' website.[68] Players can use V-Bucks to purchase digital content within the app, including a "Battle Pass" (a feature that provides access to challenges and otherwise locked content) or cosmetic upgrades.[69] Unlike other games employing the freemium model, in-app purchases do not buy game play advantages in *Battle Royale*.[70] Instead, players can make in-app purchases of different items that function as forms of self-expression, including cosmetic enhancements or "skins" (*i.e.*, in-game costumes), dance moves known as "emotes," and more.[71] As of December 2020, players can also subscribe to *Fortnite Group*, which provides users with the Battle Pass for each new *Battle Royale* season, a monthly allotment of 1,000 V-Bucks and exclusive cosmetics.[72]

Epic Games sells V-Bucks to consumers in various bundles and packages at increasing prices: 1,000 V-Bucks for $9.99; 2,800 V-Bucks for $24.99 and so on—all the way to 13,500 V-Bucks for $99.99. After Epic Games implemented its hotfix on iOS (discussed at length below), Epic Games dropped V-Bucks pricing by 20% for purchases made through Epic Games' direct payment option on iOS and Google Play, as well as for purchases on every other platform through which *Fortnite* was offered.[73] Notably, there is "no cost to [Epic Games for] V-Buck . . . V-Bucks themselves don't have a marginal cost."[74]

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[66] *Id.* 187:15–188:3, 226:18–19.

[67] *Id.* 189:9–11.

[68] *Id.* 188:13–21, 298:21–23.

[69] *Id.* 108:17–109:3, 188:13–189:11; Trial Tr. (Weissinger) 1300:3–7.

[70] Trial Tr. (Sweeney) 110:5–10.

[71] *Id.* 108:23–109:3; Trial Tr. (Weissinger) 1299:6–8.

[72] Trial Tr. (Weissinger) 1301:15–21.

[73] DX-3774.009; Trial Tr. (Sweeney) 190:6–9, 14–16.

[74] Trial Tr. (Sweeney) 190:14–16.

Although Epic Games claims that it would not have a viable way of monetizing *Fortnite* without being able to sell in-app content,[75] the record shows it monetizes *Fortnite* in nine other ways:[76]

Two are internal to the game. First, since December 2020, users "can subscribe to *Fortnite Crew*, a subscription" service offered by Epic Games.[77] Second, users can pay an up-front fee to gain access to one of *Fortnite*'s game modes, *Save the World*, that also has in-app content for purchase.[78]

The remaining seven are external. One, Epic Games "generates revenue . . . typically in the form of redeemable codes sold through traditional retail and online stores."[79] Two, Epic Games generates revenue through in-game advertising or cross-promotions.[80] Three, it "has received revenue for providing third-parties with promotional codes redeemable for *Fortnite* content."[81] Four, "Epic has in the past entered into hardware bundle agreements with console makers," through which "the console makers offered for sale a bundle containing their game consoles along with exclusive *Fortnite* cosmetics and V-Bucks . . . ."[82] Five, "Epic has provided other partners with redeemable codes for exclusive *Fortnite* cosmetics and V-Bucks, and Epic was paid by the partner on a per redemption basis."[83] Next, it "has entered into licensing agreements with brands through which it received the revenue from sales of in-game cosmetics featuring the licensed content as well as a small portion of the brand's sales generated from *Fortnite*."[84] Finally, it "licenses *Fortnite* intellectual property to third parties to use in physical merchandise, such as toys, apparel, accessories and home goods. In some circumstances, such physical merchandise also may include a code that can be redeemed for *Fortnite* in-game content."[85]

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[75] Trial Tr. (Weissinger) 1303:18–1306:7.

[76] DX-3691.008–.010.

[77] Trial Tr. (Weissinger) 1357:17–25; DX-3691.009.

[78] DX-3691.009.

[79] *Id.*

[80] DX-3691.010; *see also* Trial Tr. (Weissinger) 1306:19–1307:7, 1311:7–1312:1.

[81] DX-3691.010.

[82] *Id.*

[83] *Id.*

[84] *Id.*

[85] *Id.*

Based on the freemium model which relies upon in-app purchases, as well as these alternative ways of monetization, *Fortnite* is quite lucrative and integral to Epic Games' overall business operations.[86] Given that *Fortnite* utilizes cross-platform technology to capture a larger audience and appears on several different platforms, Epic Games faces commission rates on its in-app purchases. Generally, plaintiff must pay 30% across most platforms. Indeed, for example, Epic Games has agreed to such a rate on all *Fortnite* transactions via the Microsoft (Xbox) Store, the PlayStation Store, the Nintendo eShop, and Google Play.[87] Epic Games has also agreed to extra payments for certain platform holders above and beyond the standard 30% commission rate. For example, for all *Fortnite* transactions via the PlayStation Store, Epic Games agreed to make additional payments to Sony *above* this commission rate based on the amount of time that PlayStation users play *Fortnite* cross-platform.[88]

d. *Fortnite* on the iOS Platform

In 2018, *Fortnite* debuted on the iOS platform. Epic Games followed its prior business model and distributed *Fortnite* using a "freemium" model, in which a user can download the application for free but has the opportunity to purchase certain in-app content. Mr. Sweeney "attribute[s] a lot of [Epic Games'] success" to this business model. This kind of business model is facilitated by the App Store, including IAP.[89]

Although Epic Games has had disputes and discussions with other platform owners as to cross-play policies (including cross-platform, cross-progression, and cross-wallet), originally it did not encounter any such difficulty with Apple. Prior to *Fortnite*'s launch on iOS devices, Epic Games sought to leverage Apple's significant interest in "the mobile version of [*Fortnite Battle Royale*]" to obtain Apple's support in operationalizing cross-play capabilities and to secure marketing support from Apple. Apple cooperated: before *Fortnite*'s debut on the iPhone, Apple operationalized cross-platform play. This included changing its guidelines to expressly permit cross-platform functionalities that were similar to what Epic Games sought, and Apple continued to permit such cross-functionality on *Fortnite* while the game remained on the App Store.[90] In addition to cross-platform play, Apple also facilitated cross-progression (game progress synced across platforms), and cross-wallet functionality (allowing purchases from one platform to be used on others).[91] Epic Games has acknowledged that Apple's permissive cross-

[86] Trial Tr. (Sweeney) 289:21-290:25.

[87] DX-3582.004–.005; DX-3464.012, .027, .031; Trial Tr. (Sweeney) 142:19–143:1, 161:13–15; Trial Tr. (Weissinger) 1349:14–23.

[88] Ex. Depo. (Kreiner) 52:13–19; DX-4519.003–.004; Trial Tr. (Sweeney) 198:10–21, 238:1–238:5, 308:14–23.

[89] Trial Tr. (Sweeney) 187:15–188:7; Trial Tr. (Schiller) 2791:11–18; Ex. Expert 8 (Schmalensee) ¶ 134.

[90] DX-3448.001; Trial Tr. (Sweeney) 232:18–25; PX-2619.010–.012 (§§ 3.1.1, 3.1.3).

[91] Trial Tr. (Sweeney) 108:2–13, 197:1–14, 245:16–246:4.

platform policies contributed to *Fortnite*'s success as a cross-platform game and benefited Epic Games' business.[92]

Once *Fortnite* itself was introduced, revenues from in-app purchase on Epic Games apps through the App Store roughly doubled. Indeed, Epic Games saw iOS and other mobile platforms as key to increasing *Fortnite*'s player base, as plaintiff had already reached "a point of basically full penetration on console," making acquisition of mobile customers "hugely important."[93] Before *Fortnite* was removed from the iOS platform, more than 115 million registered players had accessed *Fortnite* on an iOS device.[94] Of this amount, 64% of *Fortnite* for iOS players—approximately 73 million in total—had only ever played *Fortnite* on iOS devices.[95]

That said, despite this staggering number of iOS *Fortnite* players, the vast majority of Epic Games' *Fortnite* revenue (93%) is generated on non-iOS platforms. Of the users who made a purchase between March 2018 and July 2020, *only 13.2% made a purchase on an iOS device—meaning that Epic Games was able to transact with 86.8% of paying Fortnite users without paying any commissions to Apple*.[96] Still, in only two short years, and with access to the iOS platform and Apple's support, *Fortnite* on iOS earned Epic Games more than $700 million across over 100 million iOS user accounts.[97]

3. *Game Publisher and Distributor: Epic Games Store*

a. Characteristics of the Epic Games Store

As noted above, Epic Games is involved in both game publishing and game distribution through its online store, the Epic Games Store, which launched in December 2018.[98] By way of background, a publisher "typically funds most or all of the expenses associated with [an] entire product, including development and marketing; whereas, a distributor typically only pays the cost associated with direct distribution, such as in the digital . . . bandwidth and payment with processing fees."[99] Where Epic Games serves as a publisher, its agreements provide that it first recovers all of its costs and then splits remaining revenues 60/40 with the 40% share to the

[92] Trial Tr. (Sweeney) 196:15–25.

[93] DX-3233.003; Trial Tr. (Hitt) 2111:22–2112:15; Ex. Expert 6 (Hitt) ¶ 175 & Fig. 42; Trial Tr. (Weissinger) 1346:3–17.

[94] Ex. Expert 6 (Hitt) ¶¶ 62, 71, & Fig. 13.

[95] *Id.*

[96] *Id.* ¶ 69 & Fig. 14.

[97] DX-4763.

[98] Trial Tr. (Sweeney) 124:2–5; Trial Tr. (Allison) 1198:19–20, 1218:22–1219:10.

[99] Trial Tr. (Sweeney) 96:24–97:4.

developer, or 50/50.[100] In terms of distribution, the Epic Games Store serves as a platform to sell gaming apps which operated on PC and Mac computers.[101] The store carries hundreds of games, including its own and many third-party titles.[102]

Messrs. Sweeney and Steve Allison, Vice President and General Manager of the Epic Games Store, testified that Epic Games always had an original intent to include non-gaming apps within the Epic Games Store citing to the inclusion of *Unreal Engine* on the store page, and conversations with several other non-gaming app companies including Twitch and Discord in 2018.[103] The claim is suspect. First, the Epic Games Store only made significant moves during the pendency of this litigation and on the eve of this bench trial by including non-game apps including: the Spotify music app (December 2020), the Brave web browser, the KenShape creation tool for artists, and Itch.io, a third-party store (April 22, 2021).[104] Indeed, while Epic Games urges in this lawsuit that Apple must allow third-party app stores in the App Store, the Epic Games Store did not itself distribute any third-party app stores until a few days before trial (approximately April 22, 2021).[105] Second, neither Discord nor Twitch have submitted their own apps for inclusion on the Epic Games Store.[106] Finally, with respect to *Unreal Engine*, although the Epic Games Store links to it, the *Unreal Engine* has its own website with its own domain name and appears separate and apart from the Epic Games Store.[107]

This conclusion is also supported by the design of the Epic Games Store's website itself which markets "games" specifically. The navigation tabs on the homepage—"games on sale," "free games," "new and trending," "new releases," "top sellers," "[t]op 20," and "coming soon"—lead to compilations consisting entirely of games. The "top news items" tab offers only news about games. The search bar prompts the user to "search all games" (and not to "search all apps"). The "help" tab describes Epic Games Store's consumers as "players." Finally, the Epic Games Store's "FAQ" describes the Epic Games Store as a "curated digital storefront for PC and

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[100] Trial Tr. (Sweeney) 306:6–307:11; *see also* Trial Tr. (Allison) 1263:3–15; DX-3993.025.

[101] Trial Tr. (Sweeney) 94:7–9, 123:10–13; Trial Tr. (Allison) 1198:19–20, 1199:17.

[102] Trial Tr. 261:24–25 (Sweeney); Trial Tr. (Allison) 1210:20–23.

[103] Trial Tr. (Sweeney) 123:15–124:5, 262:19–24; Trial Tr. (Allison) 1199:15–1200:1.

[104] Trial Tr. (Sweeney) 124:22–125:8; Trial Tr. (Allison) 1199:13–14; *see also* Trial Tr. (Sweeney) 117:19–25, 121:19–25, 123:10–13, 124:15–24, 262:19–263:11, 265:7–11; Trial Tr. (Allison) 1243:3–11.

[105] Trial Tr. (Sweeney) 263:22–265:4.

[106] The Court further understands that both Twitch (an app primarily used for game streaming) and Discord (an app primarily used for voice chat in video games) operate apps that are, to use Mr. Allison's words, "game adjacent." Trial Tr. (Allison) 1119:24–25.

[107] *Id.* 1239:8–13.

Mac" that is "designed with both players and creators in mind" and is "focused on providing great games for gamers and a fair deal for game developers."[108]

Like other platforms, the Epic Games Store uses a commission model and markets an 88/12 split of all revenues to developers from the sale of their games. The evidence is also undisputed that this 88/12 commission is a below-cost price and the store is expected to operate at a loss for many years at this rate.[109]

From Epic Games Store's launch to December 2019, Epic Games collected its commission through its own payment mechanism, which it required developers to use for all game purchases and in-game purchases.[110] Epic Games no longer requires any developer to use its payment processing system, called Epic direct payment, for in-app purchases.[111] Developers who do not use Epic direct payment do not pay Epic Games anything for in-app purchases.[112]

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[108] *Id.* 1236:5–1238:10, 1238:11–19, 1238:21–1239:5, 1239:15–1240:7. The Court is not persuaded that the Epic Games Store is anything but a game store. Indeed, the Court emphasizes that its addition of non-gaming apps during the pendency of this litigation (Spotify) and on the eve of trial (the remaining apps and software) do not demonstrate that Epic Games Store is a general app store, especially for purposes of this litigation.

First, at the time of the filing of the complaint in this action, the Epic Games Store was undisputedly a game store, and the pleadings only confirm that Epic Games sought to open Epic Games Store in its then current iteration on the iOS platform. *See* Compl. (Dkt. No. 1) ¶ 27 ("Epic also built and runs the Epic Games Store, a digital video game storefront through which gamers can download various games, some developed by Epic, and many offered by third-party game developers." (emphasis supplied)), ¶ 81 ("Epic approached Apple to request that Apple allow Epic to offer its Epic Games Store to Apple's iOS users through the App Store and direct installation."), ¶ 90 ("The Epic Games Store offers personalized features such as friends list management and game matchmaking services. Absent Apple's anticompetitive conduct, Epic would also create an app store for iOS.").

Second, the Court heard no specific evidence on these newly added apps, beyond brief descriptions of these apps and software, including on Epic Games' monetization and revenues from such apps, or even user statistics with respect to such apps, including total and relative downloads as compared to other products in the Epic Games Store.

[109] Trial Tr. (Sweeney) 125:9–12, 126:1–3; Trial Tr. (Cragg) 2326:25–2327:5.

[110] Trial Tr. (Allison) 1221:11–1222:16.

[111] Trial Tr. (Sweeney) 125:23–25; Trial Tr. (Ko) 800:4–14; Trial Tr. (Allison) 1221:21–1222:12; *see also* Trial Tr. (Sweeney) 126:1–8; 307:15–17.

[112] Trial Tr. (Sweeney) 125:23–25.

Because of this open policy, several app developers have elected to use their own payment and purchase functionality for in-app purchases, such as Ubisoft and Wizards of the Coast.[113]

Epic Games acknowledges that its commission is not merely a "payment processing" fee. The 12 percent fee is principally for access to Epic Games' customers, but also is intended to cover all of Epic Games' variable operating costs associated with selling incremental games to customers. It covers various services to game developers, including "hosting, player support, marketing of their games, and handling of refunds," "a supporter/creator marketing program," and "social media for game launches, video promotions[,] . . . featuring at physical events, such as E3[,] [a]nd sponsorships of the video games." The commission is thus "tied into these broader ecosystem benefits that [Epic Games] provide[s] to [its] developers," and is intended to cover the full "cost of operating the service," "the actual distribution cost, the internet bandwidth cost, [and] the . . . cost of maintaining it."[114]

Today, Epic Games Store has over 180 million registered accounts and more than 50 million monthly active users.[115] It supports more than 100 third-party app developers and publishes over 400 of their apps.[116] Epic Games Store operates a single storefront across multiple geographies.[117]

Epic Games is a would-be and self-avowed competitor of Apple in the distribution of apps.[118] Absent the restrictions imposed by Apple, Epic Games would operate a mobile version of the Epic Games Store on iOS that would compete with Apple's App Store.[119]

b. Finances of the Epic Games Store

As referenced, the Epic Games Store is not yet profitable due to Epic Games' strategic plan to grow the consumer base at the expense of near-term profits and revenue.

By charging 12% commission, the Epic Games Store will not be profitable for at least several years. Current estimates indicate negative overall earnings in the hundreds of millions of dollars through at least 2027. The anticipated loss is driven by hundreds of millions of minimum guarantees that Epic Games made to developers to entice them to distribute exclusively through

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[113] Trial Tr. (Allison) 1223:8–20.

[114] Trial Tr. (Allison) 1271:21–24; Trial Tr. (Sweeney) 126:9–11; Ex. Depo. (Kreiner) 242:9–243:13, 243:19–22; Ex. Depo. (Rein) 110:4–25; *see also* Trial Tr. (Allison) 1224:4–1225:7, 1232:5–13.

[115] Trial Tr. (Allison) 1220:21–25.

[116] *Id*. 1220:8–10, 18–20.

[117] Trial Tr. (Sweeney) 129:8–13.

[118] Trial Tr. (Sweeney) 95:16–20; *see also* Trial Tr. (Allison) 1233:8–17.

[119] Trial Tr. (Sweeney) 97:24–98:4; *see also* Trial Tr. (Allison) 1233:8–17.

Epic Games Store.[120] In short, the Epic Games Store has front-loaded its marketing and user-acquisition costs to gain market share.[121] Whether this gambit will ultimately work remains to be seen; Epic Games is currently outperforming its projected business plan by "about 15 percent," and its first-party and third-party businesses are up 113% and 100%, respectively.[122] While Epic Games now says it expects the Epic Games Store to become profitable by 2023, the store's projected revenue from prior years has proven overly optimistic.[123]

4. *Prior Relationship Between Apple and Epic Games*

The relationship between Apple and Epic Games dates back to at least 2010.

In 2010, Epic Games agreed to and signed a Developer Product Licensing Agreement ("DPLA") with Apple. Epic International subsequently signed a Developer Agreement and DPLA (for the account associated with *Unreal Engine*). At the time of the signing of these contracts, Mr. Sweeney understood and agreed to key contractual terms including, that Epic Games (i) was required to pay a commission on in-app purchases; (ii) was prohibited from putting a store within the App Store; (iii) was prohibited from sideloading apps on to iOS devices; and (iv) was required to use Apple's commerce technology for any payments. Knowing the terms, Epic Games chose to enter into those contracts. According to Mr. Sweeney, Epic Games did not have a formal business dispute with Apple or raise major objections or have existential-level concerns about the App Store's contract terms at the time. Since 2010, there has been no material change in the terms of Epic Games' agreements with Apple, nor in Apple's business design.[124]

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[120] Trial Tr. (Sweeney) 126:12–127:6, 276:8–277:9; Trial Tr. (Allison) 1230:3–4, 1260:22–1262:8; Ex. Depo. (Kreiner) 244:2–5, 256:12–16; Trial Tr. (Cragg) 2327:3–5; DX-3712.017; DX-4638; PX-2469.007; *see also* Trial Tr. (Allison) 1232:14–22.

[121] Trial Tr. (Sweeney) 126:19–23; Trial Tr. (Allison) 1214:1–1215:6, 1230:5–10; *see also* Trial Tr. (Allison) 1214:1–8 (explaining minimum guarantees), 1223:8–13 (noting that some developers have chosen not to use Epic Games' payment processor).

[122] Trial Tr. (Allison) 1233:2–7.

[123] *Id.* 1262:4–12 ("Q. And [this] also reflects that Epic expected to lose 330 to 440 million in unrecouped minimum guarantees is that right? A. We expect to invest 330 to 440 million in partnership deals, yes. . . . We don't use the word 'lose.'"); Trial Tr. (Sweeney) 266:1–19, 273:9–16, 276:17–277:4; DX-3818.001; DX-3993.004; Trial Tr. (Allison) 1217:25–1218:5, 1232:18–22, 1262:13–20; DX-4361.020; PX-2463.002; PX-2469.006; DX-3467.005; DX-4361.020; PX-2455.004.

[124] Trial Tr. (Sweeney) 166:16–170:9; Trial Tr. (Grant) 723:23–725:21. "Sideloading" is "the process of putting an application on the device that bypasses the store" or bypasses the "official platform means" of installing an application. *Id*. 733:17–22.

Epic Games released three iOS games before *Fortnite*, and Apple featured each of them at major events allowing Epic Games to make use of Apple's brand.[125] This began with Epic Games' first iOS game, *Infinity Blade*, in 2010, which it released for iOS because of the "amazing 3D capabilities" on mobile platforms and the large number of iOS users.[126]

These collaborations notwithstanding, Epic Games and Mr. Sweeney began voicing discontent around the mid-2010s. In June 2015, Mr. Sweeney emailed Apple chief executive office Tim Cook urging Apple to consider "separating iOS App Store curation from compliance review and app distribution," and noting that "it doesn't seem tenable for Apple to be the sole arbiter of expression and commerce over an app platform approaching a billion users."[127] A few years later, in January 2018, Mr. Sweeney sought a meeting with Apple through Mark Rein, Epic Games' Vice President, "to talk about the potential for iOS and future Apple things to operate as open platforms" and discuss how Epic Games has "a PC and Mac software store and would love to eventually support it on iOS." He added: "If the App Store we[re] merely the premier way for consumers to install software, and not the sole way, then Apple could curate higher quality software overall, without acting as a censor on free expression and commerce on the platform . . . ."[128]

Despite these disagreements, Epic Games proceeded to more closely intertwine itself with the iOS platform. In early 2018, Epic Games and Apple arranged for the release of *Fortnite*. By that time, *Fortnite* was "doing incredible" and was "basically a cultural phenomenon."[129]

5. *Project Liberty*

At the end of 2019 Tim Sweeney conceived of a plan called "Project Liberty"[130] which was a highly choreographed attack on Apple and Google, Inc. The record reveals two primary reasons motivating the action. First and foremost, Epic Games seeks a systematic change which would result in tremendous monetary gain and wealth. Second, Project Liberty is a mechanism to challenge the policies and practices of Apple and Google which are an impediment to Mr. Sweeney's vision of the oncoming metaverse.

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[125] Trial Tr. (Fischer) 937:12–20; Ex. Depo. (Malik) 117:7–24.

[126] DX-3710.006; Trial Tr. (Sweeney) 89:22–90:5, 90:24–91:3.

[127] PX-2374.001.

[128] PX-2421.001.

[129] Trial Tr. (Fischer) 937:23–938:10; Trial Tr. (Weissinger) 1337:19–21.

[130] DX-3774 (board presentation); DX-4419.001 (Mr. Sweeney requested to be "in the loop on this topic 100%"); Trial Tr. (Sweeney) 88:6–7, 170:10–171:9, 280:7–10, 283:6–15 (approving the strategic decisions for Project Liberty); DX-4072 (developing a project "War Room"); DX-4561 (outlining detailed timelines).

The Court understands that, based on the record, the concept of a metaverse is a digital virtual world where individuals can create character avatars and play them through interactive programed and created experiences. In Mr. Sweeney's own words, a metaverse is "a realistic 3D world in which participants have both social experiences, like sitting in a bar and talking, and also game experiences . . . ."[131] In short, a metaverse both mimics the real world by providing virtual social possibilities, while simultaneously incorporating some gaming or simulation type of experiences for players to enjoy. These experiences can be created by developers such as is the case with the *Battle Royale* and *Save the World* modes in *Fortnite*. In other instances, these experiences can be user-created, such as is the case with the *Creative* and *Party Royale* modes in *Fortnite*, or general experiences in the video game *Roblox*.[132] Epic Games' and Mr. Sweeney's plans for *Fortnite* and its metaverse involved shifting the video game from primarily relying on the former modes (*i.e.*, developer designed, traditionally gaming, and competitive modes) to the latter modes (*i.e.*, social and creative modes), where users-becoming-creators would themselves be rewarded and enriched. The Court generally finds Mr. Sweeney's personal beliefs about the future of the metaverse are sincerely held.

To Mr. Sweeney and Epic Games, the metaverse is the future of both gaming and entertainment, and Apple's policies and practices are a hurdle which pose a problem. Indeed, for Mr. Sweeney, "reaching the entire base of Apple is 1 billion iPhone consumers is a paramount goal for our company, as *Fortnite* expands beyond being a game into this larger world of the metaverse."[133] Both Mr. Sweeney and Epic Games' employees and officers generally testified that "iOS is a vital platform for a business" and that it is "the only way we can access a hundred percent of [a platform's] users or at least have the option of accessing a hundred percent of that market."[134]

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[131] Trial Tr. (Sweeney) 325:14–17. Mr. Sweeney acknowledged that the film *Ready Player One* contains a recent portrayal of an imagined and futuristic, albeit dystopian, metaverse. *Id.* 325:10. Mr. Sweeney also cited the book *Snow Crash* as an example of the depicted metaverse, which he remarked "describes this emerging social entertainment medium that transcends gaming." *Id.* 325:24–326:1.

[132] For instance, Mr. Sweeney described an experience in one of these latter modes in *Fortnite*, involving utilizing player character avatars watching a Netflix show:

> All in the virtual 3D world. You can stand there and watch Netflix with your friends, and it's different than watching it in front of the TV. You can talk to your friends and you can emote and throw tomatoes at the screen. And so it is a very different experience than either a game or Netflix.

Id. 326:6–11.

[133] *Id.* 112:13–17.

[134] *Id.* 112:3; Trial Tr. (Grant) 671:13–20.

Project Liberty planning began in earnest in the first quarter of 2020.[135] The plan was to attack Apple's (and Google's) software distribution and payment apparatuses[136] which Epic Games described as "an attempt to provide developer choices for payment solutions and bring that benefit to the customers in a platform where [that] choice is not available."[137] Said differently, the "platform fees" posed "an existential issue" to both the company's business plans and Mr. Sweeney's personal ambitions for *Fortnite*, its digital gaming and retail store, and the evolving metaverse.[138] Internally, Epic Games also hoped to revive and reinvigorate *Fortnite* by pivoting its business whereby player-developers could create new content and plaintiff could "shar[e] [a] majority of profit with [those] creators."[139]

Key to Project Liberty's deployment, Epic Games engineered a "hotfix" to covertly introduce code that would enable additional payment methods for the iOS and Android versions of *Fortnite*.[140] Hotfixes function by coding an app to check for new content that is available on the developer's server or by introducing new instructions on how to configure settings in the app.[141] In general, a developer can use hotfixes to activate content or features in an app that are in the code but are not initially available to users. The content or feature is accessible only after the app checks the developer's server and is "notified" by the server to display the new content or feature.[142] Across all platforms where *Fortnite* is available, including iOS, Epic Games has used hotfixes to enable hundreds of new features and content elements and to correct configuration issues since *Fortnite* was first added to the App Store.[143] By contrast, the Project Liberty hotfix has no analogue as it clandestinely enabled substantive features in willful violation of the contractual obligations and guidelines.

By May 11, 2020, the key components of Epic Games' strategy were in place: "We submit a build to Google and Apple with the ability to hotfix on our payment method . . . . We

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[135] Trial Tr. (Sweeney) 152:24–153:4. Notably, Epic Games decided to target *only* Apple and Google in its crusade even though it generally faced similar 30% rates on every platform where it sold products, except a computer platform.

[136] Trial Tr. (Sweeney) 152:9–53:4; DX-3774.002.

[137] Trial Tr. (Ko) 804:12–17.

[138] DX-3774.004.

[139] DX-3774.002–.004.

[140] Trial Tr. (Sweeney) 153:14–15, 154:25; Trial Tr. (Grant) 736:11–15.

[141] Trial Tr. (Grant) 734:10–13.

[142] *Id.* 734:22–735:9.

[143] *Id.* 735:15–19 ("It would be like a weekly occasion. We would rotate different types of game notes in and out. If there was a big event . . . taking place during the season, that would be hotfixed on at the appropriate time so users could experience it.").

flip the switch when we know we can get by without having to update the client for 3 weeks or so. Our messaging is about passing on price savings to players."[144] In parallel, Epic Games developed "Epic Mega Drop," its simultaneous plan to lower the price of *Fortnite* items by an average of 20 percent on certain platforms.[145] " Epic Mega Drop" would reduce pricing on platforms other than Apple's and Google's, even though Epic Games was still paying 30% commissions to the console makers.[146] Epic Games also planned to assure its console partners that the reduction in price for V-Bucks could be recouped through the sales of more expensive bundles or items with "mythic" rarity.[147]

Project Liberty included a public narrative and marketing plan. Epic Games recognized that it was "not sympathetic"[148] and that if Apple and Google blocked consumers from accessing the app, "[s]entiment will trend negative towards Epic."[149] "[T]he critical dependency on going live with our VBUCKS price reduction efforts is finding the most effective way to get Apple and Google to reconsider without us looking like the baddies."[150]

To these ends, Epic Games wanted to "[g]et players, media, and industry on 'Epic's side,'" by "[c]reat[ing] a narrative that we are benevolent," and at the same time make Apple out to be the "bad guys."[151] Epic Games retained a public relations firm and devised, in effect, a two-phase communications plan.[152] The first phase consisted of actions before the activation of the plan such as creating an affiliated advocacy group, and a second phase that would galvanize public sentiment through social media outreach and videos.[153]

With regard to the first phase, Epic Games implemented its plan throughout the summer of 2020 by creating the Coalition for App Fairness, and "charged [it] with generating continuous media and campaign tactic pressure" on Apple and Google. Epic Games hired a consultant to

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[144] DX-4419.002; Trial Tr. (Grant) 767:15–18.

[145] Trial Tr. (Sweeney) 156:3–16.

[146] DX-4561.006; Trial Tr. (Weissinger) 1431:1–5.

[147] Trial Tr. (Weissinger) 1436:9–19; DX-4652.003.

[148] DX-4177.001; Trial Tr. (Weissinger) 1414:2–15.

[149] DX-4018.054.

[150] DX-4419.002.

[151] DX- 4561.020; DX-3641.001.

[152] DX-4561.020; DX-3641.001; DX-3681.012; DX-4185.001; DX-4561.037–.038; Trial Tr. (Weissinger) 1413:9–12, 1417:19–1418:7. Epic Games paid it $300,000 in connection with Project Liberty.

[153] DX-4561.037–.038

"help to establish a reason for [the Coalition] to exist (either organic or manufactured)." Epic Games then concealed the Coalition's existence until after the hotfix was triggered on August 13, 2020.[154]

Epic Games assumed its breach would result in the removal of *Fortnite* from the iOS and Android platforms. In fact, Mark Rein, Epic Games' co-founder, predicted "there's a better than 50% chance Apple and Google will immediately remove the games from their stores the minute we do this" and Daniel Vogel, the Chief Operating Officer, predicted Google and Apple will immediately pull the build for new players." "They may also sue us to make an example," he added.[155]

While Epic Games was willing to wage war against Apple and Google, it was not so inclined to crusade against the console platform owners: namely, Nintendo (Switch), Microsoft (Xbox), and Sony (PlayStation). Epic Games therefore planned to warn these console partners in advance about an upcoming pricing change for V-Bucks and to reassure them that they were not "next on [Epic Games'] list." As explained in an email to Microsoft on August 5, 2020, Mr. Sweeney alluded to Project Liberty which he boasted would "highlight the value proposition of consoles and PCs, in contrast to mobile platforms." Two days later he wrote, "you'll enjoy the upcoming fireworks show."[156]

Project Liberty required extensive planning and testing. Specialized engineers and an in-house information security team attempted to hack the code to ensure that Apple could not "reveal the intent" of the hotfix when it was submitted.[157] Epic Games also used analytics to determine the number of players that would receive the hotfix once triggered.[158]

By the end of June 2020, Epic Games had no interest in the parallel litigation which was pursuing similar ends. Nor did it intend to wait for the resolution of the ongoing *Pepper* and *Cameron* cases. Epic Games merely "ignored" them and "went forward on [its] own."[159] In

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[154] DX-3774.003; DX-3297.002; Trial Tr. (Weissinger) 1418:17–1420:5–8. One of the members of the Coalition for App Fairness is Eristica, a company that developed an app rejected by App Review that "paid folks to participate in a dare challenge" and when it was rejected "one of the dares was daring someone to jump off a bridge and video it" and other challenges "could also risk some pretty serious harm." Trial Tr. (Kosmynka) 1087:9–1088:18.

[155] DX-4419.001–.002; *see also* Ex. Depo. (Shobin) 59:24–60:5 (Epic Games understood that Project Liberty "jeopardize[d] *Fortnite*'s availability on the App Store").

[156] DX-4561.005, .024; DX-4652.001, .010; Trial Tr. (Weissinger) 1431:6–15; DX-4579.001; DX-3478.001; Trial Tr. (Sweeney) 292:14–293:8, 294:2–10.

[157] Trial Tr. (Grant) 765:11–766:2.

[158] Apple Ex. Depo. (Shobin) 239:9–25; DX-3083; *see also* Trial Tr. (Schmid) 3241:20–24 (explaining that Epic Games used TestFlight and App Analytics).

[159] Trial Tr. (Sweeney) 155:13–25.

other words, Epic Games decided it would rush to court with its own plan to protect its self-avowed interests in the "metaverse" and had established a rough timeline, to which it generally adhered: first communicating with Apple in June/July and then implementing the hotfix and marketing blitz in August. [160]

Thus, on June 30, 2020, Epic Games renewed the DPLAs for its account, the Epic International account, and a related entity (KA-RA S.a.r.l.) account by the payment of separate consideration.[161] With this backdrop, Epic Games sought a "side letter" or other special deal from Apple that would provide plaintiff with unique, preferable terms.[162] Mr. Sweeney sent an email to Apple executives, including Mr. Cook, requesting the ability to offer iOS consumers with: (i) competing payment processing options, "other than Apple payments, without Apple's fees, in *Fortnite* and other Epic Games software distributed through the iOS App Store"; and (ii) a competing Epic Games Store app "available through the iOS App Store and through direct installation that has equal access to underlying operating system features for software installation and update as the iOS App Store itself has, including the ability to install and update software as seamlessly as the iOS App Store experience."[163] Mr. Sweeney highlights that these two offerings would allow consumers to pay less for digital products and allow developers to earn more money. Although Mr. Sweeney wrote that he "hope[d] that Apple w[ould] also make these options equally available to all iOS developers in order to make software sales and distribution on the iOS platform as open and competitive as it is on personal computers,"[164] Mr. Sweeney admitted while testifying under oath that he "would have" accepted a deal "for [Epic Games] and no other developers."[165] In his email, Mr. Sweeney did not offer to pay Apple any portion of the 30 percent it charges on either app distribution or for in-app purchases.

On July 10, 2020, Apple Vice President and Associate General Counsel Douglas G. Vetter responded to Mr. Sweeney's email with a formal letter communicating, in essence: No. As relevant here, Mr. Vetter wrote:

> Apple has never allowed this. Not when we launched the App Store in 2008. Not now. We understand this might be in Epic's financial interests, but Apple strongly believes these rules are vital to the health of the Apple platform and carry enormous benefits for both consumers and developers. The guiding principle of the App Store is to provide a safe, secure and reliable experience for users and a great opportunity for all developers to be successful but, to be clear,

[160] DX-4561.005.

[161] Trial Tr. (Sweeney) 283:16–284:1.

[162] *Id.* 149:4–7, 285:7–22.

[163] DX-4477.

[164] *Id.*

[165] Trial Tr. (Sweeney) 337:13–338.2.

> when it comes to striking the balance, Apple errs on the side of the consumer.

Mr. Vetter also reiterated that Epic Games' request to establish a separate payment processor would interfere with Apple's own IAP system, which has been used in the App Store since its inception.[166]

On July 17, 2020, Mr. Sweeney responded to what he described as a "self-righteous and self-serving screed," writing that he hoped "Apple someday chooses to return to its roots building open platforms in which consumers have freedom to install software from sources of their choosing, and developers can reach consumers and do business directly without intermediation." He stated that Epic Games "is in a state of substantial disagreement with Apple's policy and practices," and promised that it would "continue to pursue this, as [it] ha[s] done in the past to address other injustices in [the] industry." Epic Games did not reveal its plans to enable an alternate payment system through a hotfix.[167]

Next, in fulfilling Mr. Sweeney's promise, Epic Games covertly introduced a "hotfix" into the *Fortnite* version 13.40 update on August 3, 2020. Epic Games did not disclose that this hotfix would enable a significant and substantive feature to *Fortnite* permitting a direct pay option to Epic Games that would be activated when signaled by Epic Games' servers. Until this signal was sent out, this direct pay option would remain dormant. When activated, however, this direct pay option would allow iOS *Fortnite* players to choose a direct pay option that would circumvent Apple's IAP system. Relying on the representations that intentionally omitted the full extent and disclosure of this hotfix, Apple approved *Fortnite* version 13.40 to the App Store.[168]

The hotfix remained inactive until the early morning of August 13, 2020, when Epic Games activated the undisclosed code in *Fortnite*, allowing Epic Games to collect in-app purchases directly.[169] *Fortnite* remained on the App Store until later that morning, when Apple removed *Fortnite* from the App Store and it remains unavailable to this day. Epic Games timed the hotfix to go live two weeks before the launch of *Fortnite*'s Season 14.

Later that same day, the second phase came into full effect. Epic Games had prepared several videos, communications, and other media to blitz Apple. Epic Games filed this action and unleashed a pre-planned, and blistering, marketing campaign against Apple both on Twitter and with the release of a parody video of the iconic Apple 1984 commercial. The video called "*1980 Fortnite*" used the game-mode style of *Fortnite* and presented an in-brand explanation of

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[166] DX-4140.

[167] DX-4480.001.

[168] Trial Tr. (Grant) 736:1–15, 763:10–15; Trial Tr. (Sweeney) 170:16–171:9; DX-4138.002; Trial Tr. (Kosmynka) 1089:3–9.

[169] Trial Tr. (Sweeney) 153:21–25, 294:11–16, 128:14–15, 154:6–10, 170:12–15; Trial Tr. (Grant) 736:6–15; Trial Tr. (Weissinger) 1426:20–1428:16.

what Epic Games had done, namely a *Fortnite* character destroying an "Apple overlord." On its website, the Coalition proclaimed that: "For most purchases made within the App Store, Apple takes 30% off the purchase price. No other transaction fee—in any industry—comes close."[170] The Coalition did not announce that Epic Games faced similar 30% rates from console platform owners. Epic Games also announced a *Fortnite* tournament in support of its lawsuit with in-game prizes and it released a limited time skin in *Fortnite* called the Tart Tycoon,[171] among other actions.[172]

The following day, on August 14, 2020, Apple responded sternly. It informed Epic Games that, based on its breaches of the App Store guidelines, and the DPLA, it would be revoking all developer tools, which would preclude updates for its programs and software. Apple gave Epic Games two weeks to cure its breaches and to comply with the App Store guidelines and the agreements. Apple also identified general consequences for any failure to comply, but specifically cited *Unreal Engine* as potentially being subject to its decision should Epic Games fail to comply within the two-week period.[173]

Thereafter, on August 17, 2020, Epic Games filed the request for a temporary restraining order, requesting the reinstatement of *Fortnite* with its activated hotfix onto the App Store, and enjoining Apple from revoking the developer tools belonging to the Epic Games and its affiliates. The Court declined to reinstate *Fortnite* onto the App Store, but temporarily restrained Apple from taking any action with respect to the plaintiff's affiliates' developer tools and accounts.[174]

On August 28, 2020, on the expiration of the two-week deadline, Apple terminated Epic Games' developer program account, referenced as Team ID '84.[175] Apple subsequently, and repeatedly, offered to allow Epic Games to return *Fortnite* to the App Store, so long as Epic Games agreed to comply with its contractual commitments. Epic Games has consistently declined.[176]

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[170] Trial Tr. (Sweeney) 295:14–17; DX-4167.002.

[171] Modeled presumably on Mr. Cook's likeness.

[172] DX-3724.001–.002; Trial Tr. (Sweeney) 295:2–17, 297:2–24.

[173] DX-3460.

[174] *See generally* Dkt. No. 48 (Order Granting in Part and Denying in Part Motion for Temporary Restraining Order). Meanwhile, discovery in the parallel cases was contentious, yet ongoing.

[175] Trial Tr. (Sweeney) 171:10–172:2; Dkt. 428 ¶ 34.

[176] Trial Tr. (Cook) 3918:18–3919:6.

On October 9, 2020, the Court issued an Order Granting in Part and Denying in Part the motion for preliminary injunction.[177] Given the issuance of the injunction, and that discovery from the other two class action lawsuits could be leveraged in this action, the Court granted Epic Games' request to conduct a bench trial on an expedited basis. Apple objected requesting, at a minimum, three additional months.

C. Apple: Relevant History of the iOS and iOS Devices

1. *The Early Years*

In 2007, Apple developed the iPhone creating a new and innovative ecosystem to break into the cellular device market with established competitors such as Samsung, Nokia, LG, Sony, Blackberry, Motorola, Windows Mobile, and Palm. No one disputes that the iPhone was revolutionary and fundamentally changed the cellular device market. Given the years that have passed, one may forget how fundamentally different the iPhone was to the alternatives. After 30 months of development, Apple offered consumers a new design, with a multi-touch interface powered by advanced hardware and software architecture. The device offered users the ability to access email, browse the web, and perform certain software applications by simply tapping a square-ish icon on the screen called an "app," short for a software application. These apps operate from a foundational layer of software called an operating system which, in the iPhone ecosystem, is called the iOS.

Initially, when the iPhone was first launched, Apple developed and preinstalled the device with a few "native" apps. "Native" apps are those apps which are developed for a particular mobile device as opposed to "web" apps which are Internet-based and allow applications to be accessed and enabled on a mobile device by using a web browser on the device. Initially, Apple prohibited downloads of native apps from any third party.

Shortly after launch, Apple executives hotly debated whether to open development of native apps to third-party developers. As history knows, those in favor succeeded. The gamble literally paid off. Since 2007, the industry has continued to evolve and transform rapidly.

2. *Role of App Developers Generally and Epic Games*

The 2007 iPhone pales in comparison to today's version. With 20-20 hindsight, we can conclude that Apple's gamble to save a languishing company paid off.[178] The lens with which to evaluate those early seminal years matters. Apple was not the monolith it is today. It is easy, but not fair, to twist words today for self-serving reasons and forget the landscape in which they were made.

As innovators in the early days, Apple executives were navigating trying to determine what would work and what would not. A few key principles guided decision-making, at least initially. First and foremost, the iPhone was a cellphone. If the cellphone did not work or

[177] *See generally* Dkt. No. 118.

[178] Trial Tr. (Schiller) 2715:17–25.

crashed, the product would not be successful regardless of all the bells and whistles. Second, given the introduction of apps, securing the device from malicious software was paramount.

Many developers responded to the iPhone launch by "jailbreaking phones and writing native applications." Jailbreaking occurs when a developer modifies Apple's iOS to enable the installation of unauthorized software, including applications from other interfaces. Jailbreaking can create severe security risks regarding installation of malicious apps and data exposure. Despite warnings regarding the risks, developers continued the practice which precipitated renewed discussions within Apple to permit authorized native apps to be developed by third-party developers.[179]

As the discussions ensued, the core principles remained: reliability of the device as a cellphone and device security. With these objectives in mind, on October 17, 2007, Apple announced that it would allow third-party developers to create iOS apps by licensing them with the interfaces and technology to do so. Apple then dedicated resources to create, and then release on March 6, 2008, a software development kit or SDK as well as information for a series of application programming interfaces or APIs to allow developers to create apps which would work on Apple's proprietary operating system. The APIs unlocked features such as location awareness functionality, media applications, video playback, and numerous other tools to enhance the developer's ultimate product.

The creation, constant update, and modernization of the SDKs and APIs was not insignificant. To protect its system, Apple built tools, kits, and interfaces that would allow other developers to build native apps. Epic Games did not introduce any evidence to rebut Apple's claim that in those initial years, the engineering work was novel, sophisticated, time-consuming and expensive. These tools simplified and accelerated the development process of native apps. Today, years later, as with many industries, it is not surprising that the more sophisticated, better financed, and larger-scale developers, such as Epic Games, may find less value in today's SDKs and APIs. That does not necessarily apply across the board to all developers, nor does it eliminate value in its entirety.

3. *Apple's Contractual Agreements with Developers*

Apple distributes its basic developer tools for free but charges an annual fee for membership in its developer program to distribute apps and which allows access to, for instance, more advanced APIs (many of which are protected by patents, copyrights, and trademarks) and beta software.[180] Through the DPLA, Apple licenses, wholesale, its intellectual property.

[179] Ex. Depo. (Forstall) 86:1–5; Ex. Expert 11 (Rubin) ¶ 76; Trial Tr. (Schiller) 2729:11–2730:17.

[180] Trial Tr. (Schiller) 2758:3–8, 2758:17–24.

To join the "Developer Program," one must execute the DPLA, pay a fee of $99.00 [181] and provide some basic information such as a valid debit/credit card; a valid name, address and telephone number; and sometimes, a government-issued photo identification. In the case of an entity, Apple also requires the entity's legal name, D-U-N-S number, as well as other information.

In the beginning, the App Store's U.S. storefront offered 452 third-party apps (including 131 game apps) by 312 distinct developers. In fiscal year 2019, there were over 300,000 game apps available on the App Store.[182] With over 30 million registered iOS developers,[183] it is not particularly surprising, or necessarily nefarious, that Apple does not negotiate terms generally. With few exceptions, Apple maintains the same relationships with developers whether big or small. This decision, too, is controversial as the impact varies between small and large developers.

a. Key Terms of the DPLA and App Guidelines

Relevant here, the DPLA details programming requirements, which the Court outlines first, and establishes payment terms, which the Court discusses second. While reduced here to bullet points and footnotes, the DPLA is a portfolio licensing agreement with complex and comprehensive provisions addressing not only intellectual property rights, but those relating to marketing, agency, indemnity, and myriad other considerations. Moreover, the DPLA changed over the last decade. Unless otherwise stated, the Court focuses on the 79-page version (excluding schedules) governing Apple's relationship with Epic Games in August 2020.[184]

Thus, with respect to programing, developers are required to:

- Certify that they will comply with the terms of the agreement (Section 3.1)[185];
- Use the software in a manner consistent with Apple's legal rights (Section 3.2)[186];

[181] This fee also includes the ability to consult twice with the Apple technical services team. Each additional incident requires paying a $99 "per incident" payment.

[182] Ex. Expert 6 (Hitt) ¶ 169.

[183] Trial Tr. (Schiller) 2759:9–17.

[184] *Id.* 2759:22–2760:9, 2761:21–25; PX-2619; Trial Tr. (Malackowski) 3701:1–14, 3642:10–15.

[185] Developers "certify to Apple and agree that," among other things, they "will comply with the terms of and fulfill [their] obligations under this Agreement, including obtaining any required consents for [their] Authorized Developers' use of the Apple Software and Services, and [developers] agree to monitor and be fully responsible for all such use by [their] Authorized Developers and their compliance with the terms of this Agreement." PX-2619.015.

[186] "Applications for iOS Products, AppleWatch, or Apple TV developed using the Apple Software may be distributed only if selected by Apple (in its sole discretion) for

- Create apps for Apple products which could only be distributed through the App Store (Section 3.2)[187];
- Submit proposed apps for review to ensure they were properly documented and did not contravene the program requirements (Section 3.3.2[188] and 3.3.3[189]);
- Configure apps to use IAP when the purchases are subject to the commission (Section 3.2.(f)[190]); and
- Agree not to "attempt to hide, misrepresent or obscure any features, content, services or functionality" (Section 6.1)[191].

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distribution via the App Store, Custom App Distribution, for beta distribution through TestFlight, or through Ad Hoc distribution as contemplated in this Agreement." PX-2619.016.

[187] *Id.*

[188] "Except as set forth in the next paragraph, an Application may not download or install executable code. Interpreted code may be downloaded to an Application but only so long as such code: (a) does not change the primary purpose of the Application by providing features or functionality that are inconsistent with the intended and advertised purpose of the Application as submitted to the App Store, (b) *does not create a store or storefront for other code or applications*, and (c) does not bypass signing, sandbox, or other security features of the OS.

An Application that is a programming environment intended for use in learning how to program may download and run executable code so long as the following requirements are met: (i) no more than 80 percent of the Application's viewing area or screen may be taken over with executable code, except as otherwise permitted in the Documentation, (ii) the Application must present a reasonably conspicuous indicator to the user within the Application to indicate that the user is in a programming environment, (iii) *the Application must not create a store or storefront for other code or applications*, and (iv) the source code provided by the Application must be completely viewable and editable by the user (e.g., no pre-compiled libraries or frameworks may be included with the code downloaded)." (Emphasis supplied.)

[189] "Without Apple's prior written approval or as permitted under Section 3.3.25 (In-App Purchase API), an Application may not provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store, Custom App Distribution or TestFlight."

[190] "You will not, directly or indirectly, commit any act intended to interfere with . . . Apple's business practices including, but not limited to, taking actions that may hinder the performance or intended use of the App Store, ... Further, You will not engage, or encourage others to engage, in any unlawful, unfair, misleading, fraudulent, improper, or dishonest acts or business practices relating to Your Covered Products (e.g., engaging in bait and-switch pricing, consumer misrepresentation, deceptive business practices, or unfair competition against other developers)."

[191] "You may submit Your Application for consideration by Apple for distribution via

In 2010, Apple also created the App Guidelines which are more fully discussed below.[192] As a corollary to Section 3.3.3 of the DPLA, Section 3.1.1 of the App Guidelines was the clearest articulation of the anti-steering provision with respect to in-app purchases. It reads:

> If you want to unlock features or functionality within your app, (by way of example: subscriptions, in-game currencies, game levels, access to premium content, or unlocking a full version), you must use in-app purchase. Apps may not use their own mechanisms to unlock content or functionality, such as license keys, augmented reality markers, QR codes, etc. *Apps and their metadata may not include buttons, external links, or other calls to action that direct customers to purchasing mechanisms other than in-app purchase.*[193]

Section 2.3.10 of the Guidelines reads: ". . . don't include names, icons, or imagery of other mobile platforms in your app or metadata, unless there is a specific, approved interactive functionality" and Section 3.1.3 Other Purchase Methods states: "The following apps may use purchase methods other than in-app purchase. Apps in this section cannot, either within the app or through communications sent to points of contact obtained from account registration within

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the App Store or Custom App Distribution once You decide that Your Application has been adequately tested and is complete. By submitting Your Application, You represent and warrant that Your Application complies with the Documentation and Program Requirements then in effect as well as with any additional guidelines that Apple may post on the Program web portal or in App Store Connect. *You further agree that You will not attempt to hide, misrepresent or obscure any features, content, services or functionality in Your submitted Applications from Apple's review or otherwise hinder Apple from being able to fully review such Applications*. . . . You agree to cooperate with Apple in this submission process and to answer questions and provide information and materials reasonably requested by Apple regarding Your submitted Application, including insurance information You may have relating to Your Application, the operation of Your business, or Your obligations under this Agreement. . . . If You make any changes to an Application (including to any functionality made available through use of the In-App Purchase API) after submission to Apple, You must resubmit the Application to Apple. Similarly all bug fixes, updates, upgrades, modifications, enhancements, supplements to, revisions, new releases and new versions of Your Application must be submitted to Apple for review in order for them to be considered for distribution via the App Store or Custom App Distribution, except as otherwise permitted by Apple. (Emphasis supplied.)

[192] All developers agree to abide by the App Guidelines, among others. PX-2619.070.

[193] PX-2790 (emphasis supplied).

the app (like email or text) encourage users to use a purchasing method other than in-app purchase."[194]

In terms of payment, Apple knew from the outset that developers would either distribute their apps for "free" or by selling them. The DPLA contained Schedules 1 and 2 to address each category, respectively.

"Free" as used here specifically means an app for which a consumer does not pay to download, and which does not sell any digital goods or subscriptions. Thus, free apps do not generate any revenue for Apple. However, some developers monetize their free app with advertising.[195] In fiscal year 2019, 83% of apps with at least one download on the App Store were free to consumers, including 76% of game apps of which there are over 300,000.[196]

On the other hand, the "freemium model" (used by *Fortnite*) is one where the initial download is "free", but revenue comes from in-app purchases or payments for upgrades. Apps which do charge for downloads or digital goods bought within an app fall under the purview of Schedule 2.

Section 3.4 of Schedule 2 provides the basic 30 percent rate and reads:[197]

> Apple shall be entitled to the following commissions in consideration for its services as Your agent and/or commissionaire under this Schedule 2:
>
> (a) For sales of Licensed Applications to End-Users located in those countries listed in Exhibit B, Section 1 of this Schedule 2 as updated from time to time via the App Store Connect site, Apple shall be entitled to a commission equal to thirty

[194] Apple's anti-steering provision as it relates to subscriptions is found in Section 3.11 of the DPLA. However, as shown herein, subscriptions are not part of the action. Other related provisions in the Guidelines include 3.1.3(a) and 3.1.3(b).

[195] Ex. Expert 6 (Hitt) ¶¶ 134, 206.

[196] Trial Tr. (Hitt) 2094:13–23; Ex. Expert 6 (Hitt) ¶¶ 156, 169.

[197] PX-2621. Section 3.4 is preceded by sections outlining the marketing and hosting agreements between Apple and the developers, albeit Apple did not guarantee any quantifiable services.

> percent (30%) of all prices payable by each End-User.[198]

Under the terms of the DPLA, "the Licensed Applications" cannot be activated until approved by Apple. For all digital purchases, Apple charges a 30% commission and only recently instituted some exceptions. Purchases which are not digitally confirmed, such as those related to physical goods, such as take-out food or Amazon purchases, do not result in a commission to Apple.

Apple does not dictate to developers how or what to price an app or how to monetize their product. However, it did impose certain parameters, namely the prices of apps need to end in $0.99 and must appear within predesignated bands. There is no evidence that this has impacted Epic Games at all or that it has created any widespread problems. Rather, plaintiff cites only to testimony of Matthew Fischer, Apple's Vice President of App Review, that developers have asked "from time to time" for more flexibility. With respect to international pricing, Apple has a single "tier" but evidence was not admitted to show any problems with the tiered system.[199]

At best, the evidence on this issue is scant and not fully developed. Mr. Fischer testified that developers have at times asked for "more flexibility to charge different prices for in-app purchases," and Apple has consistently declined.[200] Whether this is a significant issue is unknown. Certainly, Epic Games, the plaintiff here, never asked to change the pricing. The Court suspects that it is because of the common marketing view that ending a price in $0.99 conveys a bargain price to the consumer. That said, Apple did little to justify the restriction.[201] On balance, the Court finds nothing anticompetitive with these two requirements based on this record.

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[198] PX-2621. Subsection 3.4(a) proscribes a 15% rate for subscriptions which are not part of this case.

[199] Ex. Depo. 9 (Fischer) 266:16–24. Thus, Schedule 2 to the DPLA states that Apple markets third-party apps "at prices identified by [the developer] . . . from the pricing schedule attached . . . as Exhibit C." Any price changes must be "in accordance with the pricing schedule." The tiers generally require the same price across all countries; for example, a $ 0.99 tier requires the equivalent of $ 0.99 in local currency in India. PX-2621 § 3.1, Ex. C; PX-2202; Ex. Depo 12 (Gray) 26:3–5, 195:15–196:14, 206:13–207:18, 208:6–9.

[200] Ex. Depo. 9 (Fischer) 266:12–19.

[201] Apple does not directly respond but argues that currency conversion is a benefit of IAP. *See* Apple FOF ¶ 692. To the extent this true, Apple has not explained why it cannot afford more flexibility in unique circumstances. Mr. Gray testified that Apple selected 99 cent tiers based on its prior experience without apparently consulting developers. Ex. Depo. 12 (Gray) 195:24–196:14.

b. Apple's App Store as an App Transaction Platform

Having made the decision to allow third-party developers to license the tools to make "apps" for the iPhone, Apple also needed to develop a place or manner in which the developers and the users could connect. Apple wrote a series of applications, combined them all, and called it the App Store. Apple designed the App Store not only to allow third-party developers to reach consumers with their apps, but to notify customers when updates were available: "tap the Update button and [the] app will be replaced by the updated version . . . over the air, all automatically." The App Store functionality and access thereto is at the heart of the action.

Apple's late Chief Executive Order ("CEO"), Mr. Steve Jobs, recognized that the "purpose in the App Store is to add value to the iPhone" and ultimately "sell more iPhones." Apple's current Vice President of Developer Relations, Mr. Ron Okamoto, similarly acknowledged that well-known developers make Apple's platforms more attractive to users and lead them to buy Apple devices.[202] Thus, the symbiotic relationship was created.

Apple's intellectual property as it relates to the iOS ecosystem generally are significant. The record is undisputed that Apple holds approximately 1,237 U.S. patents with 559 patent applications pending. With respect to the App Store itself, Apple holds an additional 165 U.S. patents with 91 more U.S. patent applications pending. Other than these patents, Apple does not identify specifically how the rest of its intellectual property portfolio impacts the technology at issue in this case nor does it specifically justify its 30% commission based on the value of the intellectual property. It only assumes it justifies the rate.[203]

Over recent years, the evidence established that a significant portion of the App Store revenue is built upon long-term relationships between developers and consumers independent of Apple. Indeed, during a 2019-2020 presentation, Apple recognized this transition, noting that the "top monetizing game are services that entertain customers for years." Specifically, "[i]n any given month, 41% of [Apple's] monthly billings are generated from apps that were downloaded more than 180 days prior," as contrasted to 31% for apps downloaded between 30 and 180 days prior and to 28% for apps downloaded less than 30 days prior. "As a result, a significant share of our billings are generated not from apps that were just downloaded, but from apps that customers re-engage with long after the first download." Even Apple concedes that "this engagement is almost completely driven by [App Store] developers, and the App Store does not participate in a meaningful way."[204]

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[202] PX-2060.018–.019; Ex. Depo. (Okamoto) 324:04–325:10; Ex. Expert 1 (Evans) ¶ 19; Ex. Expert 8 (Schmalensee) ¶ 44.

[203] *See generally* Ex. Expert 12 (Malackowski) (noting that the intellectual property has value, but not providing any numerical value).

[204] PX-608.028.

c. Apple's Commissions Rates: 30 percent; 15 percent; recent changes

Apple's establishment of a 30% commission rate has remained static since the onset. Mr. Philip Schiller, who was there at the beginning, testified that the App Store charged the same percentage as other gaming stores, like Steam and Handango. Mr. Eddy Cue, another Apple executive, who made the pricing decision with Mr. Jobs, recognized that "[t]here wasn't really any kind of App Store" when it first launched, so Apple looked at distribution of hard goods and software instead. Because distributing hard versions of software cost 40% to 50%, lowering the commission to 30% was considered a "huge decrease" intended to "get developer really excited about participating in the platform." Importantly, and undisputed, Apple chose the 30% commission without regard to or analysis of the costs to run the App Store.[205]

Prior to 2011, users could read content from subscriptions made outside iOS, but were limited to a one-time subscription, not recurring subscriptions. In 2011, Apple expanded its functionality to allow for the sales of recurring subscriptions when purchased in the app store but required a 30 percent commission.[206] Finally, in late 2020, Apple introduced the Small Business Program. That program reduced Apple's commission to 15% for developers making less than one million dollars.[207]

Apple's implementation of the Small Business Program was spurred, in part, by the COVID-19 pandemic. However, Mr. Cook also admitted that "lawsuits and all the rest of the stuff" was "in the back of [his] head." Mr. Schiller similarly testified that the Small Developer Program began with a lot of "commentary" about "App Store's commission level," but was pushed over the edge by the pandemic. He too expressly acknowledged that the current lawsuit helped "get it done" along with "scrutiny and criticism . . . from around the world."[208]

Over time, and given Apple's success, some developers have actively complained about the 30% commission. The Court recognizes that developers have sued Apple on behalf of a class arguing that the rate is too high. Unlike those developers, Epic Games challenges the levy of *any* commission and did not offer a survey showing developers agreed with this position; only the anecdotal evidence of a couple.[209] It is logical that no developer would want to pay prices higher than is competitive or necessary. However, it is also true that, with few exceptions, not every

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[205] Trial Tr. (Schiller) 2725:23–2726:9, 2740:8–15; Ex. Depo. 8 (Cue) 135:08–136:14, 141:13–142:09.

[206] Trial Tr. (Schiller) 3183:9–3184:25.

[207] *Id.* 2810:16–2811:5.

[208] Trial Tr. (Cook) 3992:4–3993:1; Trial Tr. (Schiller) 2812:1–2813:10, 3070:13–25.

[209] The Court also makes a distinction with respect to the testimony of Ms. Wright who explicitly was *not* testifying on behalf of Microsoft. Had Microsoft wanted to weigh in; it could have.

business is entitled to have access to what is effectively shelf space if they cannot afford to pay a commission to the platform host.

While Apple's 30 percent commission began as a corollary to the 30 percent rate being charged in the gaming industry, the evidence is substantial that the economic factors driving that rate do not apply equally to Apple. Other gaming industry participants operate under a distinctly different economic model, facing different levels of competitive pressure. *See infra* Facts § II.D.2–4. For example, unlike those in the computer gaming market, nothing other than legal action seems to motivate Apple to reconsider pricing and reduce rates.[210]

4. *Apple's Management of Apps – App Guidelines*

Initially, Apple envisioned the App Store as a highly curated selection of apps. With only 500, then 25,000, apps in its initial collection, the vision was achievable.[211] As the number of apps skyrockets, Apple strains in its claim that the current version of the App Store promises the same curated product. Though Apple has removed over 2 million outdated apps, and rejected those not meeting the Guidelines, the App Store still another contains 2 million apps of which over 300,000 are games.[212]

Curation in the current era merely means that an app must comply with the App Guidelines, first published in 2010. Some of the Guidelines are not reasonably controversial.[213] For instance, Apple will not authorize certain apps such as porn, malicious apps, 'unforeseen' apps, apps that invaded one's privacy, illegal apps, and even bandwidth hog[s].[214] Epic Games claims that Apple's efforts in this regard are substandard, raising concerns regarding the effectiveness and quality of the current review process. Unfortunately, Epic Games only scratched the surface and did not provide particularly compelling evidence of its perspective.[215]

Missing from the record is any normative measure of what standard guidelines should be. Perfection is not practical nor the business norm. Internal documents show that Apple responded to developers who were complaining of the time for reviewing of apps and updates. Apple

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[210] The Court is aware of the additional, and unchallenged, concerns relating to money laundering, fraud, and other risks that Apple debated in terms of changing the commission. Trial Tr. (Schiller) 2813:11–2814:7; PX-2390.200. While valid, at least with respect to money laundering, the reference point was 15% which is half the static 30% commission rate.

[211] PX-0880.020; Trial Tr. (Schiller) 2754:7–8; 2785:15–25.

[212] Trial Tr. (Schiller) 2833:25–2834:2; 2846:11–2847:24.

[213] PX-0056A; Trial Tr. (Schiller) 2833:25–2834:2.

[214] PX-2619, § 3.3.20, 3.3.21, 3.3.26, 3.3.29.

[215] For instance, Epic Games spent considerable time arguing that numerous apps were, in fact, porn. Upon further review, while salacious, the proffer was devoid of merit and merely emphasized the lack of evidence on this point.

promises in its Service Level Agreement to complete a review of an app quickly: 50 percent within 24 hours and 90 percent within 48 hours. Apple claims that it is completing 96 percent of the reviews within 24 hours.[216] Anecdotal evidence from Mr. Benjamin Simon, President and CEO of Down Dog, suggests that those statistics are skewed but there was no further exploration on the topic.

The App Guidelines address issues of safety, privacy, performance, and reliability. The fact that the Guidelines are not static does not raise per se concerns because the issues are similarly non-static.[217] Evidence exists to show that the Guidelines are used in appropriate ways for appropriate purposes. *See infra* Facts § V.A.2.a.ii. For instance, Apple proactively requires, much to some developers' chagrin, measures to protect data security,[218] privacy, data collection and storage.[219] The data collection and disclosure requirements are not insignificant. They

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[216] Trial Tr. (Kosmynka) 1110:10–1111:2; Trial Tr. (Federighi) 3467:11–24, 3502:23–3504:15.

[217] PX-0056A.100 ("This is a living document, and . . . may result in new rules at any time."); PX-0056; PX-2790; Trial Tr. (Fischer) 947:6–14 ("We do change the guidelines."); Trial Tr. (Kosmynka) 984:14–16; Trial Tr. (Schiller) 2833:15–21 ("They are modified at least yearly, sometimes more than once in a year.").

[218] Section 1.6 states that "[a]pps should implement appropriate security measures to ensure proper handling of user information collected pursuant to the Apple [DPLA] and these Guidelines (see Guideline 5.1 for more information) and prevent its unauthorized use, disclosure, or access by third parties." PX-2790.005.

[219] 5.1.1 Data Collection and Storage:

(i) Privacy Policies: All apps must include a link to their privacy policy in the App Store Connect metadata field and within the app in an easily accessible manner. The privacy policy must clearly and explicitly:

- Identify what data, if any, the app/service collects, how it collects that data, and all uses of that data.
- Confirm that any third party with whom an app shares user data (in compliance with these Guidelines) — such as analytics tools, advertising networks and third-party SDKs, as well as any parent, subsidiary or other related entities that will have access to user data — will provide the same or equal protection of user data as stated in the app's privacy policy and required by these Guidelines.
- Explain its data retention/deletion policies and describe how a user can revoke consent and/or request deletion of the user's data.

(ii) Permission Apps that collect user or usage data must secure user consent for the collection, even if such data is considered to be anonymous at the time of or immediately following collection. Paid functionality must not be dependent on or require a user to grant access to this data. Apps must also provide the customer with an easily accessible and understandable way to withdraw consent. Ensure your purpose strings clearly and completely describe your use of the data. Apps that collect data for a legitimate interest without consent by relying on the terms of the European Union's General Data Protection Regulation ("GDPR") or

similar statute must comply with all terms of that law. Learn more about Requesting Permission.

(iii) Data Minimization: Apps should only request access to data relevant to the core functionality of the app and should only collect and use data that is required to accomplish the relevant task. Where possible, use the out-of process picker or a share sheet rather than requesting full access to protected resources like Photos or Contacts.

(iv) Access: Apps must respect the user's permission settings and not attempt to manipulate, trick, or force people to consent to unnecessary data access. For example, apps that include the ability to post photos to a social network must not also require microphone access before allowing the user to upload photos. Where possible, provide alternative solutions for users who don't grant consent. For example, if a user declines to share Location, offer the ability to manually enter an address.

(v) Account Sign-In: If your app doesn't include significant account-based features, let people use it without a log-in. Apps may not require users to enter personal information to function, except when directly relevant to the core functionality of the app or required by law. If your core app functionality is not related to a specific social network (e.g. Facebook, via another mechanism. Pulling basic profile information, sharing to the social network, or inviting friends to use the app are not considered core app functionality. The app must also include a mechanism to revoke social network credentials and disable data access between the app and social network from within the app. An app may not store credentials or tokens to social networks off of the device and may only use such credentials or tokens to directly connect to the social network from the app itself while the app is in use.

(vi) Developers that use their apps to surreptitiously discover passwords or other private data will be removed from the Developer Program.

(vii) SafariViewController must be used to visibly present information to users; the controller may not be hidden or obscured by other views or layers. Additionally, an app may not use SafariViewController to track users without their knowledge and consent.

(viii) Apps that compile personal information from any source that is not directly from the user or without the user's explicit consent, even public databases, are not permitted on the App Store.

(ix) Apps that provide services in highly-regulated fields (such as banking and financial services, healthcare, gambling, and air travel) or that require sensitive user information should be submitted by a legal entity that provides the services, and not by an individual developer.

5.1.2 Data Use and Sharing

(i) Unless otherwise permitted by law, you may not use, transmit, or share someone's personal data without first obtaining their permission. You must provide access to information about how and where the data will be used. Data collected from apps may only be shared with third parties to improve the app or serve advertising (in compliance with the Apple Developer

require user consent, minimization, and affirmative permissions. These specifications place the customer's concerns ahead of the developers and are on the forefront of protecting user data; measures not all developers embrace, especially where they want to monetize that data. Epic Games claims that these restrictions inhibit their ability to service customer needs. Both perspectives contain a measure of truth. However, the latter is less persuasive because the servicing is an option **after** the customer consents, while the alternative would mean that data is collected and used without the customer knowing.

Tangentially related is the App Guidelines' approach to cloud-based game streaming which is discussed below with respect to market definition. *See infra* Facts § II.D.3.d. The evidence on this front post-dated the filing of this lawsuit. Thus: in September 2020, Apple modified the Guidelines to allow for the inclusion of game streaming apps, but only if each streamed app is made available as a separate app on the App Store.[220] Nvidia, Microsoft, and Google sought to launch their game streaming services as native iOS apps before Apple modified its Guidelines, but all three were rejected by Apple.[221] None of these services chose to subsequently launch separate iOS apps—one per streamed game—as required by the new App Guidelines.[222] Craig Federighi, Apple's Senior Vice President of Software Engineering, testified that there are currently no streaming apps for game apps on the App Store.[223] Apple allows entertainment apps such as video and music apps to stream. The restriction only applies to gaming.

Program License Agreement.). Apps that share user data without user consent or otherwise complying with data privacy laws may be removed from sale and may result in your removal from the Apple Developer Program.

(ii) Data collected for one purpose may not be repurposed without further consent unless otherwise explicitly permitted by law.

(iii) Apps should not attempt to surreptitiously build a user profile based on collected data and may not attempt, facilitate, or encourage others to identify anonymous users or reconstruct user profiles based on data collected from Apple-provided APIs or any data that you say has been collected in an "anonymized," "aggregated," or otherwise non-identifiable way.

[220] PX-0056.180 ("Each streaming game must be submitted to the App Store as an individual app so that it has an App Store product page, appears in charts and search, has user rating and review, can be managed with ScreenTime and other parental control apps, appears on the user's device, etc.").

[221] Trial Tr. (Patel) 438:24–439:15; Trial Tr. (Wright) 534:18–535:8; PX-2048.100 ("Stadia by Google has been rejected by ERB"); PX-2109.100 ("NVIDIA GeForce NOW has been rejected by ERB").

[222] Trial Tr. (Patel) 440:25–441:4; Trial Tr. (Wright) 650:15–651:6.

[223] Trial Tr. (Federighi) 3490:4–6.

Epic Games raises legitimate concerns regarding some of the consequences of Apple's App Guidelines and its refusal to share control of data absent customer agreement.

First, Apple does a poor job of mediating disputes between a developer and its customer. Consumers do not understand that developers have effectively no control over payment issues and or even access to consumers' information. Consequently, it can be frustrating for both sides when issues arise relating to the inability to issue and manage the legitimacy of requests for refunds.[224]

With respect to refunds, the DPLA gives Apple "sole discretion" to refund a full or partial amount of user purchases. When developers want to refund a customer purchase, they must contact Apple or tell the customer to contact Apple, which independently "evaluate[s] that situation."[225] Thus, developers lack the ability to provide refunds and have worse customer service as the result. For example, Match Group's Operations Vice-President testified that Apple prevents Match Group from implementing its preferred refund policy or tailoring refunds to users' history, which leads to poor experiences with its products and hurts its brand.[226]

Moreover, because Apple lacks visibility into the transaction, it has created overly simplistic rules to issue refunds which can also increase fraud.[227] For example, apps have suffered from return fraud, where the customer enjoys or resells content and then obtains a refund by providing false information. Prior to 2020, Apple did not even provide developers with information that a refund had been issued, and they had no ability to remove the refunded feature to prevent its further use. Mr. Schiller explains that Apple has this requirement because customers "want to reach out to us when they have a problem with the developer and want a refund."[228] That explanation is plausible if the developer caused the issue that requires a refund. However, if the refund arises from a general customer service issue, the developer is likely better

[224] Trial Tr. (Simon) 369:23–373:3.

[225] PX-2621.600; Ex. Depo. 12 (Gray) 126:6–127:5, 128:2–25.

[226] Ex. Depo. (Ong) 34:10–36:23, 48:17–51:06, 162:03–22; Trial Tr. (Sweeney) 91:24–92:7; Trial Tr. (Simon) 372:9–373:3; Ex. Depo. 12 (Gray) 128:8–25. Mr. Simon provides another example: Down Dog has a generally lenient refund policy that provides frequent exceptions, such as for health workers and users who liked a feature that was deprecated. Apple's approach is stricter and more uniform, which prevents Down Dog from implementing its preferred policy. Trial Tr. (Simon) 370:2–373:17.

[227] Apple employees have acknowledged that this "causes some customers to be treated unfairly while also allowing for fraudulent claims to be refunded." PX-2189.100.

[228] Trial Tr. (Schiller) 2798:24–2799:11.

suited to address the issue. Although Apple introduced new tools to address this issue in 2020, it did so only after years of complaints.[229]

Apple argues that its policies protect consumers against fraudulent attacks. The data is far from clear. What is certain is Apple's decision prohibits information from flowing directly to the customer so that customers can make these choices themselves.

Second, Epic Games argues that the lack of direct connection to consumers impacts a developer's ability to obtain key analytics, such as "real-time reporting about its customers' spending behavior." While Epic Games may profit from having "real-time reporting" about an individual spending behavior, ample evidence shows that Epic Games already reaps immense profits from impulse purchasing. Little societal value exists in allowing plaintiff to capitalize on more customer data to exploit customer habits.

Other examples, however, seem more legitimate such as Match Group's desire to obtain the information to run registered sex offender checks and age verification. Mr. Ong attributes this fact to a "one-size-fits-all" approach that prevents it from building safety features "that are relevant to [its] users." In truth, the evidence is more mixed with a split among developers regarding the amount and usefulness of certain information with respect to analytics.[230] As noted, the issue is double-edged as it impacts user privacy.

5. *App Store Operating Margins*

Plaintiff's expert, Ned Barnes, through both reverse engineering and review of documents from Tim Cook's files, calculated operating margins to be over 75% for both fiscal years 2018 and 2019.[231] Mr. Barnes explained:

> Operating margin measures the profitability of a business or business segment by calculating the excess of revenue over costs. It is defined as net revenue (or sales) minus both (i) costs of goods sold ("COGS") and (ii) operating expenses ("OPEX") such as selling, general and administrative expenses, and research and development ("R&D") expenses. Operating margin percentage is calculated by dividing the nominal amount of operating margin dollars by the nominal amount of net revenue.[232]

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[229] Ex. Depo. 12 (Gray) 146:8–147:20, 150:15–151:05; Trial Tr. (Schiller) 2799:17–2800:11; PX-2062 (complaints in 2018).

[230] Ex. Depo. (Ong) 169:24–173:19; Trial Tr. (Sweeney) 128:22–24; PX-2362.300; Ex. Expert 8 (Schmalensee) ¶ 150; Ex. Expert 11 (Rubin) ¶ 127; DX-3922.106.

[231] Ex. Expert 2 (Barnes) ¶¶ 2, 4, 5.

[232] *Id.*

In addition, Mr. Barnes reviewed internal documents reflecting profit and loss ("P&L") statements specific to the App Store and presented to Apple executives. These documents support Mr. Barnes' independent conclusions.[233] Other documents indicate that at least by fiscal year 2013, the margin percentages exceeded 72%.[234]

Apple counters that it does not maintain profit and loss statements for individual divisions and that Mr. Barnes' analysis is inaccurate. The Court disagrees with the latter. Mr. Barnes made appropriate adjustments based on sound economic principles to reach his conclusions. Apple's protestations to the contrary, notwithstanding the evidence, shows that Apple has calculated a fully burdened operating margin for the App Store as part of their normal business operations. Apple's financial planning and analysis team are tracking revenues, fixed and variable operating costs, and allocation of IT, Research & Development, and corporate overheads to an App Store P&L statement. The team's calculation was largely consistent with that of Mr. Barnes. Although there are multiple ways to account for shared costs in a business unit, the consistency between Mr. Barnes' analysis and Apple's own internal documents suggest that Mr. Barnes' analysis is a reasonable assessment of the App Store's operating margin.

However, when Mr. Barnes extended the analysis to compare his findings to other online stores, he chose poorly. Mr. Barnes analyzed the operating margins for the following online stores for the years spanning 2013 to 2019, finding operating margin percentages ranging approximately as follows: eBay (20-30 percent), Etsy (-3.2 to 12 percent), Alibaba (29-50 percent), MercardoLibre (-6.7 to 32 percent), and Rakuten (8-17 percent).[235] All of these pale in comparison to Apple, but none are driven by the same digital transactions as exist here.

While Mr. Barnes' choice is understandable,[236] he did not compare Apple with the Google Play app store, Sony PlayStation Store, Microsoft Store, Samsung Galaxy Store, and Nintendo eShop.[237] Mr. Barnes notes that these entities claim, like Apple, that they do not report sufficiently separate financial results for their app store activities. It is not clear whether sufficient public information exists to reverse engineer for these companies in the same way he reverse-engineered for Apple.

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[233] *Id.*

[234] *Id.* ¶ 9.

[235] *Id.* ¶ 22.

[236] Mr. Barnes used the following "criteria" to choose the comparators: "online marketplace firms" that "(i) primarily generate online marketplace revenues from commissions and fees earned from transactions involving third-party merchants rather than as a direct seller of goods; (ii) publicly reported financial statements; (iii) at least five years of available financial statements; (iv) marketplace activities sufficiently distinguishable in operating results; and (v) profitable marketplace operations in at least one year of the last five years." *Id.* ¶ 23.

[237] *Id.* ¶ 24.

Notwithstanding Mr. Barnes' choice to compare the App Store's operating margins to those other online stores, under any normative measure, the record supports a finding that Apple's operating margins tied to the App Store are extraordinarily high. Apple did nothing to suggest operating margins over 70% would not be viewed as such. As discussed below, the record also shows that the bulk of the revenues generating those margins come from in-app purchases in gaming apps.

6. *App Store Revenues From Mobile Gaming*

As highlighted at the outset of this Order, pivotal evidence in this case reveals that gaming transactions are driving the App Store. Given the critical nature of this evidence, the Court unseals the following evidence from 2017 and sufficient evidence from the following years to make key findings. The specifics are referenced in the footnotes below and sealed to the general public. Suffice it to say, the trends increase in an upwards trajectory.

Games have played an integral part of the App Store since at least 2016. In 2016 for instance, despite game apps only accounting for approximately 33% of all app downloads, **game apps nonetheless accounted for 81% of all app store billings that year**.[238] Further, based on Apple's internal records, 2017 gaming revenues overall accounted for 76% of Apple's App Store revenues. These commissions are substantially higher than average due to the prevalent and lucrative business model employed by most game developers. Specifically, game apps are disproportionately likely to use in-app purchases for monetization.[239]

Importantly, spending on the consumer side is also primarily concentrated on a narrow subset of consumers: namely, exorbitantly high spending gamers.[240] In the third quarter of 2017, high spenders, accounting for less than half a percent of all Apple accounts, spent a "vast majority of their spend[] in games via IAP" and generated 53.7% of all App Store billings for the quarter, paying in excess of $450 each. In that same quarter, medium spenders ($15-$450/quarter) and low spenders (<$15/quarter), constituting 7.4% and 10.8% of all Apple accounts, accounted for 41.5% and 4.9% of all App Store billing, respectively. The remaining

[238] DX-4399.008.

[239] Ex. Expert 6 (Hitt) ¶¶ 117, 120–124; DX-4178.006; PX-0059.007; DX-0608.012 (2019); Trial Tr. (Schmid) 3226:8. The actual numbers can be found in the sealed exhibits and need not be repeated in this Order.

[240] From what little evidence there is in the record, these consumers frankly appear to be engaging in impulse purchasing and both parties' profits from this sector are significant. This specific conduct is outside the scope of this antitrust action, but the Court nonetheless notes it as an area worthy of attention.

81.4% of all Apple accounts spent nothing and account for zero percent of the App Store billings for the quarter.[241] The trend has largely continued to the present.[242]

This trend is also mirrored within the App Store's games billings. Indeed, Apple has recognized that "[g]ame spend is highly concentrated" among certain gaming consumers. Similar to the above statistics, 6% of App Store gaming customers in 2017 accounted for 88% of all App Store game billings and were gamers who spent in excess of $750 annually. Breaking down this 6% population:

- High spenders, accounting for 1% of iOS gamers, generated 64% of game billings in the App Store, spending on average $2,694 annually;
- Medium-high spenders, accounting for 3% of iOS gamers, generated 20% of game billings in the App Store, spending on average $373 annually; and
- Medium spenders, accounting for 2% of iOS gamers, generated 4% of game billings in the App Store, spending on average $104 annually.

Indeed, in strategizing on the development of the App Store and Apple's gaming business, Apple noted that it "need[s] to primarily consider how [its] service[s] would impact engagement and spend of this 6%."[243] Thus, in most economic ways, and in particular with respect to the challenged conduct, the App Store is primarily a *game* store and secondarily an "every other" app store.

II. REVIEW OF PARTIES' PROPOSED PRODUCT MARKET AND FINDING

The Court reviews the factual basis for each of the three proffered product markets. Epic Games offers two aftermarkets, namely (i) an aftermarket for the distribution of iOS apps and (ii) an aftermarket for payment processing for iOS apps. The foremarket for each hinges on the existence of a market for operating systems for smartphones.[244] Apple proposes a market for digital games transactions. The Court outlines the evidence for each in turn.

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[241] *See* DX-4399.019–.020. Even within this general spend data, Apple's presentation suggests slides later that the high level of spend derives primarily from gaming apps. Indeed, a few pages later, Apple notes the top grossing apps for 2016, and states: "Not only are these all games, but they're freemium games, meaning they're free to download, and you spend money using In-App Purchases to get more features or levels." DX-4399.024.

[242] *See* PX-2302.046–.047. Coincidentally, the percentage of consumers that pay nothing almost mirrors the same percentage of free apps available in the App Store.

[243] *See* PX-2176.176. The Court notes that the limited evidence in the record as to Google Play show that it too is similarly built on gaming transactions and a narrow subset of high spending gaming consumers and game developers. *See* DX-3913.004–.013.

[244] A "foremarket" is "a market in which there is competition for a long-lasting product" from which "demand for a second product" derives. An "aftermarket" is the "market for the

A. Epic Games: Facts Relevant to Foremarket for Apple's Own iOS

Before reviewing each of the proposed markets, the Court considers whether Apple's operating system should be viewed as a foremarket. The Court finds that it should not.

As a threshold matter, Apple urges the Court to disregard Epic Games' market definition on pleading grounds. Said differently, Epic Games did not explicitly use the terms "foremarket" and "aftermarket" in its complaint to outline its market theories. The Court agrees that Epic Games could have been more clear. Ultimately though, Apple's argument elevates form over substance. Apple was on notice and litigated the matter.[245] Courts prefer to rule on the merits of claims rather than disregard on procedural grounds.

In terms of substance, the Court agrees with Dr. Schmalensee that plaintiff's identification of a "foremarket" for Apple's own operating system is "artificial." The proposed foremarket is entirely litigation driven, misconceived, and bears little relationship to the reality of the marketplace.[246] Quite simply, it is illogical to argue that there is a market for something that is not licensed or sold to anyone.[247] Competition exists for smartphones which are more than just the operating system.[248] Features such as battery life, durability, ease of use, cameras, and performance factor into the market.[249] Consumers should be able to choose between the type of ecosystems and antitrust law should not artificially eliminate them.[250] In essence, Epic Games ignores these marketplace realities because, as it presumably knows, Apple does not have market

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second product." Ex. Expert 1 (Evans) ¶ 40. As an example, razors are the foremarket for disposable razor blades which is the aftermarket. *Id.*

[245] *See* Compl. ¶¶ 156–183. The Court also addressed this issue in its preliminary injunction opinion, *Epic Games, Inc. v. Apple Inc.*, 493 F. Supp. 3d 817, 835–38 (N.D. Cal. 2020).

[246] Ex. Expert 8 (Schmalensee) ¶¶ 6, 61.

[247] Trial Tr. (Schiller) 2723:18–2725:2.

[248] *Id.* 2725:9–21.

[249] DX-4089.010, .035, .037.

[250] *See, e.g.*, Trial Tr. (Cook) 3932:21–3933:6, 3937:12–20, 3987:18–25; Trial Tr. (Federighi) 3363:17–20, 3392:12–20. Mr. Sweeney, an iPhone user himself, admitted that he found Apple's approach to privacy and customer data security superior to Google's approach to customer privacy and customer data. Trial Tr. (Sweeney) 302:22–303:4. Mr. Sweeney further agreed that "if Apple were to compromise those fundamental differentiators,"—which the Court notes are more than the operating system—Apple may lose a competitive advantage over Android, depending on those changes. *Id.* 303:11–16; Trial Tr. (Athey) 1823:2–9 (agreeing that "privacy and security are competitive differentiators for Apple").

power in the smartphone market. Rather Apple only has 15 percent of global market share in 2020.[251]

B. Epic Games: iOS App Distribution Aftermarket

Given the Court's rejection of the foremarket theory, the aftermarket theory fails as it is tethered to the foremarket. Although the Court rejects plaintiff's foremarket construct, it nonetheless discusses additional factual problems with the aftermarket theory given plaintiff's focus on those issues. In effect, plaintiff really urges a single-brand analysis because Apple's exclusionary conduct impacts Epic Games' ability to compete in that space, both with respect to gaming and non-gaming apps.

Plaintiff claims that an aftermarket exists for four reasons. Each reason is tied to the known legal framework in which antitrust cases are litigated and which is discussed in the legal section below. That said, the four reasons are: One, the foremarket and aftermarket are related but two separate markets. Two, there are restraints in the aftermarket which are not in the foremarket. Three, the source of Apple's market power stems from its walled garden; not because of separate contractual agreements with consumers. Four, competition in the initial market does not discipline Apple's market in the proposed aftermarket.[252]

In terms of the trial record, the factual disputes reside in plaintiff's fourth reason which the Court addresses in this part of the Order. More specifically, the Court addresses Epic Games' evidence of (1) switching costs and alleged lock-in and (2) substitution.[253] The Court also considers Epic Games' argument as to whether the Court should consider all apps or only gaming apps.

1. *Evidence of Switching Costs and Alleged "Lock-in"*

Beginning with the switching costs[254] and alleged "lock-in," the Court considers Epic Games' proffer based on Apple's internal documents, expert testimony, and consumer knowledge, as well as Apple's rebuttal evidence.[255]

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[251] Ex. Expert 8 (Schmalensee) ¶ 64.

[252] Epic Games COL ¶¶ 84–93.

[253] Epic Games FOF ¶ 218; Trial Tr. (Evans) 1507:10–1510–11, 1512:3–22.

[254] Switching costs are "obstacles of moving from one product to another product." Trial Tr. (Evans) 1494:23–24. In other words, it is the costs born by leaving one platform to go to a different platform.

[255] Apple FOF ¶ 399; *see* Trial Tr. (Schmalensee) 1930:3–14; Ex. Expert 6 (Hitt) ¶ 211.

a. Apple Documents

Starting with Apple documents, Epic Games cites emails showing that Apple executives were aware of the impact of switching costs from iOS to Android. For instance, a 2013 email from Eddy Cue to Tim Cook and Phil Schiller recommends using iTunes discounts (as opposed to device discounts) because "[g]etting customers using our stores . . . is one of the best things we can do to get people hooked to the ecosystem." The email asks: "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 where they are today."[256]

Next, is an email chain from March 2016 illustrating the debate around iMessage.[257] In the email, a customer describes his experience between Google and Apple devices and provides a laundry list to both Google and Apple of the pros and the cons of each device. In advising Google of his decision to remain with Apple, he concluded with the note that "the #1 most difficult [reason] to leave the Apple universe app is iMessage" which led him to use a combination of Facebook, WeChat, WhatsApp and Slack. For him, "iMessage amounts to serious lock-in." In forwarding the email to Apple executives, they were internally advised "FYI – we hear this a lot." Phil Schiller then advised Tim Cook that "moving iMessage to Android will hurt us more than help us . . . ."[258] Later, in October 2016, Mr. Schiller circulated to other Apple executives a Verge article entitled "iMessage is the glue that keeps me stuck to the

[256] PX-0404.

[257] iMessage is Apple's text messaging service that shows a blue bubble for texts sent from iOS devices (and allows for additional functionality) while displaying a green bubble for non-iOS devices without the same functionality.

[258] PX-0416.

iPhone."[259] Despite hours on the stand, plaintiff never explored this topic with Mr. Schiller other than to confirm receipt of the third-party emails.[260]

On balance, the Court reads the emails to suggest that Apple sought to compete by distinguishing their product, and in the process, making its platforms "stickier." That, however, is not necessarily nefarious. Every business seeks to decrease switching away from its products. Epic Games' executives, for instance, used the word "lock-in" to refer to price cuts that make it easier for users to play *Fortnite* in a hard economy. Here, the features that create lock-in also make Apple's products more attractive. Whether the conduct is procompetitive depends on other factors, including timing and whether the stickiness is at least partly tied to product attractiveness which can then decrease if the products become less attractive (for instance, through higher game prices).[261] This evidence is not persuasive of switching costs on its own.

b. Dr. Susan Athey

Next, Epic Games relies on expert testimony by Dr. Susan Athey who provides high-level, and largely theoretical, testimony about various costs incurred during switching from iOS to Android devices.[262] Unfortunately, Dr. Athey makes no effort to determine from consumers themselves whether they are motivated by loyalty and product satisfaction or because of switching costs. She conducted no original surveys. Nor does she attempt to measure the switching costs and analyze literature about their magnitude. Indeed, Dr. Athey does not cite *any evidence* beyond a news article, a European journal, and a biography of Steve Jobs. Nor did she

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[259] Again, the statements themselves are hearsay and are considered for a limited purpose of state of mind and not for whether iMessage actually creates lock-in for the customer base as text messages can be shared between iOS devices and Android. *See* PX-0079 (third-party Goldman Sachs Group, Inc. analysis); PX-2356; Trial Tr. (Schiller) 2981:6–2982:25.

Epic Games also cites other documents, but the import of those documents is far less clear. For instance, a 2019 email from Mr. Federighi discusses eliminating user-entered passwords in favor of Sign in with Apple, which would make the platform more "sticky." PX-0842. However, the context of the email concerns protecting users from spam, and it immediately notes factors that undermine that stickiness, such as "heavy" use of Chrome. *Id.*; *see also* Trial Tr. (Schiller) 3169:7–22 (explaining desire to protect users from spam). Another document shows Steve Jobs discussing tying different products together to "lock" customers into the ecosystem. PX-0892. Again, that is indistinguishable from simply making the ecosystem more attractive. *See* Trial Tr. (Schiller) 2864:7–15.

[260] PX-0416; Trial Tr. (Schiller) 3173:11–16, 3174:4–16.

[261] Trial Tr. (Weissinger) 1433:19–1434:16; *see, e.g.*, Trial Tr. (Cook) 3870:16–21; Trial Tr. (Schiller) 2864:16–19. Evidence shows that switching costs have decreased since the early 2010's through increased cross-platform functionality and "middleware," a term which does not exist in economic literature and which Dr. Athey created. Trial Tr. (Athey) 1782:7–1783:1, 1805:5–1806:22, 1809:17–1810:11.

[262] *See generally* Ex. Expert 4 (Athey); Ex. Expert 1 (Evans).

analyze additional evidence or perform original analysis when forming her opinion. As such, the Court is left entirely in the dark about the *magnitude* of the switching costs and whether they present a meaningful barrier to switching *in practice*. There is simply no independent data to show that switching costs create meaningful lock-in.[263]

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[263] Trial Tr. (Athey) 1777:18–24, 1794:12–1795:3, 1813:22–1814:11, 1815:11–1816:2, 1870:10–15.

Apple moves to strike Dr. Athey's opinions under Federal Rule of Evidence 702(b). Dkt. No. 721. Epic Games responds that Apple waived its objections by stipulating to the admission of expert "written direct testimony" (Dkt. No. 510) and "unadmitted materials within the scope of Rule 703" relied on by the experts (Dkt. No. 635). Epic Games further contends that Dr. Athey disclosed her opinions in her report and that she may testify "solely or primarily on experience" if she "explain[s] how that experience leads to the conclusions reached, why that experience is a sufficient basis for the opinion, and how that experience is reliable applied to the facts." Fed. R. Evid. 702 advisory committee note to 2000 Amendments ("Adv. Committee Note").

While the Court does not strike the opinion, the Court agrees with Apple that the opinion's basis is weak. Epic Games conflates the requirements of Rule 703, Rule 702, and discovery. Rule 702(b) asks "whether the expert considered enough information to make the proffered opinion reliable," while Rule 703 asks whether the data considered itself is "of a type that is reliable." *See* 29 Charles Alan Wright & Arthur R. Miller, *Federal Practice & Procedure* § 6268 (2d ed.). Federal Rule of Civil Procedure 26(a)(2)(B)(ii) further requires that an expert set forth "the facts or data considered by the [expert] in forming" the opinions in her report.

Here, Dr. Athey does not explain how her experience provides a *sufficient* basis for her sweeping conclusions. This is not a handwriting case where an expert opines that two writings are the same based on experience. It is a complex antitrust case that requires consideration of economic data. Unexplained academic and industry experience simply does not provide sufficient basis to draw reliable conclusions. Moreover, to the extent that Epic Games asks the Court to rely on Dr. Athey's general research, such research should have been disclosed in the report so that the Court and opposing party could evaluate it.

Nevertheless, the Court recognizes that the procedural posture of this case was unique. The Court ordered that no *Daubert* motions be made in advance of the bench trial given the expedited schedule and the fact that the Court had to read and review the submission in any event. Context was helpful. That said, many issues were litigated during the course of the bench trial and Apple did stipulate to the admission of Dr. Athey's testimony. Dr. Athey apparently relied on additional sources in her expert report (which she did not cite in her written direct testimony). The Court considers her opinions, but as discussed, given the lack of data, the Court does not give those opinions much weight.

While the Court finds Dr. Athey well-intentioned, the lack of data upon which she bases her opinion leaves the Court with little objective reason to accept her theory.[264] Moreover, the market is responding, *i.e.*, both Google and Apple are creating easier paths to convert customers from the other and deal with the switching costs.[265] The Court can agree that it takes time to find and reinstall apps or find substitute apps; to learn a new operating system; and to reconfigure app settings. It is further apparent that one may need to repurchase phone accessories. That said, by ignoring the issue of customer satisfaction, Epic Games has failed to convince. The Court warned the parties in advance that actual data was an important consideration.

Accordingly, the expert testimony from Dr. Athey is wholly lacking in an evidentiary basis and does not show *substantial* switching costs enough to create user lock-in for iOS devices.

c. Consumer Knowledge and Post Purchase Policy Changes

From a broad perspective, Epic Games did not conduct any analysis of whether consumers know that they are buying into a walled garden. Apple argues that its business is successful precisely because of the reliability and security creating the walled garden on the iOS devices and on which it competes (discussed below). Without a consumer survey, there is no evidence that consumers are *un*aware of walled garden before purchasing the smartphone. Thus, there is no "bait-and-switch."

Plaintiff strains on the policy-change argument. Here Epic Games argues that Apple has changed its stated policy with respect to the commissions and thereby "lock-in" consumers and developers. The assertion is based upon two comments. The first occurred in 2008 by Steve Jobs when the App Store was launched by stating that the 30% commission was intended to "pay for running the App Store" and that Apple would be "giving all the money to the developers." The second occurred in 2011 when Phil Schiller noted in an internal email that "once we are making over $1B a year in profit from the App Store, is that enough to then think about a model where we ratchet down from 70/30 to 75/25 or even 80/20 if we can maintain a $1B a year run rate?"[266] Plaintiff claims the 30% commission rate constitutes a change in policy as compared against those two comments.

Plaintiff's argument is not grounded in legal principles. The two noted informal statements do not create a policy, especially in light of a written contract, much less one which shows the 30% is a change. However, the Court does agree that the comments confirm that the 30% is not tied to anything in particular and can be changed. Moreover, it shows that Apple used other provisions to hide information on those commission rates from the consumers,

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[264] Last, Dr. Athey describes "mixing-and-matching" costs that users incur when trying to use devices from different ecosystems together. Dr. Evans reiterates some of this analysis in his testimony, but again, the data is weak. Ex. Expert 4 (Athey) ¶¶ 20–23; Ex. Expert 1 (Evans) ¶¶ 83–88; Trial Tr. (Evans) 1495:5–1497:3; Trial Tr. (Athey) 1755:6–1763:24.

[265] DX-3084A.022; Trial Tr. (Cook) 3867:12–3870:1, 3886:19–3887:5; DX-5573.

[266] PX-0880.021, .027; PX-0417.001.

presumably to hide the profitability of the transactions, namely the use of anti-steering provisions. Without information, consumers cannot have a full understanding of costs.[267]

d. Apple's Rebuttal Evidence

Apple introduces rebuttal evidence that low switching stems from satisfaction with Apple devices and services.

First, Apple emphasizes that consumers do switch from iOS to Android. Although the timeline for switching smartphones is longer than a few years, as many as 26% of smartphone users, including 7% of iPhone users, purchase a cellphone with a different operating system each cycle. Industry surveys suggest that iOS users are not per se "closed off" to considering Android when making decisions.[268]

Second, Apple cites consumer surveys that the lack of switching is due to consumer satisfaction with iOS. A Google survey shows that 64% of iOS users would not switch to Android simply because they "prefer iOS," which is the number one reason for not switching. Another survey shows that users who *do* switch from Android to iOS do so because they liked the speed and reliability provided by iPhones. Other surveys show high rates of satisfaction with iOS devices.[269] This evidence is significant not only because it was not litigation driven, but because Epic Games does not provide its own consumers surveys to show that users fail to switch even when they are dissatisfied with app price, quality, or availability. Thus, Apple's evidence strongly suggests that low switching between operating systems stems from overall satisfaction with existing devices, rather any "lock-in."

Comparing and weighing the parties' proffers, the Court finds that Epic Games failed to prove that users are "locked-in" or would not switch to Android devices in response to a significant change in game app prices, availability, or quality.[270]

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[267] Trial. Tr. (Evans) 1509:11–17; Ex. Expert 1 (Evans) ¶ 118.iv. The Court rejects the notion that Apple must affirmatively give consumers an estimate of the "amount of money a consumer spends on apps over the lifecycle of an iPhone," especially given that consumers appear to be in different categories of spending. *See* Epic Games FOF ¶ 221.a. That is different from enforcing silence regarding commission costs.

[268] DX-4310.012; Ex. Expert 6 (Hitt) ¶ 209; DX-3598.027.

[269] DX-3598.027; DX-3441.006–.007. Of course, the Apple survey cuts both ways. Consumers who switched from Android to iOS did so for hardware reasons, such "speed," "quality device construction," and "battery"—not app quality, price, or availability. This reinforces Dr. Evans' point that apps are a secondary consideration when purchasing a smartphone and would not lead to switching by themselves. *See also* DX-4312.043; DX-4495.044.

[270] As a corollary, without proof of customers lock-in, the notion that developers would not switch to maintain that customer base is by definition also not proved.

2. *Substitutes*

In terms of substitutes given the business realities of the market, the parties' arguments hinge on their own respective definitions of the market. Epic Games spends little time on this issue with respect to its definition. For Epic Games, there is an aftermarket for iOS app distribution for which there is no substitute as it occupies the entire field.[271]

Given Apple's proposed market of all digital game transactions, Apple argues that all the other game transaction platforms are substitute platforms for the App Store. Those platforms include ones accessed through all devices: mobile, tablets, consoles, and PCs. Epic Games rebuts this claim. It makes two arguments. One, because developers create apps for more than one platform, they do not view them as substitutes to reach the same consumers. Two, economic and survey evidence show a lack of substitution. The Court begins with Epic Games' arguments.

a. Single Homing and Fortnite Data

No one disputes that when developers create an app for Android versus iOS, they use a different SDK but much of the code can be ported across platforms. Using technical language, users may "single home" at a single platform while developers "multi home" across platforms. As the result, developers compete for single-homing users in a winner-take-all market and cannot afford to forego particular platforms without losing those other customers. The Court agrees that in the smartphone context, consumers typically "single home."[272]

In terms of user options on smartphones, gaming transactions on Android appear similar if not identical to gaming transactions on iOS. Most popular mobile games are available on both Android and iOS, with similar functionality. Developer support services are also similar.[273] Further, a significant difference in game transaction price or availability does not exist between iOS and Android. The evidence shows that very few consumers own both Android and iOS devices, and that currently, very low switching rates exist, with only about 2% of iPhone users switching to Android each year.[274] These results are not particularly surprising if those devices provide essentially the same experience.

Whether that extends beyond the smartphone context is debatable. Thus, to establish this extension, Epic Games relies on the "natural experiment" provided by *Fortnite*'s removal in the wake of the Project Liberty.

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[271] Epic Games FOF ¶¶ 179–180.

[272] Ex. Expert 1 (Evans) ¶¶ 48, 89.

[273] *Id.* ¶¶ 74; Ex. Expert 6 (Hitt) ¶¶ 28; DX-4759.001; Trial Tr. (Simon) 390:5–19; Trial Tr. (Grant) 669:22–24, 733:7–13; Trial Tr. (Fischer) 873:3–8.

[274] Dr. Hitt testified that up to 26% of iOS users switch to Android at the end of each upgrade cycle. Ex. Expert 6 (Hitt) ¶ 209. He agreed, however, that this creates no more than three to four percent change in the installed base each year. Trial Tr. (Hitt) 2162:12–2163:15.

The experts do not appear to disagree that the removal of *Fortnite* is a "degradation in quality" of the App Store and iOS devices in general.[275] Dr. Evans thus opines that *Fortnite's* removal provides an empirical study of user substitution in response to changes in quality in iOS and analyzed the data for ten weeks after its removal. Given the loyal *Fortnite* following, Dr. Evans evaluated iOS-only users. For this group, he found they only shifted 16.7% of game play minutes to other platforms and 30.7% of spending to other platforms. Applying this substitution rate to Epic Games' profit margins, Dr. Evans concludes that similar developers would not find it profitable to abandon the iOS platform because they could not make up the spending on other platforms, even if Apple raised its commission.[276]

First, Dr. Evans' decision to limit his analysis to iOS-only *Fortnite* players is questionable because it ignores other market evidence that iOS players engaged in substitution before and after the hotfix. Dr. Evans cites evidence that 90.9% of iOS *Fortnite* players play only on iOS. This is consistent with general statistics that 82.7% of *Fortnite* players play on a single platform. That said, Dr. Hitt's data shows that 35.9% of iOS *Fortnite* players multi-home. This is consistent with evidence that between 32% and 52% of all *Fortnite* players multi-home. Moreover, Dr. Hitt cites evidence that the iOS *multi-homers* account for 85% of *Fortnite* revenue from iOS in the first half of 2020, which makes them particularly important.

Dr. Evans' focus, however, ignores this important group which reveals important insight: players who access *Fortnite* on iOS still spend the overwhelming majority of their *Fortnite* time and money on non-iOS platforms.[277] By limiting his analysis to players who use iOS as the *primary Fortnite* platform (*i.e.*, the platform where they spend most of their playtime and spending), the Court finds Dr. Evans likely underestimates overall substitution.[278]

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[275] Ex. Expert 1 (Evans) ¶ 127. As such, Dr. Evans opines that it supports use of a "SSNIP" test commonly used to test monopoly power. *Id.* ¶ 133; Trial Tr. (Evans) 1528:12–1530:1, 1533:1–1534:8. The Court discusses the SSNIP test and its applicability below.

[276] *See* Ex. Expert 1(Evans) ¶¶ 124–134; PX-1080; Trial Tr. (Evans) 1521:2–1535:7. Dr. Evans opines that this is an "upper bound" of substitution because most other mobile games, unlike *Fortnite*, lack cross-wallet, cross-play, and other features that make it easy for *Fortnite* players to switch devices. Dr. Evans further lowers the substitution estimate after accounting for the "natural cross-progression" from iOS to "more serious" gaming on PCs and consoles. However, as Dr. Hitt correctly notes, this constitutes substitution even if it is not directly responsive to the quality decrease. Ex. Expert 1 (Evans) ¶ 129; Trial Tr. (Evans) 1527:10–14; Ex. Expert 6 (Hitt) ¶ 252.

[277] Specifically, *Fortnite* players with iOS accounts spend almost 90% of their play time and 87% of their spending outside of iOS. Ex. Expert 6 (Hitt) ¶ 73. Another explanation for the different conclusions rests on Dr. Evans' use of sampling: Dr. Hitt testified that Dr. Evans' confidence intervals are well in line with his own estimates. Trial Tr. (Hitt) 2145:10–22.

[278] Ex. Expert 1 (Evans) ¶ 126; PX-1054; Ex. Expert 6 (Hitt) ¶¶ 68–75, 94, 249–50; DX-4767. Of course, the existence of iOS-only players who do not substitute may suggest a subset

Second, and ironically, the *Fortnite* data *does* show substitution. Dr. Hitt, analyzing the same data, found that 22% to 38% of strict iOS-only—users who never accessed *Fortnite* on a non-iOS platform before—shifted their game time and spending to other platforms after the iOS hotfix. Significantly, after accounting for iOS users who already played on other platforms (of whom up to half increased their spending on other platforms), Dr. Hitt shows that Epic Games retained 81% to 88% of its iOS player revenue after Project Liberty. Dr. Evans criticizes this conclusion, arguing that it does not show substitution but rather shows that non-iOS spenders continue to spend outside iOS. The experts agree that Epic Games retained up to half of its iOS-only user revenue.[279]

In conclusion, the *Fortnite* data is basically mixed. Up to a third of iOS *Fortnite* users already play on other devices, which makes their ability to substitute a given. Another 20% undertook at least some substitution after *Fortnite* removal, including by accessing devices on which they previously played *Fortnite.* Although this was not enough to make up Epic Games' losses, the Court finds the time period of substitution significant: Dr. Evans analyzed substitution for only the ten weeks following *Fortnite's* removal. The Court finds it likely that a longer analysis would show greater substitution both because of the typical upgrade cycle for expensive devices (longer than ten weeks) and because of the timing of this Court's preliminary injunction order (immediately after the ten-week period). In particular, users may have waited to see whether this Court would reinstate *Fortnite* to the App Store before making a different purchasing decision or waited for Season 15 for which we have no data. Moreover, because *Fortnite* was removed simultaneously from Google Play and the iOS App Store, the experiment does not account for substitution between iOS and Android.

For all of these reasons, the *Fortnite* data does not reliably show lack of user substitution among game transactions on different devices.

b. Dr. Rossi and Dr. Evans

Last, Epic Games proffers a survey performed by Dr. Rossi and Dr. Evans' use thereof.

Beginning with the survey, Dr. Rossi asked iPhone and iPad users whether they would change their spending if iOS in-app purchases were slightly more expensive. Specifically, Dr. Rossi asked respondents to think about their in-app purchases from the App Store in the last thirty days and imagine that the spending was five percent higher. 81% of the respondents giving definite answers indicated that they would not have changed their purchases. The remainder indicated opposite with only 1.3% switching to non-iOS phones or tablets. Dr. Rossi

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of the market for whom iOS *Fortnite* play is key. Trial Tr. (Evans) 2371:1–14. However, Epic Games did not define a market with respect to these users but for all iOS game transaction users.

[279] Trial Tr. (Hitt) 2142:24–2145:5; Ex. Expert 6 (Hitt) ¶¶ 97, 251; DX-4824; Trial Tr. (Evans) 2371:22–2376:6; Ex. Expert 16 (Evans) ¶¶ 26, 29–31.

and Dr. Evans use this data to conclude that consumer demand for iOS app transactions is relatively inelastic.[280]

Dr. Rossi's survey suffers from several methodological flaws, including the language and timing of the survey. First, the formulation of the questions was confusing. The questions did not convey that the price changes were intended to be both in future and permanent (or nontransient). Instead, his approach was explicitly backward looking. He failed to use simple phrases like "in the future" which had been considered. He claims his final, and untested language, was intended to be more clear.[281] A comparison of the language demonstrates otherwise. By failing to make the distinction with the future, Dr. Rossi also injected the notion of customer satisfaction into the survey which likely impacted the result.[282] His justification that he conducted "structured pretests" is manufactured and not recognized in the industry.[283]

Further, given that the survey was conducted on January 20, 2021 and asked about spending in the "last 30 days," Dr. Rossi failed to account for holiday spending which is likely to be idiosyncratic. Holiday spending includes sales and price changes before, during, and after the holidays, and Dr. Rossi admitted that the results may vary for "for some products."

Next, the survey concerned all app purchases, not just game transactions, and ignored plaintiff's key demographic. Dr. Evans expressly testified that in-app transactions are not part of his proposed product markets. Yet those are the only purchases which Dr. Rossi tested.[284] Dr. Rossi also claims he did not want to include minors because he would have to obtain parental approval, but that proved not to be a problem for Dr. Hanssens, Apple's expert, who did survey minors.[285] Given the magnitude of the issues before the Court, Dr. Rossi choices did not

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[280] "Relatively inelastic" is not formally inelastic (which requires an elasticity less than -1), but it is less elastic than comparable markets. Trial Tr. (Evans) 1650:8–1651:15; Ex. Expert 3 (Rossi) ¶¶ 4–14; PX-1089; Ex. Expert 1 (Evans) ¶¶ 136–138.

[281] Compare versions in PX-1920; Trial Tr. (Rossi) 2512:15–2513:13, 2526:5–10, 2532:13–21, 2528:12–2529:2; Ex. Expert 7 (Lafontaine) ¶¶ 76–79; Trial Tr. (Evans) 1649:9–23. Dr. Rossi conducted pre-testing and interviews on the initial survey design, which asked about spending in a "similar 30-day period in the future." It is not clear whether the pre-test adequately asked about the transience issue for either past or future spending. *See* PX-1920.3; Trial Tr. (Rossi) 2521:23–2544:11.

[282] Trial Tr. (Hanssens) 3541:23–3543:3.

[283] Trial Tr. (Rossi) 2523:8–2, 2525:23–2527:16, 2529:20–23; *see also* Trial Tr. (Hanssens) 3539:10–13 (explaining that the terminology of "structured and "unstructured pretests" is not standard).

[284] Of course, these first two issues may cancel each other out: since games are disproportionately likely to use in-app purchases, an increase in in-app purchases is effectively an increase in iOS game (and subscription) prices.

[285] Trial Tr. (Rossi) 2534:24–2536:19, 2545:9–22.

ultimately assist in determining how a key demographic would make substitution decisions in the relevant market.

Dr. Rossi's trial testimony revealed that he was more interested in a result which would assist his client's case than in providing any objective ground to assist the Court in its decision making. Given Dr. Rossi's lack of credibility, the Court strains to adopt his findings. Although the survey is far from perfect for the reasons stated above, the Court finds it weakly probative, at most, that increases in in-app purchase content prices would not lead to significant substitution to other devices.[286]

Dr. Evans uses Dr. Rossi's survey to conduct a "SSNIP" test to confirm that iOS app distribution is a relevant aftermarket.[287] The Department of Justice developed the test in 1982 to analyze mergers and determine what is the smallest market in which a hypothetical monopolist could impose a "*S*mall but *S*ignificant and *N*on-transitory *I*ncrease in *P*rice," usually 5 percent over the course of 12 months. Not only is this not a merger context, but as noted, the survey did not test anywhere close to an appropriate period.[288] Despite the Court's misgiving of the accuracy of any opinion stemming from this survey, it reviews Dr. Evans' reliance thereon to perform a SSNIP analysis.

As an overview, Dr. Evans first calculates an "effective" commission rate of 27.7%, and then determines that a 5% increase to consumers would correspond to a 30% increase in developer commissions. Because even this large increase in commissions would be profitable for Apple due to the lack of consumer switching, Dr. Evans concludes that iOS distribution is its own market.[289] Dr. Evans confirmed that consumer response to long-run price changes may be substantially different than for short-run ones.[290] This feature is important to Dr. Evans' analysis. As discussed above, Dr. Rossi's failure to survey properly and confirm respondents' understanding of a non-transient price increases leaves the adequacy of the survey for a SSNIP analysis in question.

Economists lack consensus about how to design hypothetical monopoly tests properly to account for indirect network effects. While Dr. Evans has proposed one approach, another preeminent economist, Dr. Schmalensee, believes it is conceptually flawed. Even Dr. Evans himself has previously written that "even if it is technically possible to extend the hypothetical

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[286] *See id.* 2509:16–2510:25. Apple also faults Dr. Rossi for the low levels of respondent spending on in-app content. However, those rates appear to be in line with the App Store median. *See* Ex. Expert 3 (Rossi) ¶ 49.

[287] Ex. Expert 1 (Evans) ¶ 139.

[288] *Id.* ¶¶ 35, 136, 254.

[289] *Id.* ¶¶ 136–144; PX-1050; Ex. Expert 6 (Hitt) ¶ 179.

[290] Trial Tr. (Evans) 1652:23–1653:02.

monopoly test to two-sided platforms, the challenges of implementing the SSNIP test empirically in two-sided markets are likely to be overwhelming in practice."[291]

Despite this self-acknowledged difficulty, Dr. Evans uses the SSNIP test anyway. The Court finds Dr. Evans' SSNIP analysis fatally flawed by several standards, including his own. Dr. Evans has acknowledged that a double-sided SSNIP test should include simultaneous testing of both sides of the market using at least 14 inputs. He has not followed that methodology here. Nor did Dr. Evans take into account indirect network effects in his SSNIP analysis.[292]

Indeed, Dr. Evans conducts his foremarket and aftermarket SSNIP tests on the consumer side and on the developer side separately. Then, he effectively dismisses indirect network effects by claiming that SSNIP on both developers and consumers would be profitable, because neither side would respond to the one-sided price increases he tested. As Professor Schmalensee explained, this is implausible: a price increase would reduce consumer demand for apps, which in turn would make app sales less profitable for developers, and developers may in turn react by reallocating engineering or marketing resources even if they do not leave the platform entirely. Notably, Dr. Evans does not perform *any* actual SSNIP calculations testing both sides of the market simultaneously, as required by his own research.[293]

Dr. Evans' SSNIP analysis is further based on flawed survey data from Dr. Rossi, which affects the validity of any conclusions derived therefrom. Dr. Rossi's survey and the resulting data suffer from several critical flaws.[294] The Court will not rehash the entirety of these flaws here. Suffice it to say, three errors are particularly notable:

First, the survey focuses entirely on the price of in-app purchases—which, as noted above, are *not* even within the alleged relevant market advanced by Dr. Evans— while ignoring other transactions, like initial downloads and updates, that are in the alleged relevant market advanced by Dr. Evans. As a result, Dr. Evans's analysis is unreliable and provides no insight into substitution in any alleged iOS app distribution market.[295]

Second, the price increases discussed in the survey—when confined to just 30 days—also were far from significant, ranging from less than $0.25 to $1.50. And the significance of the

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[291] Trial Tr. (Evans) 1668:5–1669:2, 1667:16–23; Trial Tr. (Cragg) 2302:7–16; Ex. Expert 8 (Schmalensee) ¶¶ 63, 81–82.

[292] Ex. Expert 8 (Schmalensee) ¶¶ 84, 88; Trial Tr. (Schmalensee) 1897:5–1899:8.

[293] Ex. Expert 1 (Evans) ¶¶ 133, 138–139, 141, 262, 68; Trial Tr. (Schmalensee) 1898:10–14.

[294] Trial Tr. (Schmalensee) 1897:20–23 (Dr. Evans relies on Professor Rossi's survey, which is "far from perfect"); Ex. Expert 7 (Lafontaine) ¶ 74.

[295] Trial Tr. (Rossi) 2549:13–2550:1; Trial Tr. (Evans) 1646:16–1647:5; Ex. Expert 7 (Lafontaine) ¶ 75.

price increases were dampened even further by the survey's discussion of switching costs.[296] This is despite the fact that the App Store is highly dependent on a narrow subset of high earning gaming apps and an equally narrow subset of high and medium consumer spenders. In other words, these consumers and developers were not adequately captured by Dr. Rossi's survey, which reflected only small increases in price.

Finally, the survey was limited to the United States, not the global market that Dr. Evans posits.[297]

Given the flaws in both the underlying survey and Dr. Evans' calculations thereon, the Court finds this evidence wholly unpersuasive of substitution.

c. Mobile Devices (Tablets and the Switch)

As outlined above, Apple's product market is all digital gaming transactions. It therefore focuses on platform substitutes for those transactions. Apple suggests two categories of platforms: (1) mobile devices (tablets and the Switch) and (2) non-mobile devices.

iPads are indisputably part of the Apple ecosystem. Evidence shows that 60% of iPhone users also use an iPad (tablet), so they have access to both devices. Documents also show that Apple seeks to decrease switching costs from iPhones and iPads to "lock customers into [its] ecosystem." Thus, tablet transactions are substitutes for those on smartphones because they are part of the same ecosystem and users have access and easy switching ability between the devices.[298]

In evaluating Apple's market definition, Dr. Evans excludes tablets on the sole ground that they lack certain hardware features, like a cellular connection. This is not persuasive: as Dr.

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[296] Trial Tr. (Rossi) 2539:13–2540:16, 2543:12–2544:25. The Court further notes that Dr. Rossi's survey appears have been inappropriately based on an increase in the total cost of the in-app purchases and subscriptions, instead of based on an increase in the amount of Apple's commission rate. The Department of Justice website, which Dr. Evans approvingly cites in his report, notes that in cases involving an analogous transaction in oil pipelines, the appropriate SSNIP analysis is based on the cost of transporting the oil (amount from the commission rate), not on the cost of the oil at the terminal end point (total cost of the in-app-purchases). *See* Ex. Expert 1 (Evans) ¶ 253, n. 113; *see also* U.S. Department of Justice and the Federal Trade Commission, "Horizontal Merger Guidelines," August 19, 2010, at § 4.1.2, https://www.justice.gov/atr/horizontal-merger-guidelines-08192010.

[297] Trial Tr. (Evans) 1653:3–16.

[298] Ex. Expert 1 (Evans) ¶¶ 43–44, 75; Ex. Expert 6 (Hitt) ¶ 189; Trial Tr. (Federighi) 3357:15–18; Trial Tr. (Fischer) 874:24–875:11; PX-0416; DX-3174.003; PX-0892. Moreover, Epic Games' arguments to the contrary contradict its own theory that users and developers select "ecosystems" rather than devices. As Dr. Evans explains, "Apple and Google have created highly differentiated ecosystems around their respective operating systems," and developers and consumers select devices based on the ecosystem.

Hitt notes, tablets possess most of the unique hardware features Dr. Evans assigns to smartphones. Epic Games has not demonstrated that the slight remaining hardware differences are sufficient to prevent substitution for smartphone and tablet game transactions. Accordingly, tablet game transactions are substitutes for smartphone game transactions and part of the same market.[299]

d. Non-Mobile Devices (Consoles and PCs)

Consumers frequently own multiple devices and could in theory substitute across them for game transactions. Surveys conducted by Apple show that gamers are especially likely to use several devices, with 56% playing on both mobile and non-mobile platforms.[300]

However, there are two issues with this data. First, it inappropriately uses statistics about gamers as a whole to draw conclusions about iOS gamers.[301] Apple has not shown that gamers as a whole are representative of iOS gamers. It may well be that 55-60% of U.S. gamers play on more than one device, but that *iOS* gamers switch considerably less often. This outcome is plausible: Apple's evidence shows that large portions of the population—including young children, older adults, and most teenage girls—play predominantly on mobile. Multi-platform play, on the other hand, is driven by different segments. Thus, Apple's own evidence shows that mobile gamers are *not necessarily* like other gamers.[302]

Recognizing this issue, Apple offers evidence by Dr. Hanssens, who conducted two surveys on iOS App Store users and *Fortnite* players, respectively. The first survey shows that 99% of App Store consumers use or could use at least one other non-iOS device. The second survey shows that 99% of iOS *Fortnite* players use or could use non-iOS devices. Moreover, 94% of iOS *Fortnite* players played games on non-iOS devices in the last 12 months.[303]

While Dr. Hanssen is considerably more credible and independent that Dr. Rossi, Dr. Hanssen's survey is also severely flawed and ultimately unreliable.[304] First, he reports that 30-43% of respondents "regularly" use a Microsoft Windows phone even though Microsoft had 0% market share in smartphones in 2018 and no longer sells phones. This data point alone calls into

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[299] Ex. Expert 6 (Hitt) ¶¶ 230–233; Ex. Expert 1 (Evans) ¶ 43 n.3.

[300] Ex. Expert 6 (Hitt) ¶¶ 57, 61; DX-3174; Trial Tr. (Wright) 550:3–10, 631:19–22.

[301] As explained below, Apple also uses statistics about *Fortnite* to draw conclusions about the gaming industry. That suffers from a similar problem: no evidence in the record shows that *Fortnite* is representative of other games.

[302] DX-4170.008, .024.

[303] DX-4663.001; DX-4754.001; Ex. Expert 6 (Hitt) ¶ 58.

[304] Notably, Dr. Hanssens was the only expert to explain that his work was not directed by attorneys; nor was he aware of how his work fit into Apple's strategy thus, demonstrating independence. For this reason, the Court finds Dr. Hanssens quite credible.

question the reliability of the survey overall.[305] Second, Dr. Hanssen's surveys do not address substitution because he only measures access. Dr. Hanssen acknowledges this: the surveys "did not address substitution at all" because doing so would require questions about willingness and ability to switch, as well as actual behavior in different circumstances. Thus, the ultimate value of Dr. Hanssens's survey is limited.

With respect to actual substitution, Apple relies solely on three "natural experiments" examined by Dr. Hitt.[306]

First, Dr. Hitt considers users who downloaded a console or PC game "companion" app, such as the Xbox companion app as a proxy for those who own or play games on a console or a PC. Dr. Hitt finds that users who download the console or PC companion app increase their iOS game spending at a slightly lower rate—19% as opposed to 24% growth in iOS game spending as compared to a control group who did not have the companion app. Because V-Bucks are the same on both platforms, Dr. Hitt concludes that the use of both devices shows substitution. That said, the group that downloaded the companion app spent *more* on iOS games than the group that did not. This is consistent with complementary gaming if spending increases.[307] Both conclusions are logical.

Second, Dr. Hitt considers the natural experiment provided by the entry of *Fortnite* on the Nintendo Switch. Dr. Hitt finds that when *Fortnite* launched on Switch, iOS *Fortnite* spending and playtime decreased. Dr. Hitt acknowledges that *Fortnite* spending across *all* platforms decreased during that time by 33%. Thus, to control for the general decrease, he compares iOS spending for users who played and did not play *Fortnite* on Switch. Dr. Hitt then concludes that iOS *Fortnite* players who played on Switch played and spent relatively less time on iOS. Again, the evidence is consistent with substitution but does not establish it. [308]

Next, Dr. Hitt's data also shows that players who used both iOS and Switch increased their *overall* spending and playtime in *Fortnite*. The absolute numbers for iOS *Fortnite* revenue actually increased after the introduction of Switch. Dr. Cragg converts this data to plausibly opine that this shows complementary playing—users who acquired a second device became

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[305] To Dr. Hanssens' credit, he readily acknowledges these issues and eventually removed the respondents who reported Windows phone use. However, this amounts to 30-43% of an already small survey pool rendering the exercise unreliable. Trial Tr. (Hanssens) 3580:15–3581:14; 3568:12–17, 3570:3–14, 3574:2–8, 3576:11–3578:17, 3551:18–3552:18; DX-4312.178; Ex. Report 6 (Hitt) ¶ 71.

[306] Trial Tr. (Hanssens) 3551:22–3554:6, 3557:11–13; Ex. Expert 6 (Hitt) ¶¶ 82–99; *see also* Ex. Expert 13 (Cragg) ¶¶ 43–48.

[307] Ex. Expert 6 (Hitt) ¶¶ 69–72, 82–87; DX-4792; Ex. Expert 13 (Cragg) ¶ 56.

[308] Ex. Expert 6 (Hitt) ¶¶ 73–86; DX-4822; DX-4823; Trial Tr. (Schmalensee) 1935:22–1936:4.

more engaged in the game—rather than substitution. Using this lens, the evidence is as consistent with complementary playing as with substitution.[309]

Third, Dr. Hitt analyzes *Fortnite* data following its removal from iOS. As described above for Dr. Evans, this evidence is mixed at best: while some iOS-only *Fortnite* players switched, that number was not significant enough to recoup losses and represented only 16% of playtime minutes and at most half of Epic Games' revenue from these users. Thus, the Court does not consider it persuasive either way. [310]

Accordingly, Dr. Hitt's and Dr. Cragg's analyses show evidence of both substitution and complementary playing without a definitive answer either way.[311] Ultimately, the Court proceeds without resolving the issue on this record.

3. *Gaming v. Non-Gaming and Apple's App Store*

As explained above, Epic Games argues that its aftermarket should be defined to include all apps not just gaming apps as the distribution on the App Store is not limited.

The evidence demonstrates that the App Store, in its current form, generates virtually all its revenue upon a business model now rooted in the gaming market: both on game developers and gaming consumers. This is proved by both financial considerations and other notable distinctions between gaming and non-gaming apps. The Court notes eight other significant differences which exist between game apps and non-game apps as the Court considers the relevant product market.

First, in recent years, game app revenues constitute between 60-75 percent of all app transactions for Apple's App Store. Indeed, game app transactions are responsible for a significant majority of the revenue generated in the App Store.[312]

Second, there is industry and public recognition of a distinct market for digital game app transactions as opposed to non-gaming apps. Indeed, many general app stores on mobile and tablet devices, including the App Store, Google Play app store, and the Amazon App Store,

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[309] Ex. Expert 13 (Cragg) ¶¶ 50–64; PX-1023; PX-1022; Trial Tr. (Schmalensee) 1935:22–1936:16; Trial Tr. (Cragg) 2280:15–23.

[310] Dr. Hitt also relies on evidence from Spotify and Netflix subscription option removals from iOS apps. As this evidence concerns subscriptions, not games, the Court does not consider it for the reasons stated above.

[311] Ex. Expert 6 (Hitt) ¶¶ 94–105.

[312] The precise numbers are found in sealed documents. *See* Ex. Expert 6 (Hitt) ¶ 117 (62.9% in 2018); Trial Tr. (Hitt) 2126:16–19 (same); DX-4178.006 (76% in 2017); PX-0059.007 (68% in 2019). As previously discussed, *supra* n.243, the Google Play app store appears to be similarly built and reliant upon revenues generated from gaming apps and transactions. *See also* DX-3913.004–.013.

distinguish between game transactions and non-game transaction by categorizing game apps into a separate tab of apps entirely. This distinction reflects the recognition by the platforms that consumers distinguish between these types of apps, and that both consumers and platform owners would benefit from having games apps separately gathered in one place.[313]

Both Apple's App Store and internal business structure support and reflect this division. On the App Store, editors consider a different set of factors when curating games for spotlight marketing (*i.e.* the "Today" page) than they do when curating other non-gaming apps. Moreover, Apple internally tracks the categories differently, as Apple routinely tracked "Games" billings separately from other parts of the App Store business. Further, there are two heads of business development for the division spearheading the App Store: one division head specifically for games and another division head for all non-gaming categories.[314]

Third, game app transactions are a distinct product because they exhibit peculiar characteristics and uses. Game apps and their transactions are not substitutes for non-game apps, which include a diversity of categories and purposes. Indeed, Dr. Evans conceded and confirmed in a lengthy exchange that game transactions are *not* substitutes for non-game transactions on the App Store. Epic Games' other expert witness, Dr. Cragg, contradicted Dr. Evans on this point by asserting the opposite—that non-game transactions are substitutes for game transactions.[315] The Court finds Dr. Evans more credible on this point.[316]

Fourth, game developers often use specialized technology to create their game apps. For example, specialized middleware tools like the Unity engine and Epic Games' *Unreal Engine* are primarily used by game developers. Using these specialized tools and graphics engines, game developers tend to "really push the limits of what graphics processing can do" to the extent that they are "in a different category" from other developers as a result.[317]

Fifth, game apps have distinct consumers and producers: gamers and game developers. Gamers are recognized as a discrete, albeit diverse, subset of app consumers. Moreover, game

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[313] Trial Tr. (Schmid) 3205:4–11; Ex. Expert 6 (Hitt) ¶ 126, Fig. 35; Ex. Expert 7 (Lafontaine) ¶ 26; DX-5552.

[314] Trial Tr. (Fischer) 933:12–20; Trial Tr. (Schmid) 3205:4–11, 3226:8–12; Ex. Expert 6 (Hitt) ¶ 127; Ex. Expert 7 (Lafontaine) ¶ 26; DX-4178.006; DX-4399.008.

[315] Ex. Expert 6 (Hitt) ¶ 117, Fig. 30; Ex. Expert 7 (Lafontaine) ¶ 26; Trial Tr. (Evans) 1641:7–1642:24; Trial Tr. (Cragg) 2301:19–2302:1.

[316] Apple demonstrated on cross examination that Mr. Cragg was willing to stretch the truth in support of desired outcome for his client. By contrast, Dr. Evans was willing to concede points contrary to the position of his client. The Court finds this difference significant in weighing the credibility of each.

[317] Trial Tr. (Schmid) 3226:23–3227:13; Ex. Expert 6 (Hitt) ¶ 265. The Court notes, however, that, at least with respect to *Unreal Engine*, there is also evidence that it has some application beyond the game creation. *See supra* Facts § I.B.1.

developers, including Epic Games, tend to specialize in the development of game apps and related gaming software. For instance, among the set of developers who had sold at least one game or item of in-app content in 2019, 88% of their App Store revenue was derived from game apps. Indeed, as Michael Schmid, Head of Game Business Development at Apple, remarked:

> So game developers are quite separate from app developers in many circumstances. There are exceptions like big organizations like Microsoft that, you know, have Microsoft Office as well as, you know, Minecraft and other – other games.
>
> But generally speaking, game developers are focused on just developing games, and app developers are often focused on a single app or a suite of apps.[318]

Sixth, game app transactions differ in pricing structure, including in monetization models and effective prices, from non-gaming app transactions. In general, games monetize in different ways than do non-gaming apps. For example, game apps make nearly all of their revenue from in-app purchases (non-subscriptions). This differs from other major categories of apps, where music, fitness, and other apps make virtually all of their revenue from subscriptions. Indeed, there were no game apps among the top subscription apps for fiscal year 2019.[319]

Moreover, the pricing and effective commission paid on each transaction differs significantly between game apps and non-game apps. Specifically, there is considerable variation in the average transaction price between app genres, including game apps and other apps. For example, the average transaction price for game apps is $9.65, while the averages for other app genres range between $7.11 for photo and video apps and $14.10 for health and fitness apps. Similar variation between game apps and non-game apps is found in the average download price for apps and the effective commission paid on each transaction.[320]

Seventh, game apps are distributed by specialized vendors. The availability of game apps versus non-game apps in the wider market different significantly. Indeed, game apps have multiple avenues for distribution through various transaction platforms and devices, which differs in both kind and degree from those available to non-gaming apps. Some of these devices and platforms available to gaming apps are specifically designed for such games—and not non-gaming apps. For example, game consoles (PlayStation, Xbox, Switch) are designed with gaming as their primary purpose with other limited related entertainment functionality (*e.g.*, film, music, and television streaming). Similarly, the game transaction platforms available on these

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[318] Trial Tr. (Schmid) 3226:13–22, 3350:5–3352:3; Ex. Expert 6 (Hitt) ¶ 125, Fig. 34; DX-3248.019–.020.

[319] Trial Tr. (Lafontaine) 2045:3–9; Trial Tr. (Hitt) 2188:18–2189:8; Trial Tr. (Schmid) 3227:14–24 ("[M]any app developers now are really focused on subscription revenue and growing a subscription business, whereas game developers not as much."), 3230:1–20; Ex. Expert 6 (Hitt) ¶¶ 121–23, Figs. 30–32; PX-0608.016.

[320] Ex. Expert 6 (Hitt) ¶¶ 123, 124, Figs. 32–33.

devices focus almost exclusively on game transactions, including the PlayStation Store, Xbox Game Store, and Nintendo eShop.[321]

Eighth and finally, platforms providing game app transactions are subject to unique and emerging competitive pressures. The rise of hybrid console platforms along with cross-platform games and cross-platform gaming services (*e.g.*, cloud-based streaming services) reflect the ongoing dynamic nature of the wider gaming market. For instance, Nvidia's GeForce Now game streaming platform (available via web browsers or the GeForce Now client) only became available in February 2020 and has a library of 850 games (including *Fortnite*, though planned to be released in October 2021 on GeForce's iOS game streaming service), with 2,500 games to be added. Microsoft similarly is in development of its own cloud gaming service, internally named xCloud, that will be added to its Game Pass Ultimate Subscription.[322] With these numerous alternative distribution options, developers are having to determine in the initial planning which platforms to utilize in creating game apps. This compares to non-game app developers who generally distribute on more limited devices and platforms. As an example: Mr. Schmid credibly remarked on the state of the market for developers:

> On the game side it's very common. Some of our biggest game developers will have games on many different platforms. Sometimes those games are cross-platformed. Sometimes they are specific to mobile or even exclusive to a console in certain cases.
>
> On the app side, same thing except it's more typical that an app, for instance, like Yelp would be -- the entity itself, the company, and the app would only be, you know, one app as opposed to a game developer that would have many games.[323]

Accordingly, in light of the foregoing, the Court finds that there is a substantial distinction between the transactions for gaming apps and non-gaming apps.

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[321] Ex. Expert 6 (Hitt) ¶ 117; Ex. Expert 7 (Lafontaine) ¶ 34; Ex. Expert 8 (Schmalensee) ¶ 104; Trial Tr. (Wright) 555:13–556:5, 583:8–18; Trial Tr. (Grant) 697:14–20.

[322] Ex. Expert 8 (Schmalensee) ¶¶ 104, 107; Trial Tr. (Wright) 565:20–566:1; Trial Tr. (Patel) 422:12–15, 427:4–17, 429:11–14, 461:13–462:5, 477:7–15, 526:15–18; Trial Tr. (Sweeney) 176:22–177:12. *See also infra* Facts § II.D.3.d. Indeed, the Court notes that the only third-party app stores that Epic Games identified during the course of the bench trial as having sought to be offered through the App Store are "gaming app stores," and not "any other kind of store." *See* Trial Tr. (Evans) 1552:22–1553:8. This suggests that there are indeed competitive pressures and consumer demands for games apps that are incentivizing and encouraging game developers to reach consumers through multiple platforms.

[323] Trial Tr. (Schmid) 3207:10–18.

C. Epic Games: Facts Relevant to iOS In-App Payment Processing Aftermarket

Epic Games' assertion that the iOS in-app payment processing aftermarket is a relevant antitrust market relies on the assumption that Apple maintains a "lawful monopoly in the iOS app distribution market."[324] Because Epic Games cannot show such a market even exists, the argument fails at the outset.

Nevertheless, the Court addresses the argument because another fundamental problem exists. As discussed below, one must define an antitrust market in terms of the relevant product. If there is no product, such as with the mobile operating systems discussed above, there can be no market based thereon. Plaintiff's proposal begs the question of whether IAP is a product.

Apple's IAP or "in-app purchasing" system is a collection of software programs working together to perform several functions at once in the specific context of a transaction on a digital device. Apple uses the system to manage transactions, payments, and commissions within the App Store, but it also uses the system in other "stores" on iOS devices, such as "the iTunes Store on iOS, Apple Music, iCloud or Cloud services" and "physical retail stores".[325] The system is not something that is bought or sold.

IAP is not integrated into the App Store itself, even though it is integrated into an iOS device.[326] By "integrated," the Court only means that the application has been engineered specifically to work seamlessly on the device. Neither side focused on the engineering to find otherwise.

More specifically, Apple's IAP, as used here, is a secured system which tracks and verifies digital purchases, then determines and collects the appropriate commission on those transactions. In this regard, the system records all digital sales by identifying the customer and their payment methods, tracking and accumulating transactions; and conducts fraud-related checks. IAP simultaneously provides information to consumers so that they can view their purchase history, share subscriptions with family members and across devices, manage spending by implementing parental controls, and challenge and restore purchases.

Apple also intends the system to provide the customer with a single interface which can be used, and trusted, with respect to all purchases regardless of the developer. Importantly, the system has become more sophisticated over time, but the record does not detail the various

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[324] Ex. Expert 1 (Evans) ¶ 220.

[325] Ex. Depo. 12 (Gray) 65:17–22, 66:23–67:2, 110:2–7, 110:9–15; PX-0523; PX-0526.

[326] *See, e.g.*, PX-0526.

versions.[327] Notably the IAP system requires developers to independently verify delivery of in-app purchasing content; it cannot verify that kind of delivery itself.[328]

With respect to the commission and the transfer of money between a developer and both Apple and the consumer, Apple engages third-party payment processors.[329] Given the volume of transactions at issue, Apple pays those processors somewhere in the range of one to two percent.[330]

The Court agrees that simple payment processing can occur outside of IAP and plaintiff points to examples of this happening in 2009.[331] However, those examples only concern simple payment processing, *not* all the functionality outlined in the preceding paragraph, including the functionality to ensure Apple received its commission. Nor do the examples show that Apple was waiving its commission for those developers. Rather, in December 2008, the product was new, so, by definition, in flux.

Epic Games ignores this other functionality to argue that Apple merely "matches" developers to consumers; a "matching" service.[332] This statement is partially true, but Apple has never argued that it levies a commission merely because it matches the developers with the customers. Apple argues that it uses this model to monetize its intellectual property against the entire suite of functions as well as to pay for the 80% of all apps which are free and generate no direct revenue stream from the developers other than the annual $99.00 developer fee.

Creating a seamless system to manage all its e-commerce was not an insignificant feat. Further, expanding it to address the scale of the growth required a substantial investment, not to

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[327] PX-0526; Ex. Depo. (Forstall) 252:06–252:13, 252:16–254:10; Trial Tr. (Schiller) 2796:4–2799:11.

[328] Ex. Depo. 12 (Gray) 112:18–114:10.

[329] Trial Tr. (Schiller) 2796:4–2799:11; Ex. Expert 8 (Schmalensee) ¶¶ 136, 161–62; Trial Tr. (Evans) 1565:3–6; 1664:16–18 (Q: ". . . I'm asking you if in your relevant market, Apple is a competing payment processor? A. Largely no.").

[330] Ex. Depo. 12 (Gray) 78:10–79:8.

[331] *See* Ex. Depo. (Forstall) 230:05–231:02; PX-0888; PX-1701.002; PX-1813; PX-1818.001; PX-1703.001–.002; PX-1709.001. Mr. Forstall testified that he generally remembered that developers were trying to collect payment directly through apps prior to 2009, but Epic Games introduced only stray emails to show this took place. Regardless, Epic Games does not claim that Apple had market power in 2009, so this theory of purported price increase has little relevance. Ex. Depo. (Forstall) 230:05, 230:16–230:18, 230:20–230:22; Trial Tr. (Evans) 1670:24–1671:2; *e.g.*, PX-1709. Moreover, it merely shows that the nascent business was in flux.

[332] As noted above, this aftermarket relies on the distribution market where the "match" is made. Payment is necessarily rendered thereafter. *See* Trial Tr. (Evans) 1596:8–1597:1.

mention the constant upgrading of the cellphones to allow for more sophisticated apps.[333] Under current e-commerce models, even plaintiff's expert conceded that similar functionalities for other digital companies were not separate products.[334] Under all models, Apple would be entitled to a commission or licensing fee, even if IAP was optional.[335] Payment processors have the ability to provide only one piece of the functionality. There is no evidence that they can provide the balance. Thus, the Court finds Epic Games has not shown that IAP is a separate and distinct product.[336]

D. Apple: Digital Video Game Market

Apple proposes that the wider global digital video gaming market is the relevant product market. Epic Games opposes this product market. The Court summarizes the evidence with respect to global digital video gaming. Given how the cases was litigated, much of the evidence relates to plaintiff specifically.

1. *Defining a Video Game*

The Court begins with a definition of "video game." Unfortunately, no one agrees and neither side introduced evidence of any commonly accepted industry definition. The evidence included one witness, Mr. Weissinger, who acknowledged that, even with his deep background in the gaming industry, he was not familiar with any industry standard definition of a video game.[337] Mr. Sweeney, for instance, defined a game as follows:

> I think game involves some sort of win or loss or a score progression, on whether it is an individual or social group of competitors. With a game you're trying to build up to some outcome that you achieve, as opposed to an open-ended experience like building a *Fortnite Creative* island or writing a Microsoft Word

[333] Trial Tr. (Malackowski) 3619:2–14; Trial Tr. (Fischer) 933:20–934:16 (describing Apple's investment in the 2017 redesign); Trial Tr. (Schiller) 2877:2–20.

[334] Trial Tr. (Evans) 1654:17–1655:22, 1657:8–22, 1659:25–1660:16 (agreeing that similar functionalities at Uber, Lyft, Grubhub, Wish, StubHub, DoorDash, Instcart, Postmates, Amazon Shopping, Wal-Mart, and eBay are not separate products).

[335] Ex. Expert 8 (Schmalensee) ¶ 157.

[336] Epic Games also relies on Section II.F. of its Findings of Fact which relates to iOS App Store Profitability. In evaluating IAP, the Court has focused on functionality.

[337] Trial Tr. (Weissinger) 1297:25–1298:2 ("Q. In your view, is there an industry standard definition of what could be called a game? A. I don't think so, no.").

> document. There is no score keeping mechanic and you are never done or you never win.[338]

Mr. Trystan Kosmynka, Apple's current Head of App Review, admittedly "not an expert in gaming,"[339] noted that "games are incredibly dynamic," that "[g]ames have a beginning, [and] an end," and that "[t]here's challenges in place."[340]

At a bare minimum, video games appear to require some level of interactivity or involvement between the player and the medium. In other words, a game requires that a player be able to input some level of a command or choice which is then reflected in the game itself.[341] This gaming definition contrasts to other forms of entertainment, which are often passive forms enjoyed by consumers (*e.g.*, films, television, music). Video games are also generally graphically rendered or animated, as opposed to being recorded live or via motion capture as in films and television.[342]

Beyond this minimum, the video gaming market appears highly eclectic and diverse. Indeed, neither Mr. Sweeney's nor Mr. Kosmynka's descriptions, which focus on linear narratives and competitive modes, captures the diversity of gaming that appears to exist in the gaming industry today. Mr. Allison acknowledges that while some games are competitive, and are appropriately labeled as such on the Epic Games Store's website, other games are not necessarily competitive.[343] Given the genre of simulation games like *The Sims* or *SimCity*, or open-ended sandbox games like *Minecraft*, the Court cannot conclude that any linear narrative is

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[338] Trial Tr. (Sweeney) 328:13–19.

[339] *Id.* 1190:10.

[340] Trial Tr. (Kosmynka) 1015:23–25.

[341] For instance, the Court is generally aware that one of the first commercially successful games, *Pong*, consisted of minimal input from the player of moving a paddle up or down. Of course, modern console, computer, and mobile gaming now permit dynamic inputs beyond just one input. For instance, modern controllers for gaming consoles now include at least two analog sticks, a directional pad (d-pad), and several buttons found on both the front face and side edges of each controller. *See generally* PX-2776 (Nintendo Switch); PX-2777 (Sony PlayStation 5); PX-2778 (Microsoft Xbox Series X).

[342] Though, the Court understands that some games, such as older *Mortal Kombat* games, have utilized motion capture technology in rendering graphics and animations in the game.

[343] Trial Tr. (Allison) 1241:16–1242:18. Although not in the record, the Court generally understands that: (1) *The Oregon Trail* is a game that simulates crossing the United States of America via the historic Oregon Trail in the nineteenth (19th) century; and (2) that *The Sims* is a life simulation game that simulates general modern life (*i.e.*, socializing, employment, romance, family, skills, etc.) through player characters known as sims.

required to qualify as a video game.[344] Thus, the Court concludes that video games include a diverse and eclectic genre of games, that are tied together at minimum through varying degrees of interactivity and involvement from a game player.[345]

Some of Epic Games' fact witnesses suggested in their testimony that *Fortnite* was much more than a video game: it is a metaverse. The Court previously discussed Mr. Sweeney's sincere beliefs as to *Fortnite* and the metaverse. A metaverse is a virtual world in which a user can experience many different things—consume content, transact, interact with friends and family, as well as play.[346] According to Mr. Sweeney, game play need not be a part of a user's metaverse experience, which is more to mimic the reality of life than to present game play.[347]

As discussed, to Messrs. Sweeney and Weissinger "*Fortnite* is a phenomena that transcends gaming."[348] Because of the inclusion of these social and creative experiences, Mr. Weissinger testified that he would not consider the *Party Royale* and *Creative* modes as qualifying as a game.[349]

Plaintiff's characterization of *Fortnite* notwithstanding, the Court need not reach a conclusive definition of a video game or game because by all accounts, *Fortnite* itself is both externally and internally considered a video game.[350] Epic Games markets *Fortnite* to the public

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[344] Of course, many games are also narrative driven as recognized by Mr. Kosmynka. Microsoft's internal review of *The Last of Us Part II*, a Sony PlayStation exclusive video game, confirms that at least some games are focused more on the narrative of the game as opposed to the game play itself. *See* PX-2476.002.

[345] Indeed, the genre of gaming seems to include a diversity of genres and styles, with no strict consensus on what a game *must* include in order to be defined as a game.

[346] Trial Tr. (Sweeney) 99:17–22; Trial Tr. (Weissinger) 1295:10–11 (describing a metaverse as a "social place where people can experience events together and hang out together"); Trial Tr. (Kosmynka) 1127:18–23 ("So my own understanding of the Metaverse is a . . . virtual world where you go with your particular character and are with players that you know, players you may not know, and you navigate around that Metaverse, which could include additional worlds in various experiences.").

[347] Trial Tr. (Sweeney) 99:23–25.

[348] *Id.* 98:6–8; Trial Tr. (Weissinger) 1295:8–21.

[349] Trial Tr. (Weissinger) 1439:8–11 ("There are experiences beyond that, and there are some experiences that are separate and excluded from that as well. So there are some that I don't think I would qualify it as a game.").

[350] Trial Tr. (Sweeney) 93:22–94:17, 111:13–17, 116:6–12, 324:14–23; Trial Tr. (Wright) 647:24–25; DX-5552; Trial Tr. (Allison) 1246:7–1247:18; Trial Tr. (Weissinger) 1354:1–1376:15 (explaining the various game modes within *Fortnite*, all of which are and/or contain games).

as a video game,[351] and further promotes events within *Fortnite* at video game related events.[352] Although *Fortnite* contains creative and social content beyond that of its competitive shooting game modes, there is no evidence or opinion in the record that a video game like *Fortnite* is considered by its parts (*i.e.*, the modes within the game) instead of in its totality. By both Mr. Sweeney and Mr. Weissinger's own descriptions, the metaverse, as an actual product, is very new and remains in its infancy.[353] At this time, the general market does not appear to recognize the metaverse and its corresponding game modes in *Fortnite* as anything separate and apart from the video game market.[354] The Court need not further define the outer boundaries of the definition of video games for purposes of this dispute.[355]

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[351] *See, e.g.*, DX-5536.001; Trial Tr. (Allison) 1245:9–1247:18 (discussing DX-5536.001); DX-5541 (YouTube video demonstrating game play mechanics of *Fortnite*); Trial Tr. (Schmid) 3205:1–3 ("Q. And do you know, for example, what category of app Epic chose for *Fortnite*? A. They chose games.").

[352] *See* Trial Tr. (Weissinger) 1336:11–15 (describing then upcoming collaborated events at the "Video Game Awards").

[353] *See* Trial Tr. (Weissinger) 1295:9–10; Trial Tr. (Sweeney) 99:14–15; Trial Tr. (Schiller) 2834:24–2835:5.

[354] There was also much discussion about a similar metaverse game, *Roblox*, which contains creative experiences that are similar to those offered in the creative and party modes in *Fortnite*, and whether it too qualified as a video game. The discussion was not initially helped by Mr. Kosmynka, whose self-acknowledged unfamiliarity with the video game market and lack of knowledge on *Roblox*'s game classification caused him to use imprecise terminology in his testimony. *See* Trial Tr. (Kosmynka) 1015:18–1016:7, 1190:9–1191:6. Indeed, Mr. Schmid noted that while *Roblox* may have renamed the internal games offered within *Roblox* as "experiences," it is "not saying that *Roblox* has decided they are no longer a game." Trial Tr. (Schmid) 3295:15–17.

[355] The Court leaves the thornier further questions of what is properly included and excluded in the definition of a video game to the academics and commentators. For instance, one example that arose beyond the issue of *Roblox* was the recent genre of films and shows on Netflix that allow users to make a choice akin to a "choose your own adventure," including in *Black Mirror: Bandersnatch*, and *Unbreakable Kimmy Schmidt: Kimmy vs the Reverend*. *See* Trial Tr. (Wright) 576:24–577:2. The Court need not determine whether this interactivity is sufficient to convert these forms of media into a video game. Suffice it to say, these examples as well as the ongoing efforts in the metaverse, appear to be an ongoing trend of converging entertainment mediums where the lines between each medium are beginning to mesh and overlap.

2. *General Video Game Market*

The wider video game market appears dynamic, innovative, and competitive. This wider market includes at least four distinct submarkets for digital game app distribution:

1. online mobile app transaction platforms (*i.e.*, the App Store, the Google Play app store, and the Samsung Galaxy Store);
2. online gaming stores found on desktop and personal computers ("PCs"), including online transaction platforms focused on game distribution (*e.g.*, Valve Steam), and developers' own stores that directly distribute their games (*e.g.*, Epic Games Store);
3. digital stores on consoles (*i.e.*, Sony PlayStation, Microsoft Xbox, and Nintendo Switch); and,
4. more recently, streaming game services (*e.g.*, Nvidia GeForce Now, Microsoft Xbox Cloud Gaming, Google Stadia).[356]

The gaming market today is the result of actions taken by competitors in the last two decades. The first successful online platform focused on game distribution was Steam, which launched in 2003. Steam By pioneering digital distribution on the PC, Steam enjoyed "a real boom in both Steam's business and just PC gaming and digital gaming in general." Steam "is a dominant player in the space and was in 2018 with 70 to 85 percent market share depending on how you define the space."[357]

Steam's success resulted in the rise of other PC-focused digital distribution platforms. In addition, the console platform owners created their own digital marketplaces: Microsoft launched Xbox Live Marketplace in 2005 (now Xbox Games Store on Xbox Series X and S), Sony launched the PlayStation Store in 2006, and Nintendo launched the Wii Shop Channel that same year (now the Nintendo eShop on the Switch). Most of these platforms, including Steam, charged a 30% commission.[358]

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[356] Trial Tr. (Sweeney) 95:23–96:1, 135:21–24, 138:23–25, 177:23–178:14; Trial Tr. (Wright) 637:18–24, 642:19–643:5 (stating that mobile is part of the gaming industry); DX-5532.011 (Microsoft 10-K); Trial Tr. (Schiller) 2748:7–13, 2867:9–20; Trial Tr. (Schmid) 3240:1–7 ("We [Apple] compete with Google Play and the other many Android marketplaces. We compete with the consoles, so Switch, PlayStation, Xbox. We certainly compete with PC and the – the PC stores like Epic Games Store or Steam. And now more and more we're competing with the cloud gaming and – and the many companies that are getting involved in cloud gaming.").

[357] Trial Tr. (Allison) 1201:23–1204:24, 1248:12–22; Trial Tr. (Sweeney) 173:13–74:25.

[358] Ex. Expert 8 (Schmalensee) ¶ 41, Ex. 1; PX-2476.006 (discussing competing gaming stores); Trial Tr. (Wright) 546:7–15; *see also* Trial Tr. (Sweeney) 191:910.

Since the App Store launched in 2008, the marketplace participants for game app distribution increased.[359] For example, Google announced the Android Market in 2008 (which later became Google Play in 2012), Nokia and Samsung launched their Ovi Store and Galaxy Apps Store in 2009, and Nintendo launched its eShop for its 3DS device in 2011.[360]

Today, "[t]here are many ways to monetize [an] app on the App Store," and Apple, like other industry participants, facilitates a variety of business models for developers. At least with respect to the App Store, there are at least five business models developers can use to make money on their apps: the free, freemium, subscription, paid, and paymium models. The record shows that under the "paid model," (also called the "download and install" model), for instance, a developer may charge a price for the user to download the app. As discussed, a developer may instead choose the "freemium model," allowing users to download an app for free but permitting in-app purchases. Alternatively a developer can offer subscriptions to users (for sale in the app, through a different platform, or online), can sell users digital currencies that can be used in the app (for sale in the app, through a different platform, or online), can sell advertisements in the app, or can charge for in-app promotions and events.[361]

3. *Four Submarkets*

The Court summarizes the evidence with respect to each of the four distinct submarkets as it impacts the market definition:

a. Mobile Gaming

With respect to mobile gaming, the two dominant players are Apple (App Store) and Google (Google Play app store), with several other Android OS players including the Samsung (Samsung Galaxy Store). Importantly, both third-party and internal market reports recognize mobile gaming as a distinct market within the wider video gaming market.[362] Indeed, mobile gaming is "a vast part of the overall gaming industry," so market participants, such as Microsoft, look "at mobile as a segment of the game industry as a whole," and "[i]n any industry analysis, mobile would have to be part of the consideration."[363] Subsumed in mobile gaming are related

[359] Trial Tr. (Schiller) 2748:1–13; *see also id*. 2772:13–17; PX-0888 (describing competitor commerce models on Xbox, Nintendo, and PlayStation).

[360] Ex. Expert 8 (Schmalensee) ¶ 41, Ex. 1.

[361] PX-2790.009; Trial Tr. (Fischer) 925:24–926:1; DX-4614; Trial Tr. (Schiller) 2768:1–8, 2773:23–2774:5, 2779:12–21, 2791:11–18, 2858:11–22, 3094:11–22, 3100:9–22.

[362] *See generally* DX-3248 (identifying mobile gaming as one segment in the video game industry); PX-2477/DX-5523 (same).

[363] Trial Tr. (Wright) 638:9–11, 639:1–2, 643:1–2.

Android and iOS tablets offered by Apple, Google, Amazon, and Samsung.[364] Notably, whereas Apple iOS devices are closed platform or walled garden devices, Google Android devices are open platform devices.

Apple has always viewed Google Play as a significant competitor, including with respect to games transactions. There is further evidence of platform competition with the Samsung Galaxy store, as well.[365] Apple also understood that other Android marketplace platforms were competitive forces. For example, when Amazon launched its Android app marketplace, Mr. Schiller wrote internally: "[T]he 'threat level' is not 'medium', it is 'very high.'" Later, at the Fourth Annual App Store Global Management Team Summit, Apple spent considerable time discussing competition from Google, Samsung, and Amazon.[366]

Several other platform distributors own and maintain apps that offer some functionality and limited game streaming in connection with their original platforms. Steam also offers a variety of iOS applications through the App Store that allow Steam customers to manage their account and even stream games from their Steam library to their iOS device. PlayStation and Xbox have similar apps in the App Store that allow customers of those consoles to stream games from their consoles in order to play on their iOS device.[367]

Although relatively newer than both PC gaming and console gaming, mobile gaming constitutes a significant portion of the video gaming market. Indeed, as of 2017, it was forecasted that mobile gaming would generate *more than half of all game revenue globally*, and that the market would top more than $100 billion by 2021.[368] Similarly, Microsoft's internal report reflects that mobile gaming accounted for "more than half of the industry revenue in CY2019."[369]

Notably, the overwhelming majority of gaming revenue in mobile gaming derives from free-to-play games, or freemium model games.[370] As contrasted to other platforms, women gamers of all ages (*e.g.*, millennials, gen-x, and boomers) and gen-x male gamers are

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[364] Trial Tr. (Grant) 697:10–13; *see also* DX-3248.004 (defining mobile gaming as tablets and smartphones); PX-2477/DX-5523.002 (defining mobile as "[g]ames executing locally on a phone/tablet form factor (e.g., Clash of Clans); primarily iOS and Android").

[365] Trial Tr. (Schmid) 3239:23–3240:2; Ex. Expert 6 (Hitt) ¶ 142.

[366] Trial Tr. (Schiller) 2866:1–20; DX-4447.001; DX-3734.041–.053.

[367] Trial Tr. (Athey) 1843:7–19, 1844:10–14, 1851:1–23.

[368] DX-3248.008.

[369] PX-2477/DX-5523.008.

[370] PX-2477/DX-5523.053; Trial Tr. (Schiller) 2791:11–18; Ex. Expert 8 (Schmalensee) ¶ 134; DX-3734.030.

predominately more likely to play and game on mobile devices, with an overwhelming focus and interest on casual games.[371]

The mobile gaming market is slightly more nuanced domestically in the United States than it is globally. At least as of 2017, console gaming accounted for 43% of gaming revenue, whereas smartphone and tablets together accounted for approximately 40% of gaming revenue, with the remaining 17% of gaming revenue in browser and PC gaming.[372] Console gaming still accounted for a larger share in the United States and Western European countries, whereas mobile gaming generally made up a larger share of gaming revenue in the remaining parts of the world, but especially in Asia and in developing countries, where mobile gaming was already by 2017 the majority in gaming revenue.[373]

In general, the rate charged by platform owners such as Apple and Google, and those third-party app stores on Android such as Samsung, remain at 30%, notwithstanding both Apple and Google's recent moves to lower this rate for developers earning less than one million dollars annually to 15%. The Court notes however that some third-party mobile device marketplaces have decreased their rate after negotiations between it and developers.[374]

b. PC Gaming

PC gaming is characterized by an open market which includes several digital gaming marketplaces, such as Valve Corporation's Steam Store and more recently Epic Games' Epic Games Store, and several direct distribution platforms operated by larger game developers. As noted above, Steam retains a significant market share in the PC gaming area.

In the United States, as of 2017 PC gaming only accounted for approximately 15% of all gaming revenue. Globally, PC gaming does not account for a majority of gaming revenue in any country, though it has a significant market around or at least one-third (1/3) share in several Eastern European countries and in both China and South Korea.[375] Of the demographics, "male boomer" aged gamed in the United States are more often playing games on the PC, with an interest in casual games.[376]

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[371] *See generally* DX-4217. The Court notes that it uses the same terminology employed in the cited third-party report to describe the age ranges of certain groups.

[372] DX-3248.028.

[373] *See generally* DX-3248.

[374] *See* Trial Tr. (Schiller) 2810:16–2811:5, 2815:17–23; DX-4168; DX-4096.001; Trial Tr. (Hitt) 2088:10–14; Trial Tr. (Cook) 3860:4–10; Ex. Expert 8 (Schmalensee) ¶ 41, Ex. 1.

[375] *See generally* DX-3248.

[376] *See generally* DX-4217; *supra* n.371 (using report terminology to describe age ranges).

Similar to mobile gaming, PC gaming generated a majority of its gaming revenue from free-to-play or freemium games. Though, unlike mobile gaming, there is a sizable portion of PC gaming's revenue that is derived from pay-to-play games (*i.e.*, games purchased up-front).[377]

A platform's commission rate in the PC gaming area, historically 30%, now varies among the competing platforms. Steam's 30% cut, adopted since its inception in the early 2000s, was reduced in 2018 shortly before the launch of the Epic Games Store. Steam currently uses a tiered commission rate, whereby larger game sales and revenues decrease the commission rate, as low as to 20% for the highest tier of sales and revenues.[378] Meanwhile the Epic Games Store charges a 12% commission for app distribution, as well as a 12% commission for in-app purchases when the app developer chooses to use Epic Games' direct payment for in-app purchases.[379] Given that the 12% commission rate results in an operating loss, the move could be viewed as merely a litigation tactic. However, on the eve of trial, Microsoft recently announced, that it will be reducing its commission from 30% to 12% in the Windows Store.[380] In terms of digital game sales on PCs and Macs, the Epic Games Store is "[a] clear and strong number two" behind Steam.[381] *See supra* Facts § I.B.3. With respect to its expansion to non-gaming apps, the move was likely litigation related. *Id.* In addition, many other developers launched major digital distribution platforms for their own and others' titles: Ubisoft launched Ubisoft Connect in 2012 and Bethesda launched Bethesda.net in 2016.[382]

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[377] *See* DX-5523.053 (23.3 billion attributed to free-to-play games versus 7.4 billion attributed to pay-to-play).

[378] Trial Tr. (Allison) 1209:13–1210:1.

[379] Trial Tr. (Sweeney) 126:1–7.

[380] Trial Tr. (Wright) 553:17–554:6; Trial Tr. (Allison) 1221:4–7, 1275:20–1276:5 ("Microsoft has switched to an 88/12 share on the Windows 10 Store.").

[381] *See* Trial Tr. (Sweeney) 123:15–124:5, 262:19–263:11, 263:22–265:4, 265:7–11; Trial Tr. (Allison) 1199:15–1200:1, 1243:3–11. Among those mentioned was Itchio.io. With respect to this app, Apple's counsel alluded to certain sexually explicit video games (*i.e.*, "Sisterly Lust") offered by Itch.io. Given that the corresponding materials (*e.g.*, storefront game pages) were not submitted to the Court, the Court cannot conclude one way or another whether this particular game, or other games offered on Itch.io, are as problematic as so alluded or suggested by Apple's counsel. Nonetheless, the Court finds that Apple's questioning and Mr. Allison's answers thereto illustrate some problems that may occur when permitting "stores within stores": namely, disparate guidelines and policies, and the difficulty of reviewing materials hosted by third parties. *See* Trial Tr. (Allison) 1257:5–1258:8, 1258:21–1259:22, 1280:20–1281:22.

[382] *See* Ex. Expert 8 (Schmalensee) ¶ 41, Ex. 1.

c. Console Gaming

There are three recognized market participants in the console gaming arena: Microsoft Corporation Xbox Series X and S (formerly Microsoft Xbox One), Sony Corporation PlayStation 5 (formerly PlayStation 4), and Nintendo Co. Ltd. Switch.[383] The evidence reflects that the market is split between two similar products (*i.e.*, the Xbox and the PlayStation) fiercely competing on both power, graphics, processing, and speed, and one product (*i.e.*, the Switch) that has innovated to compete on mobility.[384]

These three devices are generally considered "single purpose" or "special purpose" devices—as compared to mobile and PC devices, which are more general-purpose devices. In other words, these gaming consoles are generally made for the narrower purposes of gaming or entertainment (*e.g.*, video or music streaming).[385] These platforms "are designed to give you a gaming experience. [For example, p]eople buy an Xbox because they want to play games." In contrast, mobile and computer devices are general-purpose devices because there is a "wide, wide variety" of "different ideas and applications that can come through it." As a special purpose device, for instance, Microsoft's Xbox console is designed and marketed "to optimize the game experience," and it cannot perform many of the functions that mobile devices can, such as requesting a rideshare, taking a photo, or obtaining driving directions.[386]

Both the Xbox Series X and S and the PlayStation 5 were released in 2020, with their prior models (the Xbox One and PlayStation 4) released in the 2010s. With respect to these two devices, both have substantially similar hardware that renders cutting edge graphics similar to those on certain PCs and desktops, and can render and run more realistic simulations than would be possible on mobile or other devices.[387] Indeed, the PlayStation and Xbox have the same reliance on additional peripherals and equipment: namely, a television or screen, speakers, and a

[383] *See* DX-5523.002 (defining console gaming as "[g]ames and services [offered] on home consoles (e.g. Xbox and PlayStation) and handheld/hybrid consoles (e.g. Nintendo Switch)").

[384] *See generally* PX-2776 (Nintendo Switch); PX-2777 (Sony PlayStation 5); PX-2778 (Microsoft Xbox Series X).

[385] *See* Trial Tr. (Sweeney) 138:23–25; Ex. Expert 1 (Evans) ¶¶ 50, 53–54; Trial Tr. (Evans) 1459:5–1461:20; *see also* Ex. Expert 6 (Hitt) ¶ 117; Ex. Expert 7 (Lafontaine) ¶ 34; Trial Tr. (Wright) 556:4–5, 583:8–13; Trial Tr. (Grant) 697:19–20.

[386] *See* Trial Tr. (Wight) 535:20–536:12, 555:24–556:5, 557:10–15.

[387] *See* Trial Tr. (Sweeney) 139:17–23, 145:18–20, 145:24–25.

controller.[388] Both devices further require a constant connection to a power outlet, as well as, for some games, access to the Internet via WiFi or ethernet cable.[389]

Games developed for the Xbox and PlayStation leverage the competitive advantages inherent in these systems. For example, with respect to Xbox console games, "developers have taken a design choice to build an experience that they want to have rendered . . . with all the compute power, graphic fidelity, that this box provides." This contrasts to mobile games, which are generally designed for a "more casual" gaming experience and the "vast majority are free to play and then have in-app purchase mechanisms as part of them." In some instances, console game titles that are rewritten to run on iOS devices can be "different games" in that "[t]hey feel different," "operate different[ly]," and could be "leveraging the marketing brand of that," while being a "different version of the game that is written to run on [mobile devices]."[390]

The remaining player in the console gaming market, the Nintendo Switch uniquely competes on a separate ground: mobility.[391] Nintendo introduced the Switch, a quasi-mobile device, in 2017, and the eShop became the Switch's online store.[392] Unlike the PlayStation and the Xbox, the distinguishing feature of the Switch is that it can be played in *either* a conventional console manner (*i.e.*, with a separate screen and controller) *or* a mobile handheld fashion (*i.e.*, in a modified tablet form, whereby the separating controllers attach to the sides of the tablet).[393] Because of this mobility, there is substantial overlap in the design, form, and function with

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[388] *See id.* 138:18–21 ("A console is a fixed function device as [it is] typically plugged into a television and controlled using a game controller or a joystick."); Trial Tr. (Wright) 537:10–13.

[389] *See* Trial Tr. (Wright) 536:13–537:13.

[390] *See id.* 539:22–25, 636:11–17.

[391] The Court notes a glaring lack of evidence on the Nintendo Switch, and its previously related but distinct products, in the record. Indeed, the Court is aware that both Sony and Nintendo, at one point, sold separate handheld gaming devices (*e.g.*, Nintendo Gameboy, Nintendo DS, Sony PlayStation Vita). No evidence or explanation was provided on what occurred with these products or the handheld device market, though, the Court surmises that the rise of the mobile gaming market likely subsumed the handheld gaming market and perhaps led to Nintendo's decision to switch to mobility as a competitive edge for the Switch. Regardless, the Court notes the lack of evidence on this point, as well, as the Nintendo Switch generally, where evidence is limited to third-party testimony and certain Nintendo documents. Indeed, neither party called a Nintendo affiliated witness in this action to inquire on issues of competition in the general or console gaming market. Instead, the Court is left with a limited record on these matters.

[392] *See* Trial Tr. (Grant) 696:8–11; Ex. Expert 6 (Hitt) ¶ 190 & Fig. 1.

[393] *See generally* PX-2776 (Nintendo Switch). Although not reflected in the record, the Court notes that one version of the Switch, the Switch Lite, can *only* be played in a mobile and handheld manner.

mobile devices with respect to gaming.[394] Moreover, Mr. Sweeney twice stated in a matter of minutes that the performance of *Fortnite* on the Switch and smartphones are, in fact, "similar."[395] The only identified difference between the Switch and certain mobile devices is that, like the PlayStation and Xbox, a Switch must also rely on a WiFi connection.[396] However, not all tablets, including some iPads, have or permit cellular connection, and must similarly rely on WiFi.[397]

Based on the business models and choices undertaken by the players in the console gaming market, both Microsoft and Sony are in more direct competition with each other, while the Nintendo Switch remains more distantly in the competitive orbit of these two devices. Microsoft considers Sony's PlayStation a "direct competitor" to the Xbox because of the similarities in the hardware of these devices. In contrast, Microsoft considers the Switch as competition to the Xbox but "to a *much* lesser extent."[398] In relation to other devices, Ms. Lori Wright, Microsoft's Vice President of Xbox Business Development, noted that Microsoft does not consider cellular or tablet devices such as the iPhone or iPad as competitors to the Xbox.[399]

Moreover, on the limited record before the Court, Microsoft and Sony appear to have a different business model whereby digital downloads, including games, in-app purchases, and

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[394] *See* Trial Tr. (Grant) 696:6–11 (describing similarities in screen size, portability, and other features between smartphones and the Switch); Ex. Expert 6 (Hitt) ¶¶ 87–91.

[395] *See* Trial Tr. (Sweeney) 139:17–18 ("The performance of *Fortnite* and Nintendo Switch is similar to many smartphones."); *id*. 140:8–9 ("The performance of *Fortnite* on smartphones and Switch is similar.").

[396] *See* Trial Tr. (Evans) 1459:5–1461:20; Trial Tr. (Sweeney) 140:9–11.

[397] The Court notes that Epic Games' proposed product market includes both iPhone *and* iPad devices, without regard to whether these iPad devices are limited to those relying on cellular connections or not. Indeed, notwithstanding the distinction raised by some Epic Games witnesses, Epic Games states in its final proposed findings of facts and conclusions of law that "[t]here are no differences between iOS and iPadOS that are relevant to the facts herein." Epic Games FOF ¶ 25 n.1.

[398] Trial Tr. (Wright) 537:14–21 (emphasis supplied). Indeed, Ms. Wright only identified the Switch as a competitor after having been asked the substantively same question for a second time, wherein she identified the Switch as competition but qualified her answer by noting that the Switch competes "much less" than the PlayStation against the Xbox. *Id.* This appears to be in keeping with internal Microsoft documents reviewing its competitors, where numerous PlayStation games are identified over two-thirds of the page, in contrast to Switch games, which are limited primarily to just Nintendo published games and are relegated to the remaining third of the page along with games launched on PC. *See* PX-2476.006.

[399] Trial Tr. (Wright) 537:22–538:2. There is no evidence one way or the other in the record to confirm whether Sony would have a different view than Microsoft on this question of competition.

downloadable content, and physical game purchases effectively subsidize the initial cost of the gaming device. There is some evidence that console manufacturers, especially Microsoft and Sony, sell hardware at a loss and recoup those losses through the subsequent sale of software.[400] This is in contrast to the limited documents and testimony that are in the record which reflect that Nintendo makes a profit on the sale of hardware, *i.e.*, the Switch.[401]

Despite these differences, there are similarities amongst the players in the console gaming market. Like iOS devices, the Switch, PlayStation, and Xbox have also adopted "closed platforms" or "walled gardens" as Nintendo, Sony, and Microsoft do not allow users to install software on their consoles outside of the platform's official store.[402] Moreover, unlike mobile gaming devices, console gaming platforms use similar controllers consisting of analog sticks, d-pads, and buttons located on the face and edges of the controller.[403]

The standard commission rate across these console platforms is, like both the App Store and Google Play app store, 30%.[404] Although Epic Games witnesses and other third-party witnesses testified that console makers regularly engage in negotiations with developers and secure terms that factor into the overall value that the app developer receives.[405]

Compared to mobile gaming and PC gaming, the gaming revenue generated by console games in 2019 derived overwhelmingly from pay-to-play or buy-to-play games, as opposed to

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[400] *See* Trial Tr. (Wright) 551:24–13; Trial Tr. (Weissinger) 1350:18–1351:7; Trial Tr. (Evans) 1476:2–8. Apple contests this assertion where Epic Games did not seek admission of any documents supporting that testimony, and no such documents are otherwise in the record. *See* Trial Tr. (Evans) 1736:3–20. The Court however finds Ms. Wright credible in her statements, especially wherein they are not particularly flattering revelations for her employer, Microsoft (*i.e.*, that Microsoft does not make a profit on the sale of the Xbox hardware).

[401] DX-5322; *see also* Trial Tr. (Evans) 1736:21–24.

[402] *See* Trial Tr. (Sweeney) 180:17–184:9; Trial Tr. (Wright) 554:10–16. The Court notes that Mr. Sweeney testified that he understood that Nintendo permitted "Switch games to be sold by at least one third-party retailer digitally." *See* Trial Tr. (Sweeney) 239:18–240:3. Mr. Sweeney did not identify this third-party retailer, nor is there any further evidence in the record reflecting any arrangement between Nintendo and a third-party with respect to a third-party digital store.

[403] Trial Tr. (Grant) 695:4–9; *see also* PX-2274.001.

[404] *See* Ex. Expert 6 (Hitt) ¶¶ 161–162, 256; Ex. Expert 8 (Schmalensee) ¶ 41, Ex. 1; DX-3955.003; *see also* DX-3582.004–.005; DX-3464.012, .027, .031; Trial Tr. (Sweeney) 142:19–143:1, 161:13–15; Trial Tr. (Weissinger) 1349:14–23.

[405] Trial Tr. (Sweeney) 310:1–17; Trial Tr. (Schmalensee) 1958:1–3; Trial Tr. (Wright) 586:11–21.

free-to-play or freemium games.[406] Demographics show that millennial male gamers are most often playing on a gaming console, with an interest in playing action games.[407]

d. Cloud-Based Game Streaming

A newer and ongoing innovation in the gaming industry includes cloud-based game streaming platforms. The companies involved in cloud-based game streaming include: Google Stadia, Nvidia's GeForce Now, Microsoft Xbox Cloud Gaming, and Amazon's Luna. Cloud-based game streaming services provide the experience of playing a game on a device that is being streamed from a remote data or server center. Unlike the other video game submarkets, cloud-based game streaming is not tied to a single device, and is instead a multi-platform service. Indeed, Microsoft has recognized in its 10-K that its Xbox Live services face competition from Amazon, Apple, Facebook, Google, Tencent, and these new "game streaming services."[408]

In light of the unique and innovative nature of cloud-based game streaming, certain issues arise that do not otherwise arise as compared to other gaming submarkets. Game streaming operates similarly to audio and television/film streaming, but further requires the transmission of user input in the game to a remote data center which then processes and renders the user's inputs and choices in the game back to a user's device through an audio and visual stream. The service at minimum requires some wireless or cellular connection to maintain connectivity to these remote data centers. Given this technological framework, the most significant of these issues is the issue of latency. As Mr. Aashish Patel, the Director of Product Management for Nvidia's GeForce Now, describes it, latency "[a]t a high level, [i]s from when you trigger an action to when you see the effect of an action."[409] In other words, latency is the time it takes between when an action is input into a controller or device and when the change is reflected in game. Methods reducing latency ensure there is no lag or delay in displaying the changes on screen or in game. Higher latency can impact game play, especially in certain competitive games.[410]

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[406] *See* DX-5523.002, .053.

[407] *See generally* DX-4217.

[408] Trial Tr. (Sweeney) 135:21–136:5, 177:18–178:14, 256:16–25; Trial Tr. (Cook) 3866:14–22; Trial Tr. (Hitt) 2119:20–2120:14; Trial Tr. (Patel) 422:1, 442:5–12, 471:10–472:21; Ex. Expert 6 (Hitt) ¶ 144; Ex. Expert 6 (Schmalensee) ¶ 120; Trial Tr. (Wright) 647:5–13. The Court notes that Mr. Patel's allegiances became quite apparent when he reluctantly, and hesitantly, equivocated in answering basic questions on cross examination with respect to cross-platform playing of games. Trial Tr. (Patel) 463:18–464:16. The Court accepts his testimony with some discounting based on his bias for controversial issues.

[409] Trial Tr. (Patel) 433:13–17.

[410] *Id.* 422:2–7, 434:18–23 ("Depending on the user and the game, the user may feel uncomfortable with the latency, doing an action and seeing the action performed later, it could result in if they are in a racing game, turning too late, for example."), 435:5–11 ("Depending on

The Court summarizes the game streaming services from the record:

Google Stadia is a game streaming service launched in November 2019 and is available on iOS through web streaming. Stadia offers a subscription model that provides access to a library of games.[411]

Nvidia GeForce Now launched in February 2020 and is also accessible through iOS as well as through the GeForce Now client. Nvidia GeForce Now allows users to stream games previously acquired or purchased from digital game distribution platforms (such as Steam or Epic Games Store). The GeForce service played on iOS as a web-based service has received mostly positive reviews and has performed excellently even on older devices, notably for which Apple receives no commission or payment. By the third quarter 2020, GeForce had 5 million users with a goal of doubling that within a year. GeForce also has doubled its price for new users. Mr. Patel also raised the issue of the need for an Internet connection and capacity issues for streaming, but those issues arise regardless of whether GForce is offered as a native app or a web app. With expanding bandwidth over the past five years, the overall streaming experience is now vastly better.[412]

Microsoft Xbox Cloud Gaming with Xbox Game Pass Ultimate (formerly known as Project xCloud) is another subscription-based streaming service that allows users to stream games to their Android devices. Xbox Cloud Gaming became available for selected Android devices and was recently launched on iOS, after some support from Apple engineers, in beta version. Press reviews say that the Xbox Cloud Gaming experience is very strong on PC and iOS. Ms. Wright states that it is a "great sign" for the prospects of Xbox Cloud Gaming that the beta is expanding. Epic Games does not support Xbox Cloud Gaming because it views "Microsoft's efforts with xCloud to be competitive with Epic Games' own PC offerings.[413] The Court understands that Epic Games therefore views certain multiplatform game streaming services as a threat to its currently single platform game store.

The Court notes that with respect to the iOS platform, both Nvidia and Microsoft maintain web apps instead of native apps. This is due to Apple's guidelines and rules prohibiting stores within applications and requiring the submission of each individual game to the App

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the game, yes, there can be competitive disadvantages for a user with higher latency."); Trial Tr. (Sweeney) 135:18–136:9; Trial Tr. (Grant) 712:17–714:10.

[411] Trial Tr. (Sweeney) 256:16–25; Trial Tr. (Fischer) 901:19–21, 902:8–11; Ex. Expert 6 (Hitt) ¶ 144.

[412] Trial Tr. (Sweeney) 137:12–16; Trial Tr. (Patel) 422:12–15, 425:4–11, 456:15–24, 458:6–18, 459:18–460:5, 460:8–461:3, 464:11–465:1, 466:18–24, 469:18–23, 470:4–15, 471:25–472:21, 473:24–474:13, 475:5–15, 476:12–19 (acknowledging that "Nvidia and GeForce Now are not in the middle of that transaction" and receive no commission and instead all of that revenue goes to the developer).

[413] Trial Tr. (Wright) 565:20–567:19, 609:22–11:7, 611:21–621:1, 613:11–12; Ex. Expert 8 (Schmalensee) ¶ 120; Ex. Depo. (Kreiner) 106:19–107:6.

Store. Both companies would prefer to provide their services as native apps instead of web apps due to the ease of both optimizing the experience for game streaming users on devices and reducing latency. Neither company, however, provided evidence or testimony on the relative differences in latency between webs apps and native apps, even as to the iOS platform's Safari web browser. The Court cannot otherwise discern based on the limited record whether being limited to web apps has otherwise affected these services—especially considering the foregoing evidence showing positive reception among consumers and the industry to both services on the iOS platform.[414]

4. *Competition Among Platforms and Findings of Relevant Product Market*

Given the multitude and diversity of platforms available to consumers, it is not surprising that there is, at a base and general level, *some* competition amongst them in the overall video game market. As Mr. Sweeney remarked publicly in 2012:

> [W]e have a lot of platforms coming together. There are the tablet platforms, there are the smartphone platforms, and computers, you know, PC and Macintosh, and then there are consoles, Xbox 360, PlayStation, Wii, and some new handheld dedicated gaming devices, and God knows what else.
>
> This is too many platforms. And we're seeing now, iPad sales have surpassed the sales of desktop PCs. That's a real revelation to me. This is a product that wasn't invented until a few years ago, and it's basically supplanting the personal computer industry as we know it.
>
> Over time, these platforms will be winnowed down into a much smaller set of competing platforms. You know, there might be one or two or maybe three winners worldwide across everything—computers, game platforms, smartphones.

[414] Trial Tr. (Patel) 427:9–428:6, 429:11–430:2, 433:13–434:17, 438:11–14; 530:24–531:22; Trial Tr. (Wright) 577:3–579:10. Mr. Patel only characterized the additional latency as a result of using web apps as "a bit higher" than native apps, but otherwise provided no relative or quantitative comparison. Trial Tr. (Patel) 434:16–17. Indeed, Mr. Patel's later testimony hedged as to the actual latency problems with web apps, and he further did not identify any specific latency issues with the iOS platform's Safari web browser. *Id.* 530:1–16 (responding that with web apps, "you *could* argue that in some instances, it's worse than native application decoding," and web apps "*could*" increase latency (emphasis supplied)). Mr. Patel later conceded that regardless of whatever app model they used (*e.g.*, web app or native app), "[t]he majority of the process is the same." *Id.* 532:2–9.

> So we should expect a lot of consolidation here, and winners and losers according to who picks the right directions and executes successfully on them.[415]

According to Apple, it faces intense pressure as it competes for developers and users across these platforms.

In a general sense, consumers have a choice of devices and transaction platforms through which to acquire, modify, and play games. Apple's mode of competing resorts to its historic model: user-friendly, reliable, safe, private, and secure. Mr. Sweeney does not dispute that "what is on a particular store is part of the competitive landscape among different stores in which customers make decisions between stores based on the quality, selection, and other policies of stores." Similarly, developers also have a choice among the distribution channels, including various transaction platforms, through which to distribute their apps to consumers. In some measure, Apple must likewise make its platform attractive to developers.[416] Given that Apple built and modeled the App Store in part on its gaming competitors (*e.g.*, Nintendo, Sony, and Microsoft), harnessing these competitors' in-app purchasing systems from the gaming context,[417] it is not surprising that Apple now faces competition amongst these very same players.[418]

Of course, the Court must determine where the *actual* competition lies between these platforms based on the current state of play in the overall market. This is a close question where the general video game market appears to be evolving and dynamic. While there is some competition amongst the players in the general video game market, the Court cannot say that this overall competition is sufficient for purposes of defining a relevant product market—at least not at this time.

What makes this determination difficult is that the market appears to be somewhat in flux. With the recent success of truly cross-platform games like Microsoft's *Minecraft* and Epic Games' own *Fortnite*,[419] these disparate platforms, each with their own unique and competitive advantages, are truly competing for consumers who wish to consume these increasingly popular

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[415] DX-3768 at 26:1–23; Trial Tr. (Sweeney) 243:10–244:9.

[416] Trial Tr. (Schiller) 2748:6–24; *id*. 2867:9–20 (describing the App Store's competition with Steam); Ex. Expert 8 (Schmalensee) ¶¶ 122–126; Trial Tr. (Sweeney) 261:19–23; Trial Tr. (Hitt) 2130:5–7; *see also* Trial Tr. (Schmid) 3240:1–7; DX-4399.046–.054 (Apple has also 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, along with Facebook Messenger games, publishers, platform marketplaces, and social platforms).

[417] *See generally* PX-0888.

[418] DX-4178.008.

[419] The record demonstrates that the App Store is one of several competing platforms, such as the PlayStation and Xbox, with respect to cross-platform play for *Fortnite*. Trial Tr. (Sweeney) 236:19–237:2; DX-3125.005.

cross-platform games and any transactions made therein. Indeed, video games can and are able to be ported across multiple devices.[420] However, not all games are like *Minecraft* or *Fortnite*; the market still reflects that video games are, for the most part, cabined to certain platforms that take advantage of certain features of that platform, such as graphics and processing, or mobility.[421] The record reflects that the industry players are only slowly and recently reacting to compete against the wider gaming platforms.

With cross-platform games like *Fortnite* available on multiple devices, these platforms are truly competing against one another for these in-app transactions. For instance, an internal Epic Games email from September 2018 notes that "purchase behavior may have changed with the addition of mobile, especially Apple and more recently Android, where users are just logging onto their mobile app to purchase." In other words, "most players are still playing on PC/Epic platform[s] as they did before, but purchasing on other platforms like mobile because it may be easier and more convenient [i.e.] when the store updates."[422] This is despite the fact that iOS *Fortnite* players consisted of only approximately 10% of daily active users, and *Fortnite* players generally prefer playing on alternative platforms.[423]

In response to this exact scenario, where gamers play on one platform but spend on another, some other platform owners have enacted substantive policies regarding cross-wallet and cross-play restrictions. Sony, for instance, enacts a cross-play policy that compensates Sony where players spend on other platforms but primarily game on Sony's PlayStation platform.[424] Meanwhile, Sony and Switch have enacted policies that limit the cross-wallet functionality across platforms.[425] Also unlike certain consoles, Apple does not require price parity; that is, developers are free to price their in-app content on apps downloaded from the App Store higher than the same content sold through other platforms.[426]

While these policies and cross-platform games might evidence some convergence of competition amongst them at some point in the future, the relevant product market does not appear to be so wide as to include all platforms at this time. This is especially so given the distinct submarkets discussed above: namely, mobile gaming, computer gaming, and console gaming.

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[420] *See generally* Trial Tr. (Grant) 671:2–673:20.

[421] *See generally supra* Facts §§ II.B.1–2, II.D.3.

[422] DX-3867.

[423] *See* Trial Tr. (Weissinger) 1346:18–1347:1; DX-3233.009.

[424] DX-3094.006.

[425] *See* Trial Tr. (Sweeney) 197:1–18, 238:9–239:17; Trial Tr. (Schmid) 3208:8–16; Ex. Depo. (Kreiner) 83:12–16.

[426] *See* Trial Tr. (Schiller) 2819:18–2820:2; DX-3582.003.

The question remains however on where (i) the Nintendo Switch, which is distinctly both a hybrid console and mobile gaming device, and (ii) game streaming services, a multiplatform game service also available on iOS platforms, fall in the general market and the above submarkets. Facially, the inclusion of the Switch and game streaming services in a relevant product market defined as mobile gaming transactions has logical appeal. The Switch is essentially a game specific tablet with detachable controllers on its sides. Its inclusion would make logical sense where tablets are also included in the relevant product market. Witnesses also confirmed that games (including *Fortnite*) for both the Switch and mobile devices operate substantially the same on both devices. Moreover, what evidence exists in the record shows that the Switch generally competes significantly differently as compared to the other two console players—the PlayStation and Xbox.

The inclusion of game streaming services has similar logical considerations. Because such services are multiplatform, they can reach the same audience of consumers on the iOS platform as the App Store can by virtue of their design. Specifically, whether by native app or web app, game streaming services are just as available to consumers on the iOS platform as the games are on the App Store. These services essentially compete with the wider market given the lack of a need for any corresponding device. Indeed, due to the multiplatform nature of such services, even players in other submarkets, including Epic Games, have come to view such services as a competitor in their established market spaces.

Despite the foregoing, neither the Switch nor game streaming services are appropriately part of the mobile gaming market—at least not at this time. First, as previously noted, the record is limited as to both Nintendo and the Switch. Nonetheless, the Court notes that there is in evidence one real world example that shows that the Switch's mobility competes against iOS devices for gaming: the introduction of *Fortnite* on the Switch. As the experts' analyses show, the introduction of the Switch shows both substitution and complementary play without a definitive answer. *See supra* Facts § II.B.2.

Second, both products are too new for a determination of whether they should or should not be included in the relevant product market. The Switch and especially game streaming services are relatively new products in the market. Indeed, Nvidia's GeForce Now service only launched months before the filing of this action, and Microsoft's service remained in beta testing at the time of the bench trial. It is unclear at this time whether consumes will or do consider these products reasonably interchangeable and substitute in sufficient numbers between the competing products already in the mobile gaming market.

In sum, in light of the lack of evidence in the record, and the recent introduction of the Switch and game streaming services to the market, the Court declines to include either device or service in the relevant product market for mobile gaming transactions. While the record does not reflect that these products are appropriately included in the relevant product market at this time, the Court does find that these products evidence, at a minimum, market entrants into this mobile gaming space. Whether these entrants will occupy the same space as Apple and Google remain, however, to be seen by both consumers and developers.

Thus, the Court concludes that the competition lies within the smaller recognized mobile gaming transactions submarket, however, this submarket does not include the Switch or game streaming services.

E. Apple's Market Share

For the reasons set forth above, the Court concludes that the competition lies within the smaller recognized mobile gaming transactions submarket, however, this submarket does not include the Switch or game streaming services. The Court next calculates Apple's market share.

The *only* evidence of market share in the proposed market concerning video gaming comes primarily from Apple's expert witness, Dr. Hitt.[427] As discussed, Apple's proposed definition of the market includes all video game platforms, which the Court rejects as the relevant market. Consistent with Apple's proposal, but inconsistent with the Court's finding that mobile gaming is the relevant product market, Dr. Hitt's analysis relies upon the assumption that the App Store has many competitors, including other game transaction platforms, for mobile, PC, and console, as well as game streaming services, and limits the scope to the United States.[428]

Since data on the number of game transactions is not readily available, Dr. Hitt's analysis uses the dollar value of game transactions facilitated as a proxy for the most appropriate measure for estimating market share. To reach his opinion he analyzes: (i) the total revenue for digital game transactions on the App Store in the United States; and (ii) the total revenue for digital game transactions across all digital game transaction platforms in the United States.[429] Again, Dr. Hitt's analysis does not narrow in on the mobile gaming market and Apple's market position therein. Based on his analysis and his review of the relevant evidence, Dr. Hitt finds and concludes that Apple's video game market share based on total revenue from digital game transactions is 37.5%.[430] Based on his calculations, Dr. Hitt concludes: (i) that this video game market share is inconsistent with Apple's ability to exercise market power; and (ii) that this lack of concentration in the video game market suggests Apple does not possess monopoly power in the relevant product market.[431] While Dr. Hitt's report and analysis aids the Court, it is overbroad for purposes of the Court's finding that the market is limited to mobile gaming.

Despite the limitations of Dr. Hitt's analysis, a similar calculation based on evidence in the record reveals a much more significant *mobile* gaming market share. Apple's internal business records[432] show a consistent belief that Apple's market share of the global video gaming market increased over time beginning in 2015 with 18%; 2016 with either 21.8% or 23%; 2017

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[427] Ex. Expert 6 (Hitt) ¶ 117.

[428] *See supra* Facts § II.D.; Trial Tr. (Schiller) 2867:1–20; Trial Tr. (Cook) 3865:23–3867:5.

[429] *See* Ex. Expert 6 (Hitt) ¶¶ 137–138.

[430] *Id.* ¶¶ 8, 117, 123–128.

[431] *Id.* ¶¶ 138, 140–141.

[432] The Court relies on Apple's business records as admissions.

with either 24% or 27%; 2018 with 23.8%; 2019 with 23.9% or 25%; and 2020 forecasted at a range between 24.7% and 31%.[433]

The Court has the most evidence for the year 2017. Using Apple's internal documents the Court is able to calculate Apple's market share at 57.1% in the global *mobile* gaming industry. The Court reaches that value by taking Apple's own internal records for 2017 which show Apple's internal calculation that it controls 24%[434] of the global video gaming market and dividing the number by 42%[435] which reflects Apple's belief of the portion of the *mobile* gaming market relative to the global video gaming market (24% divided by 42% equals 57.1%).

Using this same methodology, the Court can calculate Apple's market share in the *mobile* industry before 2017, as 52.9% in 2015 and 54.5% in 2016. This computation is consistent with a view that the market share was less than 57.1% in 2017.[436]

Similarly, for 2020, Apple estimates that its own global market share in the wider video gaming industry is 28.2%, and cites on its internal business record to an external Newzoo report that states that mobile gaming (including mobile and tablets) accounted for 49% of global

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[433] Compare four internal forecasting documents, namely, DX-4178.008 (2017 Review), PX-0602.027 (2018 Review), PX-0608.014 (2019 Review), and PX-2302.022 (forecasting 2021 and 2020).

[434] *See* PX-2302.022 (reporting 24% market share). The Court notes a discrepancy between two sets of presentations calculating market share from 2015 to 2020 in the wider video gaming industry. The Court notes that the figures found in the most recent Apple presentation, along with figures found in the 2019 review (PX-0608), appear to match and correspond with third-party data found elsewhere in the record. *See* DX-3248. For that reason, the Court concludes that these figures in the most recent presentation are the more correct and updated versions. The market share rates found in the other (generally older) presentations appear to use estimates instead of the actual total revenue in the video game industry for certain years resulting in a lower total annual amount, which appears to inflate Apple's market share in these other presentations. *Compare* DX-4178.007 (2017 presentation, stating 109 billion in total game revenue in the entire industry in 2017) *with* DX-3248.008 (2018 market report, stating 121.7 billion in total game revenue in the entire industry in 2017).

[435] *Compare* DX-4178.007 *with* DX-3248.008. The comparison shows a discrepancy in the portion of the mobile gaming market for the year 2017: namely Apple reports it as 42% in its presentation and third-party Newzoo reports it as 46% in its 2018 Global Games Market Report. The delta between these two figures is a few percentage points: using the third-party Newzoo figure in the Court's methodology, Apple's global market share is computed at 52.1% for 2017.

[436] Relying on the same documents, for 2015, the Court takes Apple's 18% market share divided by 34% of the mobile share of the global market. For 2016, the Court takes Apple's 21.8% market share divided by 40% of the mobile share of the global market.

gaming revenue in 2020.[437] Using these figures and the same methodology as above, Apple would have 57.6% market share in the global mobile gaming industry in 2020.[438]

The Court understands that the market share would likely be less if the Switch were included in the relevant product market.[439] However, the record is bare of evidence and, in any event, the new market entry would not have had such a compelling entrance as to discount the market share to under 30%.[440] Nonetheless, even assuming the market were limited to both mobile gaming *and* console gaming (including the Switch, PlayStation, and Xbox), Apple would still have, at a minimum, market power.[441] For the years in the record, the Court's methodology based upon the records shows that Apple would have a market share of such a defined global

[437] The Court notes that the 2020 Newzoo report is not in evidence, however, it is found as a "Reference" citation at the bottom of Apple's presentation. *See* PX-2302.022. These third-party references are often noted in presentations but only a few source documents are in evidence. The Court relies upon the reference because Newzoo is a credible third-party report that others in the industry rely upon.

[438] The same level of precision does not exist for 2018 and 2019 given the trial record. While the Court has evidence of Apple's market share in the wider gaming market and for certain years for the *mobile* gaming market, there is no discrete information or evidence for which it could calculate or find Apple's market share within *mobile* gaming for the years 2018 and 2019.

[439] For instance, the Court lacks any revenue specific information regarding the Switch with which to include in any market share determination. As to game streaming services, given the only recent introduction of such products to market, the Court would expect any inclusion of such services to have a minimal impact, if any, on the overall market share calculations in this section.

[440] *See* Trial Tr. (Bornstein) 4091:4–4092:3. Given the Court did not adopt the parties' market definitions, Epic Games' counsel would not commit to whether tablets would be included in that hypothetical market. Assuming a mobile and handheld device market as the relevant market, there are numerous tablet platforms and at least one mobile gaming console platform (Nintendo Switch) that would have to be included in such a market.

[441] The Court also assumes for purposes of this analysis that the video game revenue cited in the corresponding Newzoo report is all attributable to digital game transactions. The Court notes that this overinclusion of non-digital game transactions *and* of the PlayStation and Xbox would depress Apple's market share if the Court were to only include digital game transactions attributed to the Switch. Nonetheless, the purpose of this analysis is to demonstrate that Apple retains market power above 30% even with the overinclusion of these additional platforms and non-digital transactions.

video gaming market (*e.g.* mobile and console) of 32.9% 2017, and of 31.1% in 2016.[442] For the most recent year 2020, based on estimated and projected revenue and on the cited 2020 Newzoo report, Apple's market share would be 36.6% of such a defined video gaming market.

III. PROPOSED GEOGRAPHIC MARKET AND FINDING

The parties offer differing perspectives on the geographic market. Epic Games argues for a global market, excluding China, and Apple asserts a domestic market.

With respect to its theory, Epic Games argues for a global market because smartphones, and thereby, the smartphones' operating system, are sold globally. Moreover, smartphones generally work regardless of the location with the exception of China where the operating systems are, in fact, different because they are installed by original equipment manufacturers in China.[443] Apple does not challenge the *geographic* market for smartphones, although for the reasons set forth above, it heavily contests the notion that a separate market exists for operating systems.

By contrast, Apple focuses on app gaming transactions arguing that the geographic market is domestic. Apple highlights that consumers access the App Store with country-specific digital storefronts which means that consumers enter into transactions through a digital storefront based on their home country. Generally, Apple customers do not have access to foreign storefronts, and cannot readily switch between storefronts outside of their home country. The same is true for customers in foreign countries.[444] The Court understands that many console and other game transaction platforms similarly organize their stores with geographic overlays.[445] Providers have created impediments to switching geographic registration, such as prohibiting it as part of the terms of service, requiring country specific credit cards, and installing software which may make the app inoperable.[446]

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[442] The Court notes that the Switch was released in March 2017, and thus, the inclusion would only affect the years 2017 and later. The Court discloses that Apple's market share for 2015 would be 27%.

[443] Ex. Expert 1 (Evans) ¶¶ 70–71; Trial Tr. (Cook) 3970:10–16; *see also* Trial Tr. (Cook) 3942:18–19, 22 (agreeing that "in China, the iCloud service is operated by a Chinese company").

[444] Trial Tr. (Schiller) 2754:20–2755:9 ("It's how we've been told we need to structure the stores.").

[445] *Id.* 2754:14–2755:15; Ex. Expert 7 (Lafontaine) ¶ 9; Trial Tr. (Lafontaine) 2066:24–2067:6; *see also* Trial Tr. (Evans) 1565:12–14.

[446] Ex. Expert 7 (Lafontaine) ¶ 91; DX-4931.001; DX-4920.001 (noting for Microsoft that "[i]f you change your country or region in Microsoft Store, *the stuff you got in one region might not work in another*. This includes: Xbox Live Gold, Xbox Game Pass, Apps, games, music purchases, and movie and TV purchases and rentals").

Geographic constraints are less pronounced for developers. Foreign and domestic developers can publish on both foreign and domestic platforms. However, they can only access the consumer on the consumer's own domestic storefront.[447] Apple principally relies on Dr. Lafonatine to argue that the "competitive conditions each platform faces varies from country to country. The set of apps available across the world is not uniform. So one accessing the App Store's U.S. storefront would not have an identical selection of game apps to a consumer accessing a foreign storefront. Moreover, different countries feature different slates of competing platforms, with differing relative market shares. All of the above factors affect demand and substitution, creating different market conditions in each country."[448] However, the factual basis for her opinion is weak.[449]

The Court finds Apple's factual basis for its assertion to be weak. At least for purposes of this case, Apple's restrictions appear to be imposed by Apple, rather than by market forces. Importantly, the Court finds more persuasive that Apple actually treats app distribution as a global enterprise. Its rules and guidelines apply globally to all storefronts, the business development team engages with developers globally, the DPLA applies globally, and the complexity and justification for the complexity of the IAP system is due in large part because of the global nature of the business.[450] The parties agree that China is different.[451]

Thus, the Court finds the relevant geographic market to be global.

IV. MARKET POWER IN RELEVANT MARKET

In addition to Apple's market share in the relevant market of mobile gaming, the Court examines other evidence of Apple's market power in the mobile game transactions market and considers pricing, nature of restrictions, operating margins, and barriers to entry.

A. Pricing

The experts agree that the ability to set and maintain supracompetitive prices is evidence of market power. Dr. Schmalensee emphasizes, however, that two-sided platforms often have skewed pricing so supracompetitive prices on one side may not be indicative. He also opines

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[447] Apple FOF ¶¶ 444–446 (citations omitted); *see* Ex. Expert 7 (Lafontaine) ¶ 91.

[448] Apple FOF ¶¶ 447–450; Ex. Expert 7 (Lafontaine) ¶¶ 90–91, 93.

[449] Further, Dr. Lafontaine acknowledged that, when reaching her geographic market limited to United States consumers, she did not consider developers' ability to directly distribute apps to consumers. Indeed, she did not know whether direct distribution is limited by national boundaries. Trial Tr. (Lafontaine) 2067:7–2068:3.

[450] Ex. Expert 1 (Evans) ¶¶ 145, 266; Trial Tr. (Kosmynka) 985:21–986:24; Trial Tr. (Schmid) 3221:21–3222:2; Trial Tr. (Grant) 723:25–724:4.

[451] Ex. Expert 1 (Evans) ¶¶ 71, 108.

that only price changes over time are relevant to determining market power.[452] The parties thus dispute whether Apple's commission is (i) supracompetitive and (ii) has increased or decreased over time.

As an initial matter, as detailed above, the 30% commission was not set by competition or the costs of running the App Store, but as a corollary to other gaming commission rates. Next, the evidence showed four pricing considerations after the initial rate. First, in 2009, Apple introduced IAP using the same 30% commission. Second, in 2011, Apple enabled recurring subscriptions purchases on the iPhone. Third, in 2016, Apple introduced paid search ads on the App Store. Finally, in late 2020, Apple introduced the Small Business Program. That program reduced Apple's commission to 15% for developers making less than one million dollars. *See supra* Facts § I.C.3.c.

Both parties cite these pricing changes as evidence that Apple has or lacks market power. Epic Games cites the introduction of IAP, recurring subscription payments, and search ads as evidence of price increases. This evidence is not persuasive because both IAP and recurring subscriptions correspond to new features, not price increases on existing features. With respect to search ads, one would reasonably expect that a fundamental purpose of an app store is to provide search capability or "discoverability." Thus, by offering developers the option to pay for search ads, one could argue that this is not a new feature and therefore more probative of a price increase. On the other hand, developers do not have to use search ads which suggests this is could be viewed as a new feature. The record was undeveloped on this point.

Apple, on the other hand, cites the reduction on second year subscriptions and the Small Business Program as evidence of price decreases. The subscription reduction is highly probative; the evidence shows that Apple's decision coincided with several large developers ending in-app subscriptions through iOS apps (and therefore exercising power to leave Apple's platform). However, as described above, subscription apps face different market conditions than games, and there is no evidence of *game* developers leaving for other platforms to force a price decrease.[453] Further, the Court has explained above why the evidence on Apple's motivations regarding the Small Business Program is mixed. Regardless of whether altruism or regulatory pressure caused Apple to lower its commission, competition does not appear to have played a role.[454]

Given the lack of clear evidence about price increases or decreases due to competition, Dr. Hitt focuses on Apple's average commission, which he argued decreased over time from the growing presence of free apps on which Apple receives no commission. He argues this decrease

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[452] Ex. Expert 8 (Schmalensee) ¶¶ 108–109.

[453] *See* Ex. Expert 6 (Hitt) ¶¶ 102, 105.

[454] The Court does note that after Apple introduced the Small Business Program, Google quickly followed suit on Android. However, Mr. Cook was not aware of any other store that did so. This reinforces that Apple and Google compete with one another. Trial Tr. (Cook) 3860:4–10.

is inconsistent with market power.[455] However, the evidence is less probative because of the unique nature of Apple's business as both the device maker and app store operator.[456] Namely, Apple has repeatedly acknowledged that free apps make its platform more attractive, which helps it sell more devices.[457] As such, under a two-sided transaction platform analysis, the cost to users from purchasing devices to access free apps likely offsets the reduced price offered to developers of those apps.[458] Given Epic Games' theory that no commission should be levied, where the tipping point is in terms of that offset has not been explored.

Thus, ultimately, the pricing evidence does not show either market power or its absence. Apple's initial rate of 30%, although set by historic gamble, has apparently allowed it to reap supracompetitive operating margins. *See infra* Facts § IV.C. The choice to not raise that price further is consistent with market power if that price already reflects monopoly levels.[459] Only rarely has Apple reduced its commission in response to competitive pressure, such as with the second-year subscriptions. However, because subscription apps are a separate market from game apps, that does not show lack of market power in the mobile game transaction market.[460]

B. Nature of Restrictions

Epic Games also cites the nature of the restrictions as evidence of Apple's market power. Apple uses both technical and contractual means to restrict app distribution. Technically, Apple prevents unauthorized apps from downloading on the iPhone. It does so by granting certificates

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[455] Ex. Expert 6 *(*Hitt) ¶¶ 169–176, 184.

[456] Notably, the price of game in-app commissions has only grown over time. This again suggests that game developers may be subsidizing the rest of the App Store. *Id.* ¶¶ 174–175.

[457] *See*, *e.g.*, Trial Tr. (Cook) 3988:14–3989:5; PX-2060.005.

[458] Ex. Depo. (Okamoto) 324:04–325:10; PX-2060.018–.019; Trial Tr. (Cook) 3990:18–3991:8.

[459] As noted previously, Apple executives initially questioned whether they can maintain a 30% commission in response to competition. PX-0417. Apple still does not track costs or pricing on different platforms to determine its rate. Trial Tr. (Fischer) 904:18–905:6; Ex. Depo. 8 (Cue) 141:13–142:09.

[460] Apple makes two additional arguments for lack of market power. First, it claims that it has not restricted output. Apple FOF ¶¶ 467–468. Again, in light of the unique business model, game output here makes Apple's platform more attractive and increases rather than decreases its profits. Second, it claims that the 30% commission is consistent with other online platforms. Apple FOF ¶¶ 469–478. This argument is discussed above and below in relation to anticompetitive conduct. In short, the use of a 30% commission by other platforms is not dispositive because those platforms have a different business model than Apple and frequently negotiate their headline rates, so their effective rates are below 30%.

to developers; no certificate means the code will not run.[461] Contractually, Apple imposes the DPLA, which prohibits developers from distributing apps outside the App Store.[462]

These contractual terms are standardized and nonnegotiable—a contract of adhesion. Only a few developers have succeeded in modifying these terms by threatening to go to other platforms. Specifically, Spotify and Netflix have removed in-app purchasing functionality from iOS apps. On the other hand, both Down Dog and Match Group have testified that they have been unable to entice users to other platforms with lower prices. Match Group has employed marketing campaigns and promotions for web purchases, but the app sales have continued to "dominate." Down Dog has had better success at offering cheaper subscriptions on the web, but Apple's anti-steering provision has prevented it from directing users to the cheaper price. Thus, while 90% of Down Dog's Android users make purchases on the web, only 50% of its iOS users do so, even though about half of its total revenues still come from iOS users.

Accordingly, evidence shows Apple's anti-steering restrictions artificially increase Apple's market power by preventing developers from communicating about lower prices on other platforms.[463]

C. Operating Margins

The experts agree that "persistently high economic profit is suggestive of market power." Dr. Schmalensee opines that *operating* margins and *accounting* profit are less probative because they fail to take into account intellectual property and similar investments that lower operating costs. Dr. Barnes criticizes this opinion as an accounting matter, and Dr. Evans opines that in this specific case, accounting profits are an appropriate measure of market power. From this issue, we see a classic battle of the experts.[464] *See supra* Facts §§ II.C.5, II.B.

Here, in light of all of the evidence, the circumstances of Apple's P&L statements, and Apple's low apparent investment in App Store-specific intellectual property, the Court finds that operating margins are probative of market power. As described above, the App Store operating

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[461] Trial Tr. (Kosmynka) 986:9–22; Trial Tr. (Federighi) 3373:17–25, 3388:11–3389:12.

[462] PX-2619 §§ 3.2(g), 7.6. Recall that developers may license and use Apple's tools for free to create iOS apps under the Developer Agreement, but actually distributing them requires signing the DPLA. Trial Tr. (Schiller) 2757:1–2760:9.

[463] Trial Tr. (Schiller) 2760:16–21; Trial Tr. (Simon) 354:83–55:1, 359:3–364:13, 401:5-20; Ex. Expert 6 (Hitt) ¶¶ 102, 105; Ex. Depo. (Ong) 24:17–26:5, 28:9–29:22.

[464] Trial Tr. (Schmalensee) 1899:19–21, 1984:2–12; Trial Tr. (Evans) 1545:3–14, 1723:20–1724:19; Trial Tr. (Barnes) 2456:6–2458:11.

margins are "extraordinarily high." Thus, even without comparison to other stores, the operating margins strongly show market power.[465]

Further, Apple cannot hide behind its lack of clarity on the value of its intellectual property. Not all functionality benefits all developers. Further, as discussed, Apple has actually never correlated the value of its intellectual property to the commission it charges. Apple is responsible for the lack of transparency and whole-cloth arguments untethered to its rates do not ultimately persuade.

D. Barriers to Entry

With respect to barriers to entry, the evidence is mixed. On the one hand, Dr. Athey plausibly opines that entry into the platform business is difficult due to the need to attract both users and developers. Said differently, developers do not develop for new platforms unless they have a healthy user base, but users only go to platforms that already have a developed ecosystem. Thus, indirect network effects often dominate and create a "winner-take-all" system that allows only a few large platforms to survive.[466] *See also supra* Facts § II.B.1.

On the other hand, the mobile game market is changing, including with the introduction of cross-platform policies, cross-platform services (*e.g.* cloud-based game streaming), and new hybrid platforms such as the Nintendo Switch. First, the introduction of cross-platform middleware like cross-wallet and cross-play has plausibly decreased barriers to new entrants. The rise of game streaming may allow for competition among platforms on iOS in the near future, even if Apple maintains its app distribution restrictions. The role of game streaming and whether it will constrain market power remains to be seen.[467] *See supra* Facts § II.D. In light of these uncertainties, the Court finds that barriers to entry are currently relatively high but are plausibly decreasing and may be lower in the future.[468]

V. FACTS REGARDING ALLEGED ANTICOMPETITIVE EFFECT

Epic Games contends that Apple's restrictions on iOS app distribution and in-app payment processing create anticompetitive effects. As explained above, the App Store is a two-sided transaction market, which may make competitive effects difficult to evaluate. In two-sided

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[465] *See* Trial Tr. (Evans) 1545:3–14 (explaining that in a competitive market, high profits decline because companies would reduce prices and invest in quality to stave off competition).

[466] Ex. Expert 4 (Athey) ¶¶ 16–19, 35–46.

[467] Trial Tr. (Athey) 1787:14–18; Trial Tr. (Patel) 424:8–9 (number of games currently on GeForce is small), 449:8–450:2 (strict limitations on usage), 481:16–484:24 (same), 483:25–484:4 (game streaming not profitable).

[468] Of course, game streaming typically requires an up-front subscription fee, which makes it unlikely to replicate the "freemium" model that gains users by an initial free download. Trial Tr. (Patel) 483:13–485:14; Trial Tr. (Sweeney) 187:24–188:3 (attributing "a lot of [Epic Games'] success" to the freemium model).

transaction markets, an anticompetitive price or restriction on one side may well reflect a competitive equilibrium on the other side.[469] Thus, the experts agree that competitive effects can only be determined after carefully considering both sides of the transaction (developers and users), including any indirect network effects.[470]

With this in mind, the Court reviews evidence of the competitive effect of Apple's challenged conduct.

A. Anticompetitive Effects: App Distribution Restrictions

1. *Effects*

With respect to Apple's app distribution restrictions, Epic Games focuses on the following alleged anticompetitive effects: (a) foreclosed competition; (b) increased consumer app prices; (c) decreased output; (d) decreased innovation; and (e) effect on other markets through the restrictions on app stores. Apple, in turn, argues that the restrictions provide a safe and secure place to conduct game transactions and compensate Apple for its procompetitive investments in iOS. The Court first addresses Epic Games' evidence and then Apple's procompetitive justifications in the next section.

a. Foreclosure of Competition

With respect to the issue of foreclosing competition, the contention is not in dispute. Quite simply, Epic Games wanted to open a competing app store and could not. The evidence is mixed as to the demand to do so. Epic Games relies on the experience of Microsoft and Nvidia, which tried to offer native iOS game streaming apps (xCloud and GeForce NOW) but were blocked by Apple's restrictions.[471] Both companies, however, ultimately succeeded in making

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[469] For instance, Dr. Schmalensee offers the example of OpenTable that suspends a user's account after a certain number of no-shows. Although this may seem like an arbitrary exercise of power to the user—particularly if there are few other reservation apps in that market—the restriction helps keep the platform attractive for restaurants and thus serves a procompetitive end by increasing participation. Ex. Expert 8 (Schmalensee) ¶ 30.

[470] Ex. Expert 1 (Evans) ¶ 216; Ex. Expert 8 (Schmalensee) ¶ 127.

[471] As explained elsewhere, GeForce allows streaming of games users purchased through other platforms, such as Steam. xCloud is limited to Microsoft games. Thus, they are each a type of game store, though idiosyncratic in not needing to access device hardware (which is what allows them to work through the web). Indeed, four of the five stores blocked by Apple's challenged rule concern game streaming. Trial Tr. (Patel) 425:1–11, 432:17–433:12; Ex. Expert 1 (Evans) ¶ 166.

their apps available through the web. Although neither party was fully satisfied with the results, their experiences do not show complete foreclosure of competition.[472]

Instead, Epic Games relies on comparative evidence with other markets. On devices without app distribution restrictions, many app and game stores exist. For instance, Windows and Mac computers host game publishers like Steam, Electronic Arts, and Activision Blizzard who directly distribute through their own stores. Apple executives have acknowledged that the Mac App Store matters primarily for Apple software and smaller developers, while developers with market power are not on the Mac store "because they don't have to be."[473] According to Dr. Evans, there are at least ten third-party stores on Mac and Windows, and most top apps are distributed directly from the developer website. Indeed, several large game developers, like Google and Facebook, have tried to distribute games on iOS in recent years.[474]

The evidence also shows that smaller developers might choose direct distribution while remaining in the App Store. For instance, the CEO of Down Dog, the fitness app, testified that he would support users installing directly from a website.[475] Notably, however, these developers did not testify that they would leave the App Store altogether. That is because, as Apple shows, the App Store provides many benefits to developers, including developer tools, promotional support, and a ready audience, that enables small developers to compete with large ones. For instance, 72% of small developers lack a marketing budget, and Apple provides significant free advertising and "spotlighting" to help users discover new apps as part of its DPLA.[476]

While plaintiff did not survey developers, taken together, this evidence suggests that Apple's restrictions foreclose competition for large game developers who have well-known games. These developers would likely, and have the resources to, open their own stores to forego Apple's "fees, rules, and review."[477] Smaller developers, on the other hand, would likely

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[472] Trial Tr. (Wright) 568:13–571:8, 579:1–10; Trial Tr. (Patel) 429:11–25. Apple has also blocked Big Fish, a "game store within an app," and web stores. PX-0115; PX-0111.

[473] PX-2386.

[474] Ex. Expert 1 (Evans) ¶¶ 163–168; Trial Tr. (Allison) 1200:14–1201:14. Dr. Evans also provides comparison to the over 60 Android app stores in China and numerous third-party stores on early smartphones. However, Epic Games has not shown that those markets are sufficiently comparable to the market here. Ex. Expert 1 (Evans) ¶ 165.

[475] Ex. Depo. (Ong) 33:18–34:07; Trial Tr. (Simon) 392:9–17.

[476] Ex. Expert 8 (Schmalensee) ¶ 51; Trial Tr. (Fischer) 931:23–933:20, 935:15–936:23; DX-3800.038; Trial Tr. (Schiller) 2737:9–24.

[477] PX-2386.

stay on the App Store (or a comparable store) for product discovery reasons. Indeed, that is exactly what happened earlier on PCs, which bolsters the likely evaluation and outcome.[478]

b. Increased Consumer App Prices

Next, Epic Games argues that Apple's app distribution restraints increase prices for consumers. Epic Games' argument is plausible. As Dr. Evans testified, "[w]e know from economics, both theory but also practical experience, in situations where there are barriers to competition and they're removed that what typically happens [is] . . . that prices tend to fall [and] quality tends to improve."[479]

In the context of gaming, Dr. Evans's observation has vivid illustration in the PC market. The incumbent Steam store charged a 30% commission for decades before Epic Games' store entered with a 12% commission. Immediately before that time, Steam lowered its commission to 20%, and its average commission rate declined to 10.7%. Microsoft followed suit shortly after, with other stores offering pay-what-you-want. This competition has affected platform margins, which are considerably smaller on PCs than on other devices—5% compared to 45%.[480]

Dr. Evans opines that the same would happen if Apple allowed third-party app stores on iOS. He posits that numerous third-party app stores would enter iOS in the absence of restraints and that these stores would compete for developers. The competition would exert pressure on Apple, which would have to lower prices or improve services. To calculate the resulting prices, Dr. Evans relies on several sources. First, he cites Mr. Schiller's 2011 statement that a 20% or 25% commission is "competitive."[481] Second, he uses Mr. Barnes comparisons of online marketplaces to calculate Apple's commission if its operating margins were only as high as the highest in a competitive market (Alibaba with 45.8% margins). Under that calculation, and assuming that developers would pass on half of the commission, Apple would only charge 15.6% while still being very profitable.[482]

Apple vigorously disputes this evidence. First, it points out that the 30% commission is standard for other stores, including on competitive platforms.[483] For instance, Apple charges

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[478] *See* Trial Tr. (Allison) 1206:1–1209:8; Trial Tr. (Evans) 1510:24–1511:7.

[479] Trial Tr. (Evans) 1551:15–1552:2.

[480] Trial Tr. (Allison) 1209:13–1210:1, 1275:18–1276:5; Ex. Expert 1 Evans ¶¶ 170–173; DX-5523.011.

[481] *See* PX-0417.

[482] Ex. Expert 1 (Evans) ¶¶ 180–184; Ex. Expert 2 (Barnes) ¶ 3.

[483] Apple also argues that it charged 30% from the very beginning when it was not a monopolist. However, there is evidence that Apple did not consider the rate to be sustainable at that time and questioned whether "enough challenge from another platform or web based solutions" will cause it to adjust. PX-0417. Moreover, Apple recognized that the App Store was "brand-new," with no true comparisons in the market, and set the rate set without considering

30% on Macs, which Dr. Evans agrees is competitive. However, Apple's argument is suspect. One, Apple relies on "headline" rates that Dr. Evans and Dr. Schmalensee agree are frequently negotiated down. For example, the Amazon App Store has a headline rate of 30%, but its effective commission is only 18.1%. Both Ms. Wright and Mr. Sweeney testified that consoles frequently negotiate special deals for large developers. Sealed evidence in this case confirms the same. Two, just because it is the competitive rate for games in the console market, does not mean that the rate translates to the mobile games market. As described above, the App Store has very different operating margins than consoles, so even if the commission is the same, the economics and the nature of the products are very different. Thus, ultimately, these comparisons are not useful because the other stores do not operate in the same market.[484]

Neither party grapples with the overarching issue of Apple's choice of model and how it subsidizes certain developers. Rather, each side manipulates the "zero" commission rates on free or freemium apps to their advantage. Apple relies on analysis by Dr. Hitt who argues that the average commission rate in FY2019 was 8.1% for game apps and 4.7% for all apps while Dr. Evans and Dr. Cragg ignore the category all together. Ultimately, neither analysis is helpful.[485] Developers and Apple have learned that the freemium model is significantly more lucrative than the alternatives given the ability for impulse purchases. For those, the commission rate remains at 30% notwithstanding the choice of other developers.

Last, Apple argues that the 30% rate is commensurate with the value developers get from the App Store. This claim is unjustified. One, as noted in the prior section, developers *could* decide to stay on the App Store to benefit from the services that Apple provides. Absent competition, however, it is impossible to say that Apple's 30% commission reflects the fair market value of its services. Indeed, at least a few developers testified that they considered Apple's rate to be too high for the services provided.[486] Two, Apple has provided no evidence that the rate it charges bears any quantifiable relation to the services provided. To the contrary, Apple started with a proposition, that proposition revealed itself to be incredibly profitable and there appears to be no market forces to test the proposition or motivate a change.

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costs. Ex. Depo. 8 (Cue) 135:8–136:14, 137:23–138:14. Thus, the initial rate was at least partly protected by the iPhone's "newness" and may not reflect a competitive rate.

[484] Ex. Expert 6 (Hitt) ¶¶ 166–167; Trial Tr. (Evans) 1686:6–12, 2439:1–2441:23; Trial Tr. (Schmalensee) 1958:1–5; Trial Tr. (Wright) 586:11–21; Trial Tr. (Sweeney) 310:1–17; PX-2392.003. Google, of course, operates in the same market.

[485] Ex. Expert 6 (Hitt) ¶ 180; Ex. Expert 13 (Cragg) ¶ 98; Ex. Expert 16 (Evans) ¶ 50; Trial Tr. (Hitt) 2198:24–2200:6. Similarly unhelpful is Dr. Cragg's analysis of average dollar amounts of Apple's commission. Ex. Expert 13 (Cragg) ¶¶ 99–101. These numbers are coextensive with developers charging higher prices; absent some evidence that Apple caused them to do that, the analysis simply reflects broader growth in the industry. Ex. Expert 6 (Hitt) ¶ 174; Trial Tr. (Hitt) 2110:9–2111:21.

[486] Trial Tr. (Simon) 377:3–10; Trial Tr. (Fisher) 911:4–11 (Apple received developer complaints that the rate is too high).

Accordingly, the Court finds that Apple's restrictions on iOS game distribution have increased prices for developers. In light of Apple's high profit margins on the App Store, a third-party store could likely provide game distribution at a lower commission and thereby either drive down prices or increase developer profits. The Court must reserve on whether Apple's restrictions have increased prices for consumers as the evidence is mixed.[487] Here, Epic Games' role as a consumer is not in the traditional sense but only in the sense of a consumer of transactions with traditional consumers. This issue was not the focus of this trial.

c. Decreased Output

The parties dispute impact on output. Apple argues that the amount of iOS game output has increased over time. On this, the Court agrees. The evidence shows that iOS game transactions exploded by 1,200% since 2008,[488] with double that growth in developer game revenue. However, that does not mean that Apple's conduct is procompetitive. As Dr. Evans explained, "high-technology industries [often] grow extraordinarily rapidly" even where "a dominant firm emerges very quickly," so "tremendous growth" in these markets is "commonplace." Using growth as a competitiveness metric would "be essentially a free pass for high-tech companies."[489]

Unfortunately, what is needed is a comparison of output in a "but-for" world without the challenged restrictions. Such comparison is not in the record. Dr. Hitt provides some evidence that iOS game revenue grew faster than the game market as a whole and, importantly, that game revenue on iOS grew faster than on Android.[490] Growth rates, however, are difficult to compare because of different initial starting points. Moreover, even assuming that iOS gaming revenue grew faster than the market, it is difficult to attribute that growth to the App Store (as opposed to, for instance, superior iPhone hardware or user experience). Thus, the high output may have been even higher without Apple's restrictions.[491]

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[487] *See, e.g.*, Trial Tr. (Simon) 355:17–356:17; Trial Tr. (Sweeney) 97:7–14; Ex. Depo. (Ong) 74:8–12; *see also* Ex. Depo. 12 (Gray) 176:23–178:2; PX-0533.010 (even within the Apple ecosystem, app prices are higher on platforms where Apple charges 30% rather than 15%).

[488] The growth in iOS game transactions corresponds to both strong growth in the gaming industry and strong growth in iPhone and iPad sales. Ex. Expert (Hitt) ¶¶ 183–189. These factors could cause mobile game transactions to grow even if Apple's restrictions are anticompetitive.

[489] Trial Tr. (Evans) 2366:22–2367:8; Ex. Expert (Hitt) ¶ 183.

[490] Game revenue grew by 2,600% between 2010 and 2018 on iOS but only 367% between 2013 and 2018 on Android. Ex. Expert 6 (Hitt) ¶¶ 183–184.

[491] Ex. Expert (Hitt) ¶¶ 183–185; Ex. Expert 7 (Lafontaine) ¶ 100; Trial Tr. (Hitt) 2083:8–18; Trial Tr. (Evans) 1721:11–18; Ex. Expert 16 (Evans) ¶ 75.

Dr. Evans, on the other hand, opines that a high commission reduces output because it leads to higher prices that cause consumers to purchase less, which reduces the number of viable games. Some evidence supports that view. For instance, Apple has recognized that some developers have taken the position that they do not have the margin to support the 30% commission, which is "prohibitive [of] many things." The magnitude of the effect, however, is unclear.[492] Thus, there is no evidence that a *substantial* number of developers actually forego making games because of Apple's commission.[493]

Thus, the analysis is insufficient to determine that Apple's restrictions had either a negative or a positive impact on game transaction volume.

d. Decreased Innovation

Next, Epic Games argues that Apple's app distribution restrictions harm innovation. Epic Games makes two arguments. First, it argues that Apple's 30% commission imposes a burden on developers, who either reduce their game investment or forego making games altogether as a result. Part of this argument is related to output and fails for the same reason: Epic Games has not shown that any developer actually stopped making games because of Apple's commission, albeit they may reduce investment.[494] This, however, is a natural corollary of having to pay app store commissions and does not present a separate argument for anticompetitive effects, particularly since third-party stores would likely continue charging commissions.

Second, Epic Games argues that Apple's restrictions have reduced innovation in game distribution itself. The parties agree that the App Store provides features besides distribution, including search and discoverability to help users discover games, in-app payment processing, developer tools, and security.[495] Competition could improve each of these features: a third-party

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[492] Epic Games cites testimony that Apple is aware of "some developers" who said that they would not launch native iOS apps because of Apple's 30% commission. Ex. Depo. 8 (Cue) 150:5–12.

[493] Ex. Expert 1 (Evans) ¶ 275; Trial Tr. (Schiller) 3111:7–14; PX-0438.

[494] Trial Tr. (Sweeney) 92:8–13.

[495] As explained in this Order, in-app payment processing is an integrated part of the App Store. That does not, however, mean that it would not benefit from competition. Third-party app stores could provide substantial innovation in payment processing by incorporating more developer-friendly tools (such as, for example, easy refunds). Thus, all of the anticompetitive effects listed in the next section for in-app payment processing apply to Apple's restrictions on distribution.

app store could provide better "matchmaking" between users and developers, could have simpler in-app payments, and could impose a higher standard for app review to create more security.[496]

Notably, Apple conducted developer surveys in 2010 and 2017. Comparing the two indicates that Apple is not moving quickly to address developer concerns or dedicating sufficient resources to their issues. Innovators do not rest on laurels. While more developers may be "satisfied" or "very satisfied" than not, a significant portion are not.[497] For example, a top reason for dissatisfaction with the App Store is lack of functions which other platforms have, such as personalized recommendations.[498] An email summarizing 2018 write-in answers suggests that developers perceive the App Store as lacking features common to other platforms. For instance:

- "Apple store needs to have 'smart search' ability. Having to require customers to spell names exactly correct in this age is ridiculous for a multi-billion dollar company."
- "[T]he search algorithm is terrible. It is a rating based algorithm rather than a name search. I can search for my apps and type their EXACT name and they still won't come up. I may even need to scroll down 100s of pages before my app shows up."
- "Discoverability is still a significant challenge on the App Store (even after last year's update). Our organic downloads for games on Steam are much higher than our games on the App Store, even though the App Store has more active users. This doesn't make sense."
- "The App Store desperately needs A/B testing. On Google Play, I've been able to optimize my store listing and because of that, I've been able to see unbelievable growth. If Apple added A/B testing for App Store listings, everyone would see a lift in downloads and ultimately more revenue for developers as well as Apple."

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[496] *See* Trial Tr. (Evans) 1560:12–25 (search and discovery is the "core element of what any store does"); Trial Tr. (Schmalensee) 1954:3–9 (App Store provides "matchmaking"). *But see* Trial Tr. (Evans) 1502:15–1503:18 (excluding in-app payment processing).

[497] The Court acknowledges that the survey data includes five categories (Very Satisfied, Somewhat Satisfied, Neutral, Somewhat Dissatisfied and Very Dissatisfied) and that if combining the two "satisfied" categories, more developer fall within that zone than the two "dissatisfied" categories. That said, by adding in those who are "Neutral," Apple rating is more in the range of 60-40. *See generally* DX-3922.

[498] Ex. Expert 1 (Evans) ¶¶ 191–192, 196; DX-3922.066, .072, .074; DX-3877.019; *see also* DX-3800 (2015 survey). Apple responds by pointing to search ads, which it enabled in 2016 in response to these complaints. Trial Tr. (Cook) 3889:16–3890:2; PX-2284.006. That said, developers must pay for these search ads and competitors may use them to artificially drive traffic, which decreases overall app discoverability. *See* Ex. Depo. (Ong) 59:14–60:14. Thus, the search ads are, at best, a mixed blessing for poor overall matchmaking.

Indeed, Apple's own former Head of App Review, Philip Shoemaker, has described the App Store as "antiquated," with "no radical innovation, only evolution" for the last ten years.[499]

In addition, developers complain that app review guidelines lack clarity and are inconsistently applied.[500] Part of this issue stems from the sheer number of apps submitted with only 500 human reviewers. Apple has been slow either to adopt automated tools that could improve speed and accuracy or to hire more reviewers.[501] As discussed further below, Apple's in-app payment processing tool also lacks features.

Apple's slow innovation stems in part from its low investment in the App Store. As Mr. Barnes described, "[o]nly a small amount of direct and allocated R&D . . . [flows] . . . to the Apple App Store." Apple argues that Epic Games fails to account for R&D that affects multiple lines of the business, which counts as joint costs. Even Dr. Schmalensee admitted that the estimates, which were put together specifically for Apple's CEO, show very little R&D allocated to the App Store. Thus, even if the Court accepts that some App Store revenue goes to features that indirectly benefit developers, like hardware, the evidence remains that "core" matchmaking features of the store see little investment.[502]

Ultimately, the point is not that the Apple provides bad services. It does not: most developers are satisfied with the App Store, particularly with its developer tools.[503] Rather, the point is that a third-party app store could put pressure on Apple to innovate by providing features that Apple has neglected. Because this competition is currently precluded, Apple's restrictions reduce innovation in "core" game distribution services.

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[499] PX-0098.001; *see* Ex. Depo. (Shoemaker) 31:03–05, 64:13–64:20.

[500] *E.g.*, Ex. Depo. (Ong) 62:15–64:16; Ex. Depo. (Shoemaker) 126:20–23; Trial Tr. (Simon) 384:7–385:8.

[501] Trial Tr. (Kosmynka) 1083:12–15, 996:7–12; PX-0137.001 (Google had automated review before Apple). *But see* DX–3642 (describing App Store redesign in response to developer complaints). *See also* Ex. Expert 11 (Rubin) ¶ 57.

[502] Ex. Expert 1 (Evans) ¶¶ 187–189; Ex. Expert 2 (Barnes) ¶¶ 19–22; Trial Tr. (Schmalensee) 1902:2–4, 1981:16–1982:5; PX-2385.024.

[503] *E.g.*, DX-3922.063. Apple also cites surveys showing very high *user* satisfaction with the iPhone. DX-4275.205; DX-4089.056. The surveys, however, concern the device as a whole and, if anything, reinforce the lesser role played by third-party apps. Thus, the most important features driving purchasing decisions all relate to hardware—battery life, performance, durability, and ease of use—which also form the top reasons for considering other devices. DX-4089.010, .035, .037. By contrast, only 28% of users consider third-party apps an important "other" aspect of their iPhone purchase decision. DX-4089.012.

e. Other Effects

Epic Games raises two other potential anticompetitive effects. First, Epic Games argues that Apple self-preferences its own apps.[504] Using partial testimony from Mr. Shoemaker, plaintiff claims that Apple used the app review process "as a weapon against competitors" and placed "barriers" between competitor apps, while using the data obtained through app review to create its own apps. For example, Apple Arcade has been allowed on the store, despite being a store within a store. Google Voice, on the other hand, was rejected on "pretextual grounds" because of Apple's concern that the iPhone will "disappear . . . in guise of a Google phone."[505]

Upon review, the proffer is weak. Mr. Shoemaker clearly believes that Apple misuses its app review process. Aside from his limited deposition excerpts, however, there is little objective evidence of self-preferencing. For instance, Apple Arcade apparently complies with App Store requirements that each game be individually downloaded.[506] There is thus at least a factual dispute about whether it accords with the guidelines. As to Google Voice and Rhapsody, even Mr. Shoemaker acknowledges that they were "the first of their kind" and that "Apple just didn't know how to respond" during app review.[507]

Second, Epic Games argues Apple's restrictions reduce "middleware" that could decrease switching costs and increase competition. Dr. Athey testifies broadly to this effect, opining that new platforms face a "chicken-and-egg" problem where they have to attract users through apps but have to attract developers through users. Middleware could help reduce these costs by allowing for app porting from one platform to another.[508] As noted above, Dr. Athey's analysis is plausible but wholly lacking in supporting evidence. She does not show that even her preferred examples of middleware, such as the multi-platform store Steam, have meaningfully

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[504] Epic Games argues that Apple self-preferences its apps in search, but provides little evidence in support. In one email, an Apple employee states that Mr. Fischer, "feels extremely strongly about not featuring our competitors on the App Store," but Mr. Fischer says she was misinformed. PX-0058.001; Trial Tr. (Fischer) 954:12–955:12. Another email describes "boosting" certain apps over Dropbox, but Mr. Fischer immediately reversed the decision. PX-0052. As to search, Mr. Schiller testified that Apple does not use search ads for its own products, and Epic Games has not shown otherwise. Trial Tr. (Schiller) 2819:13–14.

[505] Ex. Depo. (Shoemaker) 75:14–77:02, 78:13–78:24, 84:16–85:08, 88:02–88:08; PX-0099.006. Epic Games also cites evidence of developers' complaints that Apple's "apps are permitted to do things they are not." PX-0858.002; Trial Tr. (Kosmynka) 1028:11–1030:4. The proffered evidence has no context so it cannot be evaluated.

[506] Trial Tr. (Athey) 1854:6–16.

[507] PX-0099.005.

[508] Ex. Expert 4 (Athey) ¶¶ 42–47, 53–56.

increased new entrants, particularly since each platform still requires its own APIs.[509] Thus, the evidence does not support anticompetitive effects in this area.

2. *Business Justifications*

Apple asserts two business justifications for its app distribution restrictions.[510] First, it argues that prohibitions on third-party app stores helps ensure a safe and secure ecosystem. This benefits both users, who enjoy stronger security and privacy, and developers, who benefit from a larger audience drawn by these features. It also benefits Apple, which uses privacy and security as a competitive differentiator for its devices and operating system.[511]

Second, Apple claims that the distribution restrictions are part of its intellectual property licensing arrangement for which it is entitled to be paid. As the owner of the devices and operating system, Apple could choose not to license its IP and remain the exclusive developer of iOS apps. Instead, Apple has actively licensed, developed, and improved its IP for others, but only on the condition of iOS remaining a "walled garden." Thus, Apple argues that its contractual restrictions are necessary to protect its IP investments and prevent free riding.[512]

Epic Games responds that each of these justifications is pretextual. Apple's commission is wholly disconnected from—and not motivated by—its intellectual property investments. Epic Games also contends that an exclusive app store is not necessary to maintain security, which can be achieved through less restrictive means, such as notarization.[513]

The Court examines the evidence for each.

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[509] *See id.* ¶ 67; Ex. Expert 6 (Hitt) ¶¶ 261–262 (while Steam decreases costs to *offer* games across platforms, it does nothing for costs to *develop* them).

[510] In its Findings of Fact, Apple focuses heavily on the procompetitive nature of app stores in general. Thus, Apple argues that before it introduced the App Store, distribution was limited to the web, and that the App Store launched a new wave of innovation that benefited consumers and developers alike. Apple FOF ¶¶ 545–548. Since Epic Games does not challenge Apple's right to maintain the App Store but only its restrictions on other distribution—which may provide similar or equivalent benefits—these procompetitive effects are not directly tied to the challenged conduct.

[511] Apple FOF ¶¶ 581–595; Trial Tr. (Schiller) 2734.21–2735:2, 2830:25–2831:3; Ex. Expert 11 (Rubin) ¶¶ 23, 56–59; Trial Tr. (Sweeney) 93:8–11; Trial Tr. (Evans) 1689:16–1690:8; Ex. Expert 8 (Schmalensee) ¶¶ 52–54.

[512] Apple FOF ¶¶ 596–602; Ex. Expert 12 (Malackowski) ¶¶ 15–19, 26, 42, 51, 54.

[513] Epic Games FOF ¶¶ 564–700; *see also* Trial. Tr. (Malackowski) 3662:13–17, 3666:16–3668:10–18, 3669:22–3670:7, 3692:18–3700:10; Trial Tr. (Schiller) 2738:15–24.

a. Security, Privacy, and Reliability

Beginning with the security justification, the Court notes at the outset that the parties adopt different definitions of security. Epic Games takes a narrow view of security as preventing an app from performing unauthorized actions or stealing user data. Thus, Epic Games' security expert, Dr. Mickens, defines a "security property" as one that "make[s] an app easier to subvert" or allows it to "improperly interact with other apps" or "expose sensitive user data to potential theft or corruption." [514]

Apple, on the other hand, takes a broader view of security that includes user privacy, reliability, and "trustworthiness." Its security expert, Dr. Rubin, opines that security concerns arise when an app targeted to children asks for a home address; when a simple Tic-Tac-Toe game requests microphone and camera access; when an app developer falsely represents their application; or when an app is so unreliable that its constant crashing endangers offline safety. Dr. Rubin also includes "objectionable content," such as pornography and pirated apps, in his definition.[515] Because these apps perform no expressly unauthorized actions—and may be affirmatively authorized by the user—they raise different concerns than traditional malware.

The Court finds it useful to disaggregate these forms of security, as well as the two types of challenged restrictions (sideloading and "store-within-a-store").

i. "Narrow" Security: Malware

Under a narrow conception of security, Apple protects from malware on iOS in at least four ways. *First*, Apple uses malware scanning programs to detect whether a piece of software corresponds to known malware. *Second*, it requires developers to register with a certificate and sign their code with that certificate so that malware can be traced back to a developer and code from unknown entities can be excluded. *Third*, it uses "sandboxing" to prevent an app from doing anything that the user has not authorized.[516] *Fourth*, it includes "reliability checks" on the App Store, which include automated app scanning, as well as human review. Together, these techniques create "layered" security that creates multiple barriers to malware.[517]

All but the last of these malware protections are performed by the operating system or middleware independent of app distribution. Dr. Mickens thus opines that restrictions on app

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[514] Ex. Expert 5 (Mickens) ¶ 49.

[515] Ex. Expert 11 (Rubin) ¶¶ 18–21. Mr. Federighi testified that security means "protecting users' data and protecting their control over the device, making sure that what happens on their device is what the user intended and isn't being manipulated by a bad actor." Trial Tr. (Federighi) 3358:5–8. This definition encompasses Dr. Rubin's examples.

[516] "Sandboxing" may encompass other techniques, such as memory isolation and address space layout randomization. Trial Tr. (Federighi) 3376:4–3378:14; Ex. Expert 5 (Mickens) ¶¶ 24–37.

[517] Trial Tr. (Federighi) 3372:10–3375:25, 3383:16–3384:14.

distribution are not necessary because the operating system implements all of the key security features. App review, by contrast, provides only secondary checks on sandbox compliance, exploit resistance, and malware exclusion, as well as "non-security" factors like privacy and legal compliance.[518]

Importantly, however, Dr. Mickens focuses only on preventing unauthorized app functions. He opines that his preferred techniques work by removing "decision-making" power from applications and vesting them in the operating system. The OS then resolves the decision by prompting users for consent. Thus, even though the OS is formally making decisions, the user ultimately determines access.[519] The evidence shows, however, that this may not be enough to protect security because users often grant permissions by mistake. Mr. Federighi credibly testified that malware may use "social engineering" techniques to trick the user into granting access and evade operating system defenses. For example, malware may represent itself as a dating app to ask for photo access—which it can then encrypt and hold for ransom against the user. Epic Games did not explain how, if at all, the operating system can protect against this type of behavior.[520]

Moreover, system-level protections do not fully prevent downloading malware in the first place. As Dr. Rubin plausibly opines, "[i]t is unwise to *first* trust users to download malicious apps, and *then* try to subsequently detect malicious apps and deny giving malicious apps the permissions they might request."[521] The evidence shows that social engineering attacks act as a dominant vector of malware distribution. A 2020 Nokia report indicates that "[i]n the smartphone sector, the main venue for distributing malware is represented by Trojanized applications," which trick users into downloading by posing as a popular app. For example, a malicious app may represent itself as free Microsoft Word to obtain downloads. A 2020 PurpleSec report confirms that "98% of cyberattacks rely on social engineering."[522]

For these types of attacks, human app review plays a meaningful role. During app review, a human reviewer confirms that an app corresponds to its marketing description. This prevents the "trojan" attacks described above, where malware tricks users into download by posing as another popular app. The human reviewer also checks that the app's entitlements are reasonable for the task it purports to accomplish. Thus, a Tic-Tac-Toe game may be rejected if it asks for camera access or health data. Last, although not directly related, app review checks for

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[518] Ex. Expert 5 (Mickens) ¶¶ 6–9, 66–70; Trial Tr. (Mickens) 2559:5–12, 2571:24–2572:5.

[519] Ex. Expert 5 (Mickens) ¶¶ 23, 72.

[520] Trial Tr. (Federighi) 3371:3–3372:1, 3379:10–3380:13; Ex. Expert 11 (Rubin) ¶ 27.

[521] Ex. Expert 11 (Rubin) ¶ 30 (emphasis in original).

[522] DX-4975.008; DX-4956.006; Ex. Expert 11 (Rubin) ¶ 96; Trial Tr. (Federighi) 3370:2–12; Trial Tr. (Rubin) 2763:1–9.

offline safety issues. Although these tasks are straightforward, they require human review and cannot be implemented by a computer or operating system.[523]

The Court agrees with Epic Games that this process is imperfect. Apple has limited ability to prevent "Jekyll and Hyde" apps that change their behavior after review, and allows some malware to slip through.[524] However, the overall error rate appears to be relatively small, with Apple's former head of app review testifying that it was around 15% in 2015. Mr. Federighi confirmed that the error rate is generally small.[525]

Removing app distribution restrictions could reduce this effectiveness. First, app stores often differ in the quality of app review. On Android, which allows some third-party app stores, the main Google Play app store is secure, but a variety of third-party stores allow blacklisted apps to operate.[526] A Nokia report attributes higher malware rates on Android to Trojan apps on third-party app stores. This creates a problem because, as Dr. Rubin opined, "security is only as strong as the weakest link."[527] Decentralized distribution thus increases the risk of infection by giving malware more opportunities to break through. Namely, if even one app store permits

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[523] Trial Tr. (Federighi) 3384:22–3388:7; Trial Tr. (Kosmynka) 1087:9–21, 1090:22–1094:1; Ex. Expert (Rubin) ¶¶ 31, 36–37. Human review may also provide some benefit against novel and well-hidden malware attacks. Dr. Rubin explains that automated tools investigate based on past threats to flag content, which makes them less able to detect novel attacks. Mr. Kosmynka acknowledged that his team has found new types of threats not picked up by automated tools. He also testified that his team finds well-hidden features not picked up by automated tools, including bait and switch. Trial Tr. (Kosmynka) 1108:1–1109:11, 1095:23–1103:8; Ex. Expert (Rubin) ¶ 40.

[524] These issues appear to have preceded Apple's use of dynamic analyzers, which may partly address the problem. *See* PX-0465; Trial Tr. (Kosmynka) 996:7–19, 1098:17–25.

[525] PX-0465; PX-0335.006; Ex. Depo. (Shoemaker) 133:20–134:9; Trial Tr. (Federighi) 3486:15–23. Both parties also cite statistics about the overall rejection rate of app review. That says nothing about the error rate. Apps may be approved or rejected for proper and improper reasons. Trial evidence did not focus on this later issue.

[526] The parties debate whether Android is less secure than iOS. Although some industry publications show greater malware on Android, Dr. Mickens testified that they are in the same "rough equivalence class." The Court need not resolve this dispute because Android differs in other ways, such as lack of app certification and weaker sandboxing, that could affect malware rates independent of app distribution. *E.g.*, DX-4975.008; DX-4956.004; DX-4959; *see* Trial Tr. (Mickens) 2558:16–2260:8, 2630:12–2631:11; Trial Tr. (Rubin) 3774:3–2777:16.

[527] Ex. Expert 11 (Rubin) ¶ 87. Of course, third-party app stores could also have increased security than Apple. For example, a Disney app store would plausibly screen apps more rigorously than Apple. Trial Tr. (Mickens) 2697:12–21.

malware to operate (either accidentally or as a "rogue" app store), a social engineering attack has a chance to work.[528]

Second, with respect to sideloading, app review is likely impossible and thus could not prevent social engineering attacks. Apple currently prevents direct distribution from the web using technical measures. If those measures were lifted, users could download—and thus could be tricked into downloading—directly from the open web. Although Epic Games presents some alternative methods that could be used to prevent malicious direct distribution (which are discussed below), there is little dispute that completely unrestricted sideloading would increase malware infections.[529]

Thus, the Court finds that centralized distribution through the App Store increases security in the "narrow" sense, primarily by thwarting social engineering attacks.

ii. "Broad" Security: Privacy, Quality, Trustworthiness

With respect to a "broader" definition of security, there is less dispute that app distribution restrictions help ensure privacy, quality, and trustworthiness. This again, stems primarily from human app review.

Privacy: Dr. Mickens agrees that computers "lack a generic way to detect which instances of user-submitted touchscreen data contain private information." While the OS can detect app access to computer-generated private data (camera roll), it lacks the capacity to distinguish private from nonprivate user entries. Dr. Mickens agrees that human app review can aid in this process, but opines that Apple does a poor job in practice. His only evidence for this is a Wall Street Journal that reports user tracking on popular iOS apps; he did not analyze any internal Apple data for this opinion.[530]

Apple, by contrast, proffers some evidence that the App Store imposes heightened privacy requirements. For instance, Apple requires developers to publish "privacy labels" that disclose data collection as a condition of being listed on the App Store. It also adopts the stricter privacy policies required by the European Union worldwide, including user opt-out. Not all developers like these requirements; presumably because it impacts their own bottom line. Thus, privacy concerns may be more at risk with loosened app distribution restrictions. Under the

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[528] DX-4401.005; DX-4975.008; Ex. Expert 11 (Rubin) ¶¶ 47–49, 87–89. The parties also debate whether centralization of app review increases or decreases its effectiveness. Dr. Mickens opines that having many stores perform app review puts more "eyeballs" on the problem and decreases the burden on any one store. Dr. Rubin opines that it fragments learning and makes each store less knowledge. The Court finds both effects plausible, but lacks evidence on their comparative magnitude. Trial Tr. (Mickens) 2702:7–21; Ex. Expert 11 (Rubin) ¶ 93.

[529] Trial Tr. (Federighi) 3388:24–3389:12, 3416:6–16; Trial. Tr. (Cook) 3884:22–3885:11; Ex. Expert 11 (Rubin) ¶ 54; *see also* Trial Tr. (Mickens) 2709:23–2710:2 (describing this model as "absolute mayhem").

[530] Ex. Expert 5 (Mickens) ¶¶ 71–75; Trial Tr. (Mickens) 2631:16–21.

current model, large developers who rely on advertising for monetization must comply or leave the App Store to avoid these requirements.[531] Accordingly, privacy, more than other issues, likely benefits from some app distribution restrictions.[532]

Quality: A variety of content may be safe but objectionable, including pornography, gambling, and inappropriate marketing to children. Mr. Kosmynka testified that human app review is necessary to detect such content because computers cannot do it alone. Importantly, offensiveness is highly context dependent, which makes it difficult to automate. For example, nudity may be appropriate in a medical app but inappropriate in other contexts.[533]

Epic Games responds that Apple's app review still allows objectionable apps. For example, it points that school shooting games have appeared on the App Store.[534] However, this data is largely anecdotal and fails to provide a comparison to the "but-for" world where app review did not take place. Thus, app distribution restrictions likely reduce offensive content available on Apple's devices.

Trustworthiness: App review also protects against scams and other fraud, such as pirated or copycat apps. Dr. Mickens did not consider this aspect in his security analysis and admitted that his opinion about the value of human app review may change if these issues are

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[531] As explained above, the evidence suggests that decentralized distribution benefits primarily large developers, who do not need to rely on a centralized app store to be discovered. While these developers are unlikely to sell outright malware, they are quite likely to monetize user data, which makes privacy a particularly sensitive issue.

[532] DX-5335.015; Trial Tr. (Cook) 3847:15–3848:21; Trial Tr. (Federighi) 3408:2–3410:4, 3422:17–2423:15; Trial Tr. (Schiller) 3166:6–15; Ex. Expert 11 (Rubin) ¶ 84. Apple also cites "app tracking transparency" as a feature that protects user privacy. The record is not clear, however, whether this feature is implemented by the App Store or by the OS. To the extent that it is implemented by the OS, app review may play a more limited role in ensuring that apps do not incentivize relinquishing privacy. Trial Tr. (Schiller) 3166:22–3167:7; Trial Tr. (Federighi) 3407:73–408:1, 3410:5–9.

[533] PX-0131; PX-1938; PX-1939; Trial Tr. (Kosmynka) 1085:19–1087:8, 1108:20–1109:11; Trial Tr. (Schiller) 3154:7-24; *see also* Trial Tr. (Mickens) 3673:16–23 (agreeing that system-level protections do not protect against inappropriate content).

[534] The alleged "BDSM" apps proved hollow and demonstrates the problem with highly provocative and sexual photos as an enticement to download apps geared towards dating that ultimately does not contain pornographic material. This merely reinforces the subjective and context-dependent nature of "objectionable" content. *See* PX-0131; PX-1938; PX-1939. Trial Tr. (Kosmynka) 1085:19–1087:8, 1108:20–1109:11; Trial Tr. (Schiller) 3154:7–24.

included. He also agreed that system-level protections do not protect users against this type of content, which confirms that human review is necessary.[535]

As with objectionable content, Epic Games responds by showing that scams still slip through app review.[536] For the same reasons, this anecdotal evidence does not show that scams and other fraud would not be higher without app review. Thus, the Court finds that app distribution restrictions increase security in the "broad" sense by allowing Apple to filter fraud, objectionable content, and piracy during app review while imposing heightened requirements for privacy.

iii. Impact on Market

These protections have an impact on users, developers, and Apple. First, app review provides Apple with a competitive differentiator. When Apple first launched the App Store, it sought to "strike a really good path" between the dependability of a closed device and the ability to run third-party apps of a PC. As Mr. Jobs explained:

> It is a dangerous world out there. There are mobile viruses of all sorts that people have to put up with and so we've tried to strike a really good path here. On one side you've got a closed device like the iPod, which always works. You pick it up, it always works because you don't have to worry about third party apps mucking it up. And on the other side you've got a Windows PC where people spend a lot of time every day just getting it back up to where it's usable and we want to take the best of both. We want to take the reliability and the dependability of that iPod and we want to take the ability to run third party apps from the PC world but without the malicious applications.[537]

Since then, security and privacy have remained a competitive differentiator for Apple. Mr. Cook testified that privacy is "a very key factor, one of the top factors who people choose Apple." The documents bear this out: internal surveys show that security and privacy was an important aspect of an iPhone purchasing decision for 50% to 62% of users in most countries—and over 70% in India and Brazil—and an important part of an iPad purchasing decision for 76% to 89% of users. Indeed, Mr. Sweeney himself owns an iPhone in part because of its better security and privacy than Android.[538]

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[535] Trial Tr. (Kosmynka)1088:18–1090:16; Trial Tr. (Mickens) 2673:2–7, 2673:24–2675:17, 2679:21–2680:1, 2685:8–18.0

[536] *See, e.g.*, PX-0060; PX-0371.

[537] PX-0880.025.

[538] Trial Tr. (Cook) 3848:22–3849:7; Trial Tr. (Sweeney) 302:19–303:4; DX-4089.012; DX-3465.024.

Second, there is evidence that Apple's restrictions benefit users. As noted above, many users value their iOS devices for their privacy and security. As the result of having a trusted app environment, users make greater use of their devices, including by storing sensitive data and downloading new apps. The witnesses are unanimous that user security and privacy are valid procompetitive justifications.[539]

Third, the evidence on developers is mixed. On the one hand, developers experience delays and mistaken rejections that would not occur with sideloading or distribution through stores without app review. On the other hand, developers benefit from the safe environment created by the App Store. Based on a trusted environment, users download apps freely and without care, which benefits small and new developers whose apps might not be downloaded if users felt concern about safety. This is consistent with the indirect network effects identified by Dr. Schmalensee: the small burden on developers maintains a healthy ecosystem that ultimately benefits both sides. Thus, the evidence shows that developers both benefit and suffer from app distribution restrictions.[540]

iv. Alternatives

Epic Games argues that the security and privacy benefits described above can be achieved without app distribution restrictions. As explained, most of the benefits derive from app review, which screens for social engineering attacks, filters fraud and offensive content, and impose heightened privacy requirements. Epic Games argues that the same benefits can be achieved in other ways. It focuses on two alternative models.

First, under an "enterprise program" model, Apple could focus on certifying app stores instead of apps. The Enterprise Program is an existing model for distributing apps on iOS where companies apply to distribute apps within its organization. Apple reviews the company and, if conditions are met, gives it a certificate that allows it to sign apps for distribution. Although the program has occasionally been abused, it shows that Apple could shift its review from apps to app stores, while continuing to impose standards for privacy and security.[541]

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[539] *See* Trial Tr. (Evans) 1689:22–24 ("[p]rotecting iPhone users from security threats is a procompetitive benefit"), 2415:10–13 (same for protecting users from offensive content); Trial Tr. (Sweeney) 193:3–9 (recognizing importance of privacy and security); Trial Tr. (Federighi) 3421:19–3422:7 (describing importance of security to ecosystem).

[540] Trial Tr. (Simon) 384:7–385:8; Trial Tr. (Grant) 727:22–730:4; Ex. Depo. (Ong) 62:15–65:25; Trial Tr. (Federighi) 3421:16–3422:7; Ex. Expert 8 (Schmalensee) ¶ 52.

[541] Ex. Expert 5 (Mickens) ¶¶ 56–58; Trial Tr. (Mickens) 2585:24–2586:19, 2667:12–2670:1; Trial Tr. (Federighi) 3412:23–3415:17; Trial Tr. (Schiller) 3145:22–3146:8. For example, Apple could demand that third-party app stores require "privacy labels" and fraud prevention as a condition of certification. Indeed, Apple already implements this model for social media apps, which can (and do) host objectionable content but which implement their own content moderation. Trial Tr. (Evans) 2418:14–2419:1; Trial Tr. (Federighi) 3469:9–25 (noting that Parler was removed from the App Store based on inadequate content moderation).

Second, under a "notarization" model, Apple could continue to review apps without limiting distribution. The notarization model is currently used on macOS. There, Apple scans apps using automatic tools and "notarizes" them as safe before they can be distributed without a warning. Apps can still be distributed through the Mac store (with complete app review) or with a warning if not notarized, but notarization provides a "third path" between full app review and unrestricted distribution. In theory, notarization review could be expanded to include some of the checks Apple currently performs in the App Store, such as human review.[542]

The notarization model is particularly compelling because Apple contemplated a similar model when developing iOS. iOS is based on macOS and share the same kernel. Documents show that Apple initially considered using app signing for security while allowing developers to distribute freely on iOS. As one document explains, "[app] [s]igning does not imply a specific distribution method, and it's left as a policy decision as to whether signed applications are posted to the online store, or we allow developers to distribute on their own." This shows that Apple could continue performing app review even if distribution restrictions were loosened.[543]

Apple responds to Epic Games' proposed alternatives in several ways. First, it disputes that the Enterprise Program provides a comparable model because it is used primarily for employers, who rarely want to hack their own employees. That is factually true, but provides little insight as to why a modified model could not work. Apple points to unspecified evidence that the Enterprise Program has been used to distribute malware. As with Epic Games' evidence of fraud on the App Store, this does not show that the program is unsecure as a general matter.[544]

Second, it claims that Mac faces a different threat model and has more malware than iOS. Mr. Federighi testified that users download apps more casually on mobile devices than on computers and frequently use them to store more valuable data. The Mac model was also adopted at a time when users expected to freely download from the Internet, which limited Apple's ability to impose greater restrictions given customer expectations. In any case, Mr.

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[542] Ex. Expert 5 (Mickens) ¶¶ 85–87; Trial Tr. (Federighi) 3380:19–3381:11, 3463:9–3467:16; *see* DX-5492.103–.104.

[543] PX-2756; Trial Tr. (Federighi) 3358:9–21; Trial Tr. (Mickens) 2593:13–2594:15; Ex. Expert 5 (Mickens) ¶¶ 13, 46, 89–96; PX-0877.100–.300; PX-0875.002. Under the notarization model, Apple also retains the ability to revoke notarization and turn off developer accounts associated with malware. Depending on the scope of the option, this could address Mr. Federighi's concern that decentralized distribution creates a "whack-a-mole" problem. Trial Tr. (Rubin) 3794:14–3795:8; Trial Tr. (Federighi) 3392:4–20, 3451:14–2452:6.

[544] For instance, it is difficult to imagine that Microsoft would be a source of malware for iOS users. *See* Trial Tr. (Mickens) 2668:16–2671:15 (explaining that the Enterprise Program is just a "point in the design space"); Trial Tr. (Schiller) 3146:13–25.

Federighi testified that Mac has a "malware problem" compared to iOS. Even with notarization, 110 instances of malware broke through on the Mac in 2020.[545]

While Mr. Federighi's Mac malware opinions may appear plausible, they appear to have emerged for the first time at trial which suggests he is stretching the truth for the sake of the argument. During deposition, he testified that he did not have any data on the relative rates of malware on notarized Mac apps compared to iOS apps. At trial, he acknowledged that Apple only has malware data collection tools for Mac, not for iOS, which raises the question of how he knows the relative rates. Prior to this lawsuit, Apple has consistently represented Mac as secure and safe from malware.[546] Thus, the Court affords Mr. Federighi's testimony on this topic little weight.

In any case, even if notarization is less secure on Mac, that only shows the limits of malware scanning. If Apple implemented a more fulsome review, similar to the type done on the App Store, there is no reason why the results would be different. Apple's only response is that app review may not scale given developers' expectation over timing. Given that app review is already required for all apps in the App Store, the scale itself does not appear to be a problem. The question is the amount of resources Apple allocates to the issue and supply of human reviewers. *See supra* Facts § I.C.4.

Ultimately, the Court finds persuasive that app review can be relatively independent of app distribution. As Mr. Federighi confirmed at trial, once an app has been reviewed, Apple can send it back to the developer to be distributed directly or in another store. Thus, even though unrestricted app distribution likely decreases security, alternative models are readily achievable to attain the same ends even if not currently employed.[547]

b. Intellectual Property

Turning to the intellectual property justification, the Court agrees with the general proposition that Apple is entitled to be paid for its intellectual property. The inquiry though does not end with the bald conclusion. Apple provides evidence that it invests enormous sums into developing new tools and features for iOS. Apple's R&D spending in FY 2020 was $18.8 billion.[548] This spending runs the gamut from hardware features like an Accelerometer

[545] Trial Tr. (Federighi) 3362:2–3365:3, 3389:14–3390:8, 3393:4–25, 3394:1–19, 3401:3–24. Mr. Federighi also expressed confusion about how an enterprise model would work, including how a trustworthy store would be determined. Trial Tr. (Federighi) 3416:17–3417:7. These problems appear comparable determining app trustworthiness, which Apple has managed with adequate success, as described above.

[546] *Id.* 3432:19–3434:4, 3394:4–22; *see, e.g.*, PX-0741.100, .500.

[547] Trial Tr. (Federighi) 3510:5–15.

[548] This number, which is taken from Apple's SEC filings, covers Apple's entire business. Internal financial documents suggest that only a small portion of this spending goes to

developed in 2007, to a gyroscope in 2010, stereo speakers in 2016, to LiDAR in 2020, all of which expand the device functions to software features that improve processing speed to combinations of the two, such as FaceTime. It also includes thousands of developer tools, SDKs, and APIs (150,000 today), many of which are directed specifically at game developers. For example, Metal is a tool that allows developers to create powerful computer graphics. Additionally, Apple has invested in longer battery file, and over the last decade, core processing units (CPU) have increased one hundredfold and relative graphic performance, one thousandfold. Mr. Schiller testified that each of these features enables game developers to create new and innovative games.[549]

Epic Games does not venture to argue that Apple is not entitled to be paid for its intellectual property, but rather claims that these investments have nothing to do with the App Store *specifically*. Apple disagrees. As with other issues in this trial, the answer is somewhere in between the two extremes but the evidence was not presented in a way to make a decision with precision. That said, the record is devoid of evidence that Apple set its 30% commission rate as a calculation related to the value of its intellectual property rights. Nor is there any evidence that Apple could not create a tiered licensing scheme which would better correlate the value of its intellectual property to the various levels of use by developers.[550] More specifically, the evidentiary record is silent as to whether the $99 fee paid by developers whose entire app is "free," like banks or other commercial entities, is correlated to the intellectual property as compared to the gaming developers who are paying 30% on each IAP transaction and who appear to be subsidizing most of the other app developers.

Thus, the Court finds that with respect to the 30% commission rate specifically, Apple's arguments are pretextual, but not to the exclusion of some measure of compensation.

B. Anticompetitive Effects: In-App Payment Restrictions

1. *Effects*

Turning to the evidence regarding in-app payment restrictions, Epic Games focuses on the effects on price and quality. Although in-app payment processing is an integrated part of the App Store, the Court reviews its effects because third-party app stores could compete on in-app payment processing—and thus rectify some of the effects—if app distribution restrictions were loosened. The Court also considers procompetitive justifications unique to payment restrictions

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services like the iTunes store. *Compare* DX-4581.026 (total R&D) *with* PX-2385.024 (R&D breakdown).

[549] DX-4581.026; Ex. Expert 12 (Malackowski) ¶¶ 22, 29–33; Trial Tr. (Schiller) 2878:2–2902:10. Other examples included a retina display in 2010, Taptic Engine in 2014, and Neural Engine in 2017. None of these developments are allocated to the App Store but all support games and other applications. Trial Tr. (Schiller) 2878:6–2885:6, 2893:3–2895:15.

[550] *See* Trial Tr. (Malackowski) 3662:13–17.

as those relative to app distribution restrictions apply here as well. Lastly, the Court considers the anti-steering provision, which presents a separate subissue.[551]

Starting with Epic Games' two arguments, the Court notes that it has already discussed them, which shows both pro- and anti- competitive benefits.[552] *See supra* Facts § V.A. Moreover, the analysis included the tradeoffs within privacy considerations. *Id.*

Apple's experts opine on other benefits, in addition to fraud prevention. With respect to the user side, Dr. Schmalensee opines that "IAP supports the ability of users to redownload apps and in-app purchase on new devices, share subscriptions and in-app features with family members, view their entire purchase history, and manage subscriptions from one place on their phone," all of which benefits users. While true, these benefits are also a reflection of the ecosystem. Dr. Athey counters that multi-platform payment processors would benefit users more by enabling the same migration, control, and sharing across platforms.[553] On the gaming side, much of this is being done through cross-wallet and cross-platform play.

On the developer side, Apple argues IAP helps streamline in-app payment functions. By providing a consistent and trusted user experience, IAP encourages users to spend freely, which benefits developers through indirect network effects and has resulted in millions of dollars of revenue. Again, as noted above, the ability to profit from impulse purchasing can be viewed as both a sword and a shield in this context. For those developers who rely more heavily on Apple, the benefit is greater than those like Epic Games who would prefer for the revenue stream to be direct.

Beyond this significant feature, it is unclear what else IAP provides to developers. Apple agrees that it is not a payment processor; Apple delegates actual payment processing to third-parties, such as Visa. Mr. Fischer testified that IAP provides features as part of the "commerce engine," but all of those features relate to users or Apple. Indeed, Dr. Evans shows that IAP does

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[551] As with the app distribution restrictions, the Court uses "app" interchangeably with "game" and does not distinguish game and non-game developers here. There is no evidence that gamers experience the effects differently, and they are more likely to be affected by the restrictions because of iOS games' disproportionate use of IAP. *See supra* Facts §§ II.B.3, V.A.

[552] Ex. Depo. (Ong) 169:24–173:06; *see also* Trial Tr. (Sweeney) 128:22–24; PX-2362.300; Ex. Expert 8 (Schmalensee) ¶ 150; Ex. Expert 11 (Rubin) ¶ 127.

[553] Ex. Expert 8 (Schmalensee) ¶ 150; Trial Tr. (Schmalensee) 1894:11–1895:12; Trial Tr. (Schiller) 3187:1–6; Ex. Expert 4 (Athey) ¶¶ 76–78; *cf.* PX-2235.004 (email noting difficulty of multi-platform in-app payments). Epic Games also argues that innovative features are precluded, such as carrier billing, but the evidence on this point is scant. *See* PX-2302.013; Trial Tr. (Evans) 1608:20–1609:12.

nothing technically aside from returning payment information.[554] Thus, there is no evidence that IAP provides developers with any unique features.[555]

Apple cites three additional procompetitive business justifications for its payment processing restrictions. As with app distribution, Apple cites (i) security, including privacy and fraud prevention, (ii) collection of its commission, and (iii) compensation for its intellectual property. The Court addresses each justification only to the extent not already discussed above.

2. *Business Justifications*

a. Security

Dr. Rubin opines that by maintaining all transaction data in one place, *i.e.,* centralization, Apple is better able to detect new patterns in fraudulent transactions using algorithms. Dr. Rubin also claims that Apple benefits from its visibility into the entire transaction, which allows it to verify certain transactions.[556]

As explained above, the Court agrees that decentralization may decrease security in some instances. The other arguments cut both ways. For instance, with respect to scale and fraud mining, Dr. Rubin suggests that having more "data points" will always lead to better fraud detection. Apple admits, however, that IAP is not the largest in-app payment service because it processes at most 3% of in-app purchases.[557] Thus, to the extent that scale allows Apple to better detect fraud, other companies could do it better because they process more transactions.

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[554] In its proposed findings of fact, Apple claims that IAP helps developers with currency conversion and tax collection, but its record citations do not support that claim. *See* Apple FOF ¶ 692 (citing Ex. Expert 8 (Schmalensee) ¶¶ 153–154, which does not discuss these features).

[555] Ex. Depo. (Forstall) 252:21–254:4; Trial Tr. (Schiller) 2798:14–19; Ex. Expert 8 (Schmalensee) ¶¶ 152, 154; Ex. Expert 1 (Evans) ¶ 229. Apple raises three additional arguments for IAP. First, it claims that the introduction of IAP "unlocked" the freemium model of monetization. Ex. Expert 8 (Schmalensee) ¶ 134. The parties dispute whether developers used this model on iOS before IAP. Either way, Apple does not claim that freemium requires IAP at present time (as opposed to some other in-app payment processor), so this does not present a *current* procompetitive benefit. Second, Dr. Schmalensee opines that IAP is "essentially free" to developers, who would need to build their own systems or obtain third-party services for payment processing otherwise. *Id.* ¶ 152. In light of Apple's 30% commission, the Court is not persuaded that developers could not obtain these features more cheaply from other companies. Last, Apple claims that IAP helps prevent fraud and ensure privacy. This feature is addressed in the next section as a procompetitive justification.

[556] Ex. Expert 11 (Rubin) ¶¶ 126–128.

[557] Apple FOF ¶ 669; Ex. Expert 8 (Schmalensee) ¶ 170.

Similarly, with respect to data breaches, although a breach of a payment handler could expose some user data, a breach of Apple itself could expose all Apple users who use IAP.

One of Apple's strongest arguments for IAP security was that it can verify digital good transactions. Unlike for physical goods, Apple uses IAP after confirming that the developer has actually delivered a digital good to the user and is entitled to the corresponding payment. The evidence shows, however, that Apple itself does not perform the confirmation. Apple's Head of Pricing, Mr. Grey, testified that Apple simply asks the developer to confirm that delivery occurred and then issues a receipt. Apple has not shown how the process is any different than other payment processors, and any potential for fraud prevention is not put into practice.[558]

b. Commission Collection

Next, Apple claims that IAP provides the most efficient method for collecting its commission. Dr. Schmalensee opines that without IAP, Apple would have to rely on sellers to remit its 30% commission, with little recourse other than a lawsuit if the money was withheld. Due to the sheer volume of transactions on the App Store, this process could quickly become unwieldy.[559]

Epic Games does not directly dispute these claims. Instead, Epic Games challenges Apple's entitlement to a 30% commission in the first place.[560] Evidence exists to support both views as discussed above. *See supra* Facts §§ I.C.3., II.C., IV.A. The fact of commission is separate from the actual amount of the collection, which the Court addresses next.

A corollary point to this topic concerns Apple's restrictions on developers' ability to provide consumers with information about their transactions. Guideline Section 3.1.1 states that apps "may not include buttons, external links, or other calls to action that direct customers to purchasing mechanism other than in-app purchase."[561] This guideline does not prohibit steering toward purchasing mechanisms outside the App Store or its apps, such as on social media, as long as it does not target iOS users but other provisions imply as much.[562]

The competitive effects and justifications for the anti-steering provision are coextensive with those described for Apple's commission previously. *See supra* Facts § V.A.

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[558] Ex. Expert 11 (Rubin) ¶ 128; Trial Tr. (Fischer) 958:12–959:2; Ex. Depo. 12 (Gray) 112:18–114:10.

[559] Ex. Expert 8 (Schmalensee) ¶¶ 138–139, 145–146.

[560] Trial Tr. (Schiller) 2826:6–7; Ex. Depo. (Ong) 58:20–59:13, 152:4–152:23; *see also* Trial Tr. (Weissinger) 1314:11–22.

[561] PX-2790.010.

[562] *See* PX-0257; PX-2790.011; Trial Tr. (Lafontaine) 2055:12–2056:20; Trial Tr. (Schmalensee) 1911:1–12.

c. Value of the Intellectual Property

As described above, Apple has not adequately justified its 30% rate. Merely contending that its commission pays for the developer's use of the App Store platform, license to Apple's intellectual property, and access to Apple's user base only justifies a commission, not the rate itself. Nor is the rate issue addressed when Apple claims that it would be entitled to its commission even for games distributed outside the App Store because it provides the device and OS that brings users and developers together.[563]

As noted, no one credibly disputes that Apple and third-party developers act symbiotically. Apple gives developers an audience and developers make Apple's platform more attractive. Thus, Apple earns revenue each time a developer earns revenue creating a feedback loop. However, as revenues show, the ultimate effect appears to vary within developer groups depending on how a developer chooses to monetize its app.

Further, there is substantial evidence that Epic Games, and perhaps other larger developers, bring their own audience to iOS. Fortnite was already popular when it arrived on iOS and Apple sought exclusive Fortnite content to attract new users. *See supra* Facts §§ I.B.2.d, I.B.4. That said, Epic Games wanted Apple's user base, to which it did not have access, as it had already saturated its other options. Also, Match Group found that the majority of new users from the App Store organically searched for its apps (*e.g.*, by typing in "Tinder"), while Apple contributed only 6% of discovery. For these developers, Apple's role in generating in-app purchases was "nothing" but it continued to receive a 30% commission on in-app purchases.[564]

C. Combined Effects

Because Apple has created an ecosystem with interlocking rules and regulations, it is difficult to evaluate any specific restriction in isolation or in a vacuum. Thus, looking at the combination of the challenged restrictions and Apple's justifications, and lack thereof, the Court finds that common threads run through Apple's practices which unreasonably restrains competition and harm consumers, namely the lack of information and transparency about policies which effect consumers' ability to find cheaper prices, increased customer service, and options regarding their purchases. Apple employs these policies so that it can extract supracompetitive commissions from this highly lucrative gaming industry. While the evidence remains thin as to other developers, the conclusion can likely be extended.

More specifically, by employing anti-steering provisions, consumers do not know what developers may be offering on their websites, including lower prices. Apple argues that consumers can provide emails to developers. However, there is no indication that consumers know that the developer does not already have the email or what the benefits are if the email was provided. For instance, Apple does not disclose that it serves as the sole source of communication for topics like refunds and other product-related issues and that direct

[563] Apple FOF ¶ 572; Trial Tr. (Cook) 3863:6–3864:8.

[564] Ex. Depo. (Ong) 58:20–61:07, 152:04–23; *see also* DX-3922; *supra* Facts §§ I.C.3.b., V.A.1.

registration through the web would also mean direct communication. Consumers do not know that if they subscribe to their favorite newspaper on the web, all the proceeds go to the newspaper, rather than the reduced amount by subscribing on the iOS device.

While some consumers may want the benefits Apple offers (*e.g.*, one-stop shopping, centralization of and easy access to all purchases, increased security due to centralized billing), Apple actively denies them the choice. These restrictions are also distinctly different from the brick-and-mortar situations. Apple created an innovative platform but it did not disclose its rules to the average consumer. Apple has used this lack of knowledge to exploit its position. Thus, loosening the restrictions will increase competition as it will force Apple to compete on the benefits of its centralized model or it will have to change its monetization model in a way that is actually tied to the value of its intellectual property.

PART II

APPLICATION OF FACTS TO THE LAW AND CONCLUSIONS THEREON

I. RELEVANT PRODUCT AND GEOGRAPHIC MARKET

A. Legal Framework

"A threshold step in any antitrust case is to accurately define the relevant market, which refers to 'the area of effective competition.'" *FTC v. Qualcomm Inc.*, 969 F.3d 974, 992 (9th Cir. 2020) ("*Qualcomm*") (quoting *Ohio v. Am. Express Co.* ("*Amex*"), 138 S. Ct. 2274, 2285 (2018)); *see also Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1202 (9th Cir. 1997) ("*Image Tech Services II*") ("The relevant market is the field in which meaningful competition is said to exist.") (citation omitted). Monopoly power under the first element can be defined as "the power to control prices or exclude competition" and may be inferred from the defendant's predominant market share in the relevant market. *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966). In addition, "courts usually cannot properly apply the rule of reason without an accurate definition of the relevant market." *Amex*, 138 S. Ct. at 2285. Without a relevant market definition, "there is no way to measure the defendant's ability to lessen or destroy competition." *Id*. (simplified).

"The relevant market must include both a geographic market and a product market." *Hicks v. PGA Tour, Inc.*, 897 F.3d 1109, 1120 (9th Cir. 2018) (citation omitted). The latter "must encompass the product at issue as well as all economic substitutes for the product." *Newcal Indus., Inc. v. Ikon Office Sol.*, 513 F.3d 1038, 1045 (9th Cir. 2008); *see also id.* ("The consumers do not define the boundaries of the market; the products or producers do [and] the market must encompass the product at issue as well as all economic substitutes for the product."); P. Areeda & H. Hovenkamp, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* § 530a (4th and 5th eds., 2021 Supp.) ("To define a market is to identify those producers providing customers of a defendant firm (or firms) with alternative sources for the defendant's product or service."). "Economic substitutes have a 'reasonable interchangeability of use' or sufficient 'cross-elasticity of demand' with the relevant product." *Hicks*, 897 F.3d at 1120 (quoting *Newcal*, 513 F.3d at 1045); *see also United States v. E.I. DuPont de Nemours &*

Co., 351 U.S. 377, 404 (1956). "Including economic substitutes ensures that the relevant product market encompasses 'the group or groups of sellers or producers who have actual or potential ability to deprive each other of significant levels of business.'" *Hicks*, 897 F.3d at 1120 (quoting *Thurman Indust., Inc. v. Pay 'N Pak Stores, Inc.*, 875 F.2d 1369, 1374 (9th Cir. 1989)); *see also DuPont*, 351 U.S. at 393 ("Illegal power must be appraised in terms of the competitive market for the product.").[565]

A plaintiff cannot ignore economic reality and "arbitrarily choose the product market relevant to its claims"; rather, the plaintiff must "justify any proposed market by defining it with reference to the rule of reasonable interchangeability and cross-elasticity of demand." *Buccaneer Energy (USA) v. Gunnison Energy Corp.*, 846 F.3d 1297, 1313 (10th Cir. 2017) (internal quotation marks and citation omitted). The proper market definition "can be determined only after a factual inquiry into the commercial realities faced by consumers." *High Tech. Careers v. San Jose Mercury News*, 996 F.2d 987, 990 (9th Cir. 1993) (internal quotation marks and citation omitted).

It is the plaintiff's burden to establish the relevant product and geographic markets. *See Thurman Indus.*, 875 F.2d at 1373; *Fount-Wip, Inc. v. Reddi-Wip, Inc.*, 568 F.2d 1296, 1302 (9th Cir. 1978) (noting that plaintiffs bear the "burden of proof" to establish a relevant market). To meet that burden, a plaintiff must produce specific evidence supporting the proposed market definition that is "relevant to the particular legal issue being litigated." Areeda & Herbert Hovenkamp § 533c; *see also Moore v. James H. Matthews & Co.*, 550 F.2d 1207, 1218–19 (9th Cir. 1977) (plaintiff failed to establish "the relevant product market" where it failed to introduce adequate evidence regarding "the products involved as to price, use, quality, and characteristics"); *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 64 (D.D.C. 2011) ("Courts correctly search for a relevant market—that is a market relevant to the particular legal issue being litigated.") (simplified)).

B. Analysis

1. *Relevant Product Market*

Epic Games constructs a framework to argue that there are three separate product markets at issue. In the foremarket, Epic Games identifies the product market as one for "Smartphone Operating Systems." Epic Games contends in turn that there are *two* derivative and relevant aftermarkets that flow from this initial foremarket, including the "iOS App Distribution" market and "iOS In-App Payment Solutions." Epic Games logic flows as follows: the iOS in-app

[565] "Interchangeability implies that one product is roughly equivalent to another for the use to which it is put: while there may be some degree of preference for the one over the other, either would work effectively." *Queen City Pizza, Inc. v. Domino's Pizza, Inc.*, 124 F.3d 430, 437 (3d Cir. 1997) (internal quotation marks and citation omitted). For example, "[a] person needing transportation to work could buy a Ford or Chevrolet automobile, or could elect to ride a horse or bicycle, assuming those options were feasible." *Id*. (internal quotation marks and citation omitted).

payment solutions market is an aftermarket of the iOS app distribution market which is further an aftermarket of the smartphone operating systems foremarket.

Apple, on the other hand, contends that there is only one relevant product: digital game transactions. This includes any and all digital gaming transactions made on any gaming platform. The Court has discussed the factual profiles of each of the proffer, *see supra* Facts § II, and turns to the determination here.

The parties agree that the Court must determine which products or services are in "the area of effective competition" to define the product market. *Amex*, 138 S. Ct. at 2285; *Thurman Indus.*, 875 F.2d at 1374 ("For antitrust purposes, defining the product market involves identification of the field of competition: the group or groups of sellers or producers who have actual or potential ability to deprive each other of significant levels of business." (citation omitted)). The relevant product market "must encompass the product at issue as well as all economic substitutes for the product." *Newcal*, 513 F.3d at 1045. "Economic substitutes have a 'reasonable interchangeability of use' or sufficient 'cross-elasticity of demand' with the relevant product." *Hicks*, 897 F.3d at 1120 (quoting *Brown Shoe v. United States*, 370 U.S. 294, 325 (1962)); *DuPont*, 351 U.S. at 404.

The Court begins with Apple's product market definition as it more closely aligns with the Court's conclusion. Then the Court discusses the reasons why Epic Games has not properly defined the relevant product market.

a. Apple's Product Market Theory

As a threshold issue, the Court considers whether the App Store provides two-sided transaction services or as Epic Games argues "distribution services."[566] The Supreme Court has seemingly resolved the question: two-sided transaction platforms sell transactions. In two-sided markets, a seller "offers different products or services to two different groups who both depend on the platform to intermediate between them." *Amex*, 138 S. Ct. at 2280. Here, try as it might, Epic Games cannot avoid the obvious. Plaintiff only sells to iOS users through the App Store on Apple's platform. No other channel exists for the transaction to characterize the market as one involving "distribution services."

Plaintiff's reliance on Dr. Evans' testimony to the contrary does not persuade. First, Dr. Evans' testimony was internally inconsistent. He agrees that the App Store is a "two-sided transaction platform" and includes the features characteristic of two-sided transaction platforms. Although he testified that Apple also provides services to facilitate those transactions, those services are coextensive with "transactions" under his definition.[567] Thus, there is no substantive difference between "transactions" and "services" to facilitate those transactions. The

[566] Trial Tr. (Evans) 1454:11–16, 1457:10–1458:25, 1707:7–17; Trial Tr. (Schmalensee) 1955:3–23.

[567] *See, e.g.*, Trial Tr. (Evans) 1612:7–9, 1634:2–1635:25; Trial Tr. (Schmalensee) 1882:24–1883:2; Trial Tr. (Lafontaine) 2031:25–2032:3, 2037:15–16; Ex. Expert 8 (Schmalensee) ¶ 55.

semantic difference does not warrant departure from Supreme Court precedent.[568] Second, distribution services may improperly imply that only developers consume Apple's products. The evidence is to the contrary. By contrast, all of the experts agree that both users and developers consume App Store transactions.

Accordingly, the Court finds that the relevant App Store product is transactions, not services, but that providing transactions may include facilitating services (matchmaking, developer support, etc.).[569]

i. Apps or Digital Game Transactions?

Next, the Court considers whether to narrow the scope of the transactions in terms of defining the product market. "In limited settings . . . the relevant product market may be narrowed beyond the boundaries of physical interchangeability and cross-price elasticity to account for identifiable submarkets or product clusters." *Thurman Indus.*, 875 F.2d at 1374. A submarket is "a small part of the general market of substitutable products" and "is economically distinct from the general product market." *Newcal*, 513 F.3d at 1045. Although there are "several 'practical indicia' of an economically distinct submarket," including "industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors," *id.* (quoting *Brown Shoe*, 370 U.S. at 325), they are "practical aids for identifying the areas of actual or potential competition" and "their presence or absence does not decide automatically the submarket issue." *Thurman Indus.*, 875 F.2d at 1375 (citations omitted). The Court considers these factors in its evaluation.

Having considered and reviewed the evidence, the Court concludes based on its earlier findings of facts that the appropriate submarket to consider is digital game transactions as compared to general non-gaming apps. *See supra* Facts § II.B.3. Indeed, the Court concluded that there were nine indicia indicating a submarket for gaming apps as opposed to non-gaming apps: (i) the App Store's business model is fundamentally built upon lucrative gaming transactions; (ii) gaming apps constitute a significant majority of the App Store's revenues; (iii) both the gaming, mobile, and software industry as well as the general public recognize a distinction between gaming apps and non-gaming apps; (iv) gaming apps and their transactions exhibit peculiar characteristics and users; (v) game app developers often employ specialized technology inherent and unique to that industry in the development of their product; (vi) game apps further have distinct producers—game developers—that generally specialize in the production of *only* gaming apps; (vii) game apps are subject to distinct pricing structures as compared to other categories of apps; (viii) games and gaming transactions are sold by specialized vendors; and (ix) game apps are subject to unique and emerging competitive pressures, that differs in both kind and degree from the competition in the market for non-gaming

[568] *See* Trial Tr. (Evans) 1612:7–9, 1634:2–1635:25; *accord* Trial Tr. (Schmalensee) 1954:3–9 (equating transactions with "matchmaking" services), 1940:23–25 (agreeing that Dr. Evans analyzed the App Store as a two-sided platform).

[569] *See, e.g.*, Ex. Expert 8 (Schmalensee) ¶¶ 55–56; Trial Tr. (Evans) 1707:2–17.

apps. The Court does not reiterate here the detail except to note the following significant points:[570]

The evidence was undisputed that over 80% of apps in the App Store are free. For those apps, the user pays nothing either inside the app or at the initial download. The developer also pays nothing aside from an up-front $99 developer fee. Apple thus does not collect commissions on those transactions. Moreover, many of those apps are subject to special treatment, such as the "reader" rule, that allows them to bypass Apple's restrictions and commissions altogether. These differences create economic distinctions between the two categories. Finally, there is insufficient evidence that most apps are impacted by Apple's alleged anticompetitive conduct.[571]

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[570] Dr. Lafontaine suggests that combining game and non-game transactions would require a "clustering" analysis to show that they are subject to the same competitive pressures. Ex. Expert 7 (Lafontaine) ¶¶ 33–35. The Court does not address the issue here because clustering is not necessary to determine that game transactions are the proper focus.

[571] Ex. Expert 6 (Hitt) ¶¶ 118, 121; DX-4178.006; PX-0059.007. Besides games, the other category of apps disproportionately affected by Apple's conduct are subscription services. DX-4178.006; DX-4526.021. There are good reasons not to include those apps in the current litigation. First, Epic Games did not sell subscription services when *Fortnite* was on the iOS platform; their representation in the case is limited to third parties. Only one of those third parties testified at trial, so the Court lacks a full picture of the true opinions of these companies. Games and subscription apps in general are distinct, with little overlap among the popular examples. *Compare* PX-0608.015 *with id.* at .016.

Second, many subscription services are subject to special rules, such as the "reader rule" that permits users to access app content purchased outside iOS on their Apple devices. Indeed, several large subscription providers (*e.g.*, Spotify and Netflix) have stopped offering subscriptions through the App Store. Although games are subject to a similar "multiplatform rule," the rule has only been in place since 2018 and the record is mixed whether game developers may be more or less able to similarly steer consumers to web transactions. Ex. Expert 6 (Hitt) ¶¶ 101–105; Trial Tr. (Schiller) 2808:6–2809:3; Trial Tr. (Sweeney) 110:12–111:1.

Third, and finally, subscription providers may present different security challenges than game stores. Mr. Kosmynka testified that games are different than passive content because they add to or require the functionality of the smartphone. Mr. Schiller confirmed that Apple allows "stores within a store" that contain purely passive content, such as books and music. Thus, Apple's procompetitive justifications may be significantly different for game and non-game stores and apps. Trial Tr. (Kosmynka) 1073:7–1074:18; Trial Tr. (Schiller) 3115:11–3117:7; Trial Tr. (Federighi) 3429:12–3430:8.

Accordingly, the Court declines to consider subscriptions in this lawsuit because they are a separate submarket for which there is insufficient evidence.

By contrast, game apps are disproportionately likely to use in-app purchases for monetization. Over 98% of Apple's in-app purchase revenue came from games in 2018 to 2019. Moreover, game transactions overall accounted for 76% of Apple's App Store revenues in 2017, 62.9% in 2018, and 68% in 2020. Game commissions are also substantially higher than average. Thus, in most economic ways, and in particular with respect to the challenged conduct, the App Store is primarily a *game* store and secondarily an "every other" app store.[572]

Game transactions are also widely recognized as belonging to a separate market. The App Store, Google Play, and Amazon Appstore all include separate "tabs" for apps and games which reflects that consumers view them differently. Apple analyzes them separately with different heads of business for games and non-game apps. The developers for game apps also tend to be distinct, specializing in games with little revenue from non-game apps.[573]

Finally, the App Store is also built upon specialized consumers—those iOS consumers who play video games on iOS devices. As summarized above, it is iOS consumers who make frequent in-app purchases within gaming apps who account for the large majority of Apple's revenues in the App Store. *See supra* Facts § 1.C.6.[574] In other words, there is a specialized subset of iOS gaming consumers who are generating and accounting for a significantly disproportionate number of App Store billings and revenue.

Accordingly, between digital game transactions and all app transactions, the relevant product is game transactions. Contrary to Epic Games' suggestion, that is not because plaintiff sells games. Rather, it is because game transactions are disproportionately affected by Apple's challenged conduct, overwhelmingly subsidize other apps, and are recognized as a distinct submarket. Obviously, Epic Games and Apple compete in that market space. That Epic Games is in the market was the impetus for the analysis, not the reason for the conclusion.

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[572] Ex. Expert 6 (Hitt) ¶¶ 117, 120–24; DX-4178.006; PX-0059.007; Trial Tr. (Schmid) 3226:7–12.

[573] Ex. Expert 6 (Hitt) ¶¶ 125–27; DX-5552; Trial Tr. (Schmid) 3205:4–11, 3226:1–22, 3349:24–3352:3. As the Court noted, the limited record also shows that the Google Play app store similarly is constructed upon the same game transactions as the App Store. *See* DX-3913.007. Apple also argues that games are subject to unique competitive pressures, with specialized vendors and emerging dynamic competition. Ex. Expert 8 (Schmalensee) ¶ 104. The Court addresses this evidence below.

[574] That said, the evidence for a single distinct "gamer" demographic is inconclusive. For instance, Michael Schmid, testified that "gamers" as he defined them are a "very large percentage of users" including "all the people you speak with," suggesting a generally diverse gaming consumer base. Trial Tr. (Schmid) 3350:5–3352:3; s*ee also id.* 3351:15–17 ("The Court**:** Well, are you saying that all app users are also gamers? The Witness**:** Certainly not."). But even without distinct customer demographics, the fact that only certain set of iOS consumers (*i.e.*, those users who play games on iOS), as well as the separate set of developers and industry recognition as a distinct submarket make extrapolation from games to the whole market inappropriate.

ii. All Gaming Transactions or Mobile Gaming Transactions?

The last metric the Court considers is whether to limit the product market to all gaming transactions or only mobile gaming transactions. Apple argues for the former; Epic Games argues (as an alternative) for the latter. The Court is again guided by the "practical indicia" framework articulated in *Newcal* and *Brown Shoe*. The Court considers these factors in its evaluation.

Having considered and reviewed the evidence, the Court concludes based on its earlier findings of facts that the appropriate submarket to consider is the mobile gaming transactions market. *See supra* Facts § II.D. This relevant product market would include mobile game transactions on both mobile phone and tablet devices, which have the competitive advantage of mobility or portability as compared to other platforms and devices. *Id.* Indeed, as the Court summarized and found there, mobile gaming exhibits several of the practical indicia discussed in *Newcal* and *Brown Shoe* including industry and public recognition of the submarket as a separate economic entity, peculiar characteristics and uses, distinct customers and producers, and specialized vendors. The Court again does not repeat the entirety of the findings previously made, but discusses the more significant and relevant findings here:

Substantial evidence was presented showing that mobile gaming is a distinct submarket. As an initial matter, Apple's own documents recognize mobile gaming as a submarket. One industry report describes mobile gaming as a "$100 billion industry *by itself"* that accounts for 59% of global gaming revenue. While PC and console gaming has grown more slowly, mobile gaming has experienced double-digit growth driven by "the free-to-play model" with in-app purchases. "Remarkably," this rapid growth "has not significantly cannibalized revenues from the PC or console gaming markets," which suggests that consumers are not necessarily substituting among them.[575] Another industry report describes distinct user bases for mobile gaming: young children, teenage girls, and older adults are disproportionally likely to be mobile gamers only. Multiplatform gaming, by contrast, is driven by teenage boys and young adults under 25.[576]

Even without Apple documents, the experts largely agree that mobile and non-mobile platforms provide different types of games. Dr. Hitt—whom Apple commissioned to show that game transactions are substitutable—ended up showing the opposite. In his original written direct testimony (which Apple withdrew after cross-examination), Dr. Hitt showed that only 12% and 16% of the most popular App Store games are available on consoles. Both Dr. Hitt's and Dr. Cragg's trial testimony remain in the record, and each shows that console games are largely separate from mobile games. Moreover, while Dr. Hitt originally opined that mobile games are available on PCs, his work could not be entirely reproduced during trial, as some of the games he

[575] Although this might be due to the fact that mobile gaming first cannibalized the handheld and portable gaming market, which it may have supplanted and now surpassed. *See supra* n.391.

[576] DX-3248.005, .008; DX-4170.008; *see also id.* at .024 (showing "segments" of gamers with multiple segments "primarily on mobile").

listed as available on both platforms (PC and mobile platforms) could not be found. The fact that Apple tried and failed to show cross-availability of mobile games with PC indicates that they are distinct.[577]

This conclusion is bolstered in part by evidence from Dr. Cragg. Dr. Cragg finds that the most popular games on mobile are *only* available on mobile, with a few games also available on PCs. The types of games are also different, with many more casual games on mobile and core games on PC and console platforms. For those games that are available on multiple platforms, such as *Fortnite*, Dr. Cragg finds that the playing and spending on different platforms is complementary, rather than substitution-focused, because playing on another device *increases* the playtime and spending on the previous devices.[578]

Industry participants also support the conclusion. Microsoft documents show that mobile gaming generates more than half of the industry revenue and profits, compared to only a quarter for consoles and PCs each. Moreover, Ms. Wright testified that Microsoft does not view game transactions for cross-platform games on iOS devices as competition to transactions on its Xbox console. Although Ms. Wright also testified that mobile is "a segment of the game industry as a whole," that is consistent with it being a separate submarket. By contrast, Steam is the largest game store on PCs. Mr. Cook's lack of familiarity with it presents strong evidence that the iOS App Store does not compete with PC game stores.[579]

Finally, as the Court concluded in the findings of facts, the Court would not at this time find that the Switch or game streaming services are part of the mobile game transactions market. This is in part due to the underdeveloped record on these products, and in part on the relative recent introduction of these products to the market. While the record supports a finding that these are new entrants into the same market space as Apple and Google, whether these products ultimately are substitutable and reasonably interchangeable by consumers remain to be seen.

Accordingly, for the same reasons that game transactions, rather than app transactions in general, are the proper focus in this case, the Court finds that mobile gaming, including mobile devices and tablets,[580] is a separate market from gaming in general. Thus, the relevant product market is mobile gaming transactions.

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[577] Ex. Expert 6 (Hitt) ¶ 31 & Fig. 3; Trial Tr. (Hitt) 2200:13–2201:18, 2207:6–2216:11; Ex. Expert 13 (Cragg) ¶¶ 34–39, 43–52.

[578] Ex. Expert 13 Cragg ¶¶ 25–33, 79–81, Figs. 10–12; Trial Tr. (Schmid) 3207:8–18.

[579] DX-5523.008–.009; Trial Tr. (Wright) 547:4–9, 549:14–21, 638:6–19; Trial Tr. (Cook) 3993:2–6.

[580] As discussed in the findings of facts, *see supra* Facts §§ II.D–E., this would include both iOS and Android tablets and mobile phone devices.

b. Epic Games' Approach: Foremarket/Aftermarket Market Definition

The Court reaffirms here the fundamental factual flaws with Epic Games' market structure. *See supra* Facts §§ II.A–C. Without a product, there is no market for the non-product, and the requisite analysis cannot occur. Thus, where there is no product or market for smartphone operating systems, there are no derivative markets. The payment solutions aftermarket also fails for the independent reason that IAP is not a product for which there is a market. Further, Epic Games' aftermarket approach to market definition is inconsistent with its recognition that the App Store constitutes a two-sided transaction platform which it fails to properly analyze. *Id.*; *Amex*, 138 S. Ct. at 2287. Nonetheless, the Court addresses the additional problems with Epic Games' attempt to define the market with the confines of a single brand.

Determining whether a single-brand market is proper requires "a factual inquiry into the 'commercial realities' faced by consumers." *Eastman Kodak Co. v. Image Tech. Servs.*, 504 U.S. 451, 482 (1992) ("*Eastman Kodak*") (quoting, *Grinnell Corp.*, 384 U.S. at 572). "Single-brand markets are, at a minimum, extremely rare" and courts have rejected such market definitions "[e]ven where brand loyalty is intense." *Apple, Inc. v. Psystar Corp.*, 586 F. Supp. 2d 1190, 1198 (N.D. Cal. 2008) (internal quotation marks and citation omitted). *But see id.* ("Antitrust markets consisting of just a single brand, however, are not per se prohibited . . . . In theory, it may be possible that, in rare and unforeseen circumstances, a relevant market may consist of only one brand of a product."). Indeed, "[a] single brand is *never* a relevant market when the underlying product is fungible." Areeda & Hovenkamp § 563d. "It is an understatement to say that single-brand markets are disfavored. From nearly the inception of modern antitrust law, the Supreme Court has expressed skepticism of single-brand markets[.]" *In re Am. Express Anti-Steering Rules Antitrust Litig.*, 361 F. Supp. 3d 324, 343 (E.D.N.Y. 2019); Herbert J. Hovenkamp, *Markets in IP & Antitrust*, 100 Geo. L.J. 2133, 2137 (2012) ("[A]ntitrust law has found that a single firm's brand constitutes a relevant market in only a few situations.").

Despite the foregoing, "in some instances one brand of a product can constitute a separate market." *See Eastman Kodak*, 504 U.S. at 482; *see also Newcal*, 513 F.3d at 1048 ("[T]he law permits an antitrust claimant to restrict the relevant market to a single brand of the product at issue . . . ."). Antitrust law has continued to develop since *Eastman Kodak*. Beginning there, the Supreme Court considered whether summary judgment was appropriate for Kodak on a Sections 1 and 2 claims where the plaintiffs had argued that Kodak possessed monopoly power in the aftermarket of sales of parts and repair services, despite not having such power in the foremarket of equipment sales. 504. U.S. at 466–471. In affirming the Ninth Circuit's reversal of summary judgment, the Supreme Court identified two factors that supported the aftermarket framework: the existence of significant (i) "information" costs and (ii) "switching costs." *Id.* at 473.

As to the first, information costs, the Supreme Court noted that "[f]or the service-market price to affect equipment demand, consumers must inform themselves of the total cost of the 'package'—[in *Eastman Kodak*] equipment, service, and parts—at the time of purchase; that is, consumers must engage in accurate lifecycle pricing." *Id.* "Much of this information is difficult—some of it impossible—to acquire at the time of purchasing," and that "even if consumers were capable of acquiring and processing the complex body of information, they may choose not to do so [as a]cquiring [such] information is expensive." *Id.* at 473, 474. Indeed,

"[i]f the costs of service are small relative to the equipment price, or if consumers are more concerned about equipment capabilities than service costs, they may not find it cost efficient to compile the information." *Id.* at 474–75.

As to the second factor, switching costs, the Supreme Court stated that "[i]f the cost of switching is high, consumers who already have purchased the equipment, and are thus 'locked in,' will tolerate some level of service-price increases before changing equipment brands." *Id.* at 476. "Under this scenario, a seller profitably could maintain supracompetitive prices in the aftermarket if the switching costs were high relative to the increase in service prices, and the number of locked-in customers were high relative to the number of new purchasers." *Id.* The Supreme Court further noted that this strategy was "likely to prove profitable" especially where a "seller could simply charge new customers below-marginal cost on the equipment and recoup the charges in service,"[581] or offer specific packages including "lifetime warranties or long-term service agreements that are not available to locked-in customers." *Id.* at 476–477.

In sum, given the presence of these two factors, the Supreme Court found a question of fact "foil[ed] the simple assumption that the equipment and service markets act as pure complements to one another." *Id.* at 477.

Since 1992, five circuit courts and numerous district courts refused to find a *Kodak*-type single-brand aftermarket where customers had knowledge of the alleged restrictive policies and were not subject to a post-purchase policy change. Big tech may ultimately convince the Supreme Court to change the calculus, but for now the state of antitrust law has that distinct parameter. The Court recounts the history.

Four years after *Eastman Kodak*, the Fifth Circuit in *United Farmers Ass'n, Inc. v. Farmers Insurance Exchange*, 89 F.3d 233, 238 (5th Cir. 1996) rejected a claim that insurance agents were "locked-in" to a particular insurance company because the agents "would clearly have become aware of [the alleged anticompetitive] policy long before they faced significant switching costs." A year later the Sixth Circuit similarly found that an "antitrust plaintiff *cannot succeed* on a *Kodak*-type [single- brand-aftermarket] theory when the defendant has not changed its policy after locking-in some of its customers, and the defendant has been otherwise forthcoming about its pricing structure and service policies." *PSI Repair Servs., Inc. v. Honeywell, Inc.*, 104 F.3d 811, 820 (6th Cir. 1997) (emphasis supplied). Rounding off the decade, the First Circuit found that "the easy availability of information" and "purely prospective nature" of an allegedly anticompetitive policy "helps to take [a] case out of *Kodak*'s precedential

[581] The Court notes that this identified problematic business model in *Eastman Kodak*, of selling the initial equipment near marginal cost and recouping profits in later service, appears to mirror more closely the gaming console's business models for their console platforms (selling hardware near or at a loss and recouping through the sale of games and transactions) as opposed to Apple's business model for its iOS platform (profit on both the hardware and transactions). *See supra* Facts §§ II.D.3.c.

orbit." *SMS Sys. Maint. Servs., Inc. v. Digital Equip. Corp.*, 188 F.3d 11, 19 (1st Cir. 1999) (citation omitted).

Fast-forward to 2008, the Ninth Circuit in *Newcal* outlined four factors that could indicate whether an alleged market is a properly defined single-brand aftermarket under *Eastman Kodak* at the motion to dismiss stage. *See Newcal*, 513 F.3d at 1049–50. The first indicator of an aftermarket is that the market is "wholly derivative from and dependent on the primary market." *Id.* at 1049. The second indicator is that the "illegal restraints of trade and illegal monopolization relate only to the aftermarket, not to the initial market." *Id.* at 1050. The third indicator is that the defendant's market power "flows from its relationship with its consumers" and the defendant did "not achieve market power in the aftermarket through contractual provisions that it obtains in the initial market." *Id.* The fourth indicator is that "[c]ompetition in the initial market . . . does not necessarily suffice to discipline anticompetitive practices in the aftermarket." *Id.*

While not explicitly repeated elsewhere, other circuits have aligned with the contours of *Newcal* and the foregoing cases regarding consumer knowledge and/or post-purchase policy changes. In 2014, the Federal Circuit weighed in concluding that "it is only the customers who learned about the [allegedly anticompetitive policy] after purchasing their equipment that are relevant to the 'locked-in' analysis." *DSM Desotech, Inc. v. 3D Sys. Corp.*, 749 F.3d 1332, 1346 (Fed. Cir. 2014). Two years later the Third Circuit held that no *Kodak*-type aftermarket existed "when customers were put on clear notice that purchasing [defendant's product] precluded use of [third-party] maintenance." *Avaya Inc., RP v. Telecom Labs, Inc.*, 838 F.3d 354, 405 (3d Cir. 2016).

The breadth of antitrust law on the issue has counseled that currently "to establish a single-brand aftermarket under *Kodak* and *Newcal*, the restriction in the aftermarket must not have been sufficiently disclosed to consumers in advance to enable them to bind themselves to the restriction knowingly and voluntarily." *Datel Holdings Ltd. v. Microsoft Corp.*, 712 F. Supp. 2d 974, 987 (N.D. Cal. 2010).[582] Indeed, "[m]arket imperfections" may "prevent consumers from discovering" that purchasing a product in the initial market could restrict their freedom to shop in the aftermarket. *Newcal*, 513 F.3d at 1048; *see also Red Lion Med. Safety, Inc. v. Ohmeda, Inc.*, 63 F. Supp. 2d 1218, 1231 (E.D. Cal. 1999) ("Information costs may be high, and a manufacturer may thus have considerable market power in the aftermarket, even in the absence of a change in policy."); *Ward v. Apple Inc.*, Case No. 12-cv-05404-YGR, 2017 WL 1075049, at *7 (N.D. Cal. Mar. 22, 2017) (agreeing with *Red Lion*, 63 F. Supp. 2d at 1231–32, that a policy change is not necessary to find a valid single-brand market under *Newcal*). In other words, a plaintiff must show evidence "to rebut the economic presumption that [defendant's] consumers

[582] *See also Teradata Corp. v. SAP SE*, No. 18-CV-03670, 2018 WL 6528009, at *16 (N.D. Cal. Dec. 12, 2018) (single-brand markets are possible only in situations in which customers face "restrictions that were undisclosed at the time of the purchase of the product from the primary market").

make a knowing choice to restrict their aftermarket options when they decide in the initial (competitive) market to" purchase in the foremarket. *Newcal*, 513 F.3d at 1050.

With these principles in mind, the Court analyzes the evidence presented.

As noted, Epic Games created a construct that largely satisfies the *Newcal* test. By definition, distribution of iOS apps and iOS payment processing derive from Apple's operating system (first factor). Next, Epic Games only identified restraints that related to the distribution and payment processing, so again, by design, they do not relate to the "market for Apple's operating system" (second factor). Similarly, given that (i) consumers do not contractually agree to obtain apps only through the App Store when they purchase an iPhone; (ii) developers are contractually restricted in the aftermarket; and (iii) in light of the technical restrictions on iOS devices, Apple's market power flows from its relationship with its consumers and Apple did not achieve market power in the aftermarket through contractual provisions that it obtains in the initial market (third indicator). Thus, three of the four indicators are fulfilled.[583]

It is within the last indicator that problems arise for Epic Games given antitrust jurisprudence. Issues of lock-in or switching costs, and notice or consumer knowledge, fall under the analysis of evaluating whether competition in the initial market suffices to discipline anticompetitive practices in the aftermarkets.

First, the evidence shows no material change in the conditions for accessing the App Store for either side of the platform. In the Sixth Circuit, the absence of a change in policy following the consumers' initial purchase in the alleged foremarket, which locked consumers into the alleged aftermarket (*i.e.*, the concept of lock-in), was fatal. *See PSI Repair Servs., Inc.*, 104 F.3d at 820. For consumers, iOS has always been a closed system, and the App Store has been a "walled garden" with respect to native apps from its inception; even prior to any time in which Apple was alleged to have become a monopolist. Indeed, it is undisputed by the parties that a key distinguishing feature of the iOS platform is its closed platform model, as compared to the open Android platform maintained by its main competitor Google. At the very least, previous consumers of iOS devices would have been familiar with the iOS platform and the App Store model when they repurchased a device prior to 2011.

Epic Games' reliance on a 2007 statement from Steve Jobs when he announced the 70-30 split that Apple did not intend to make a profit, much less an unpublicized, internal 2011 comment by Phil Schiller regarding a reduction of the 70-30 after a billion dollars in profit, do not change the analysis. As discussed above, these statements do not create a policy shift sufficient to show lock-in. At best, these statements reflect Apple's initial expectation that the

[583] Epic Games did not define the foremarket as the market for sale of mobile cellular phones or mobile devices. That said, even Dr. Evans acknowledges, consumers do not buy smartphone operating systems separately from smartphones. Trial Tr. (Evans) 1621:19–23; Ex. Expert 7 (Lafontaine) ¶¶ 61–63. There is no price charged to consumers for either the iOS or the Android operating systems. *See supra* Facts § II.A.; Trial Tr. (Lafontaine) 2022:11–2023:4; Ex. Expert 1 (Evans) ¶ 139.

App Store was not projected to be profitable for Apple.[584] Apple's miscalculation, while hugely profitable, does not evidence consumers lock-in with iOS devices. While Apple's calculated risk returned incredible profits, the reality is that Apple has maintained the same general rules with both consumers and developers since the inception of the iOS devices. Epic Games' arguments that Apple has otherwise repeatedly increased prices does not persuade, where Apple's rate has always been 30%.[585]

Second, Epic Games failed to prove lock-in, even absent a policy shift. Given the weak showing, plaintiff either found itself with an unachievable task or insufficient time to address the issue. In short, there is no evidence in the record demonstrating that consumers *are unaware* that the App Store is the sole means of digital distribution on the iOS platform. Specifically, there is no evidence in the form of consumer survey data demonstrating the extent of consumers knowledge when purchasing of an iOS device, much less that they are unaware they are purchasing *into* a closed ecosystem that is tightly controlled by Apple.

Instead of addressing the issue head-on, Epic Games pivots to argue that the market imperfections prevent consumers from discovering the true costs of downloading apps. In other words, even those consumers who know the facts about Apple's practices in the iOS app distribution market typically do not or cannot effectively take those facts into account when choosing a smartphone and operating system because the cost of distributing apps is low compared to the overall cost of a smartphone and because it is difficult to calculate and compare the lifecycle costs of smartphones between smartphone operating systems.[586]

These arguments are not supported by the record. Epic Games fails to quantify the actual cost to consumers on downloading and purchasing apps and in-app purchases. Indeed, if anything, the record reflects that cross-platform functionality and apps have only proliferated since the early 2010s, where middleware like streaming services and cross-platform games have only made switching platforms and devices easier and more convenient. That is, the market is responding and evolving.

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[584] Moreover, this 2007 statement is better categorized as a statement concerning price—not about any restriction on iOS app distribution or payment processing that Epic Games mainly challenges. In other words, this statement taken in the best possible light for Epic Games is a misrepresentation as to price—not as to any of the then and still present restrictions on distribution or payment processing.

[585] Indeed, Epic Games' citation to Apple's 2009 action requiring IAP to process payment for in-app digital content does not persuade where no Epic Games expert witness opines that Apple had monopoly power prior to 2010 or 2011. Even considering this action, along with Apple's 2011 and 2016 rules regarding antisteering, subscriptions, and search ads, do not demonstrate any increase in the rate for consumers *or* developers. Indeed, most of these actions enabled increased functionality for consumers and developers, permitting new business models, and relied on increasing innovation on both the iOS device and the App Store.

[586] Trial Tr. (Evans) 1508:15–1509:25.

Epic Games' sole focus on iOS devices simply ignores the market reality that is available to consumers. The Court's definition of the product as "digital mobile game transactions" takes into account that the App Store competes against other platforms for both consumers and developers. Indeed, as discussed in the findings of facts, several recent entrants into the mobile gaming submarket, from Nintendo, Microsoft, and Nvidia, show that this submarket is presently evolving and is dynamic. Moreover, the continued rise and popularity of cross-platform games like *Fortnite* and *Minecraft* offered on a variety of platforms, even beyond mobile gaming devices, are making switching between platforms seamless because a consumer can carry over rewards and progress between the diverse platforms. As a result, neither consumers nor developers are "locked-in" to the App Store for digital mobile game transactions—they can and do pursue game transactions on a variety of other mobile platforms and increasingly other game platforms.[587] Although the state of the wider gaming market is not at a level where the entirety of these gaming platforms can truly be characterized as competing for purposes of antitrust law (*e.g.*, substitutes), the continued rise of cross-platform games, technologies, and innovative ways in which to reach consumers only demonstrate that these differing platforms are converging and ever intertwining.[588]

In sum, with seasoned antitrust counsel at the helm, Epic Games created a market definition which theoretically made a strong showing within the *Newcal* and *Eastman Kodak* framework. For the reasons explained above, the market definition was fundamentally flawed, and in any event, does not satisfy all four of the *Newcal* factors. With respect to the Court's ultimate finding that the relevant market is mobile gaming transactions, the Court further finds

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[587] On some metrics, Apple is in fact more open than some competitors in the wider digital gaming market. For instance, the record reflects that certain competitors institute restrictions on cross-platform play and cross-platform wallet. Moreover, some platform owners require revenue sharing when game players disproportionately spend on a platform other than their own. Further still, some agreements require that certain goods be charged the same as the cheapest available on other platforms.

[588] The Court has further never been satisfied by Epic Games' explanation as how its aftermarket theory as to Apple would not also apply to other platform holders with similar walled garden models in the wider gaming market, including Nintendo, Microsoft, and Sony. *See Epic Games, Inc. v. Apple Inc.*, 493 F. Supp. 3d 817, 838–39 (N.D. Cal. 2020). The same three *Newcal* factors that readily apply to Apple's iOS devices would also facially apply to Nintendo's, Microsoft's, and Sony's consoles and their digital stores. Epic Games' distinction as to general purpose devices (*e.g.*, iOS devices) versus special purpose devices (*e.g.*, game consoles) has no basis in current antitrust law. Presumably, the factors would be applied in the same fashion.

Instead, and as discussed above, consumers if anything appear to purchase a game console in the same manner they purchase an iOS device: understanding that they must purchase into an ecosystem and are limited in the later transactions for apps and games. Despite the foregoing, Epic Games does not claim that every game console manufacturer has unlawfully created and maintained a monopoly, and in fact, appears content to offer *Fortnite* and other Epic Games on those platforms without complaint. Trial Tr. (Schmalensee) 1904:15–1905:4.

that, at a minimum, the fourth *Newcal* factor would similarly not be adequately satisfied on the record before the Court.

2. *Geographic Market*

"The criteria to be used in determining the appropriate geographic market are essentially similar to those used to determine the relevant product market." *Brown Shoe*, 370 U.S. at 336 (citations omitted). "A geographic market is an area of effective competition where buyers can turn for alternate sources of supply." *Morgan, Strand, Wheeler & Biggs v. Radiology, Ltd.*, 924 F.2d 1484, 1490 (9th Cir. 1991) (simplified).

"The relevant geographic market for goods sold nationwide is often the entire United States[.]" *Heerwagen v. Clear Channel Commc'ns*, 435 F.3d 219, 228 (2d Cir. 2006). As compared to others, in antitrust cases, courts regularly recognize global markets. *See, e.g.*, *United States v. Microsoft Corp.*, 253 F.3d 34, 52 (D.C. Cir. 2001) (upholding relevant geographic market encompassing "the licensing of all Intel-compatible PC operating systems worldwide"); *United States v. Eastman Kodak Co.*, 63 F.3d 95, 108 (2d Cir. 1995) (upholding worldwide geographic market for film). The United States antitrust laws' concern with anticompetitive conduct, includes harm that such American businesses suffer relating to their transactions with foreign consumers. *See* 15 U.S.C. § 6a (Sherman Act generally applies to conduct affecting "export trade"). Importantly here, the question focuses on the area of effective competition, not the reach of United States antitrust laws which is addressed elsewhere.

Having found the relevant product market to be that of mobile gaming transactions, the Court finds the area of effective competition in the geographic market to be global, with the exception of China. As discussed in the findings of facts, *see* supra Facts § III, Apple's engagement in that market does not change based on national borders. Developers globally access the platform based on the same set of rules and agreements. Even here, Epic Games' related entity was bound by the exact same set of rules and agreements. Given the current record, the Court discerns no meaningful difference for digital mobile gaming transactions domestically than globally.

II. SECTIONS 1 AND 2 OF THE SHERMAN ACT (COUNTS 1, 3, 4, 5)

A. General Framework

As *Qualcomm* instructs, "[t]he similarity of the burden-shifting tests under §§ 1 and 2 means that courts often review claims under each section simultaneously." *Qualcomm*, 969 F.3d at 991. Indeed, "[i]f, in reviewing an alleged Sherman Act violation, a court finds that the conduct in question is not anticompetitive under § 1, the court need not separately analyze the conduct under § 2." *Id.* (citing *Williams v. I.B. Fischer Nevada*, 999 F.2d 445, 448 (9th Cir. 1993)). That result is logical as "proving an antitrust violation under § 2 of the Sherman Act is more exacting than proving a § 1 violation . . . ." *Id.* at 992 (citing *Microsoft Corp.*, 253 F.3d at 79).

Among the differences in the analysis is the type of evidence used to prove a monopoly. "[A]lthough the tests are largely similar, a plaintiff may not use indirect evidence to prove unlawful monopoly maintenance via anticompetitive conduct under § 2." *Id.* (citing *Broadcom*

Corp. v. Qualcomm Inc., 501 F.3d 297, 307–08 (3d Cir. 2007) (distinguishing between proving the existence of monopoly power through indirect evidence and proving anticompetitive conduct itself, the second element of a Section 2 claim)).

Here, in light of *Qualcomm*, the Court reviews Sections 1 and 2 Sherman Act claims together. Underpinning both Sections 1 and 2 claims is the level of market power, and possibly monopoly power, that Apple exercises in the determined product and geographic market. The Court therefore initially assesses Apple's market and monopoly power in the relevant product and geographic market before addressing Epic Games' claims under Sections 1 and 2 of the Sherman Act.

B. Assessing Apple's Market Power in the Relevant Product and Geographic Market

1. *Legal Framework*

Market power and monopoly power are related but distinct concepts. As the Supreme Court has stated: "market power is the ability to raise prices above those that would be charged in a competitive market." *NCAA v. Bd. of Regents of the Univ. of Oklahoma*, 468 U.S. 85, 109 n.38 (1984).[589] Monopoly power is "the power to control prices or exclude competition." *Grinnell Corp.*, 384 U.S. at 571.

The difference between the two is a matter of degree. "Monopoly power under § 2 requires, of course, something greater than market power under § 1." *Eastman Kodak*, 504 U.S. at 481; *see also Image Tech. Servs. II*, 125 F.3d at 1206 (same). Courts have described the distinction as "substantial" market power or an "extreme degree" of market power. *See, e.g.*, *Bacchus Indus., Inc. v. Arvin Indus., Inc.*, 939 F.2d 887, 894 (10th Cir. 1991) (defining monopoly power as "substantial" market power); *Deauville Corp. v. Federated Dep't Stores, Inc.*, 756 F.2d 1183, 1192 n.6 (5th Cir. 1985) (defining monopoly power as an "extreme degree of market power"); *Safeway Inc. v. Abbott Lab'ys*, 761 F. Supp. 2d 874, 886 n.2 (N.D. Cal. 2011) (defining monopoly power as a substantial degree of market power).[590] Courts have also required that the monopoly power be beyond fleeting or ephemeral which the Court understands to be durable and sustaining. *See United States v. Syufy Enters.*, 903 F.2d 659, 665–66 (9th Cir. 1990) ("In evaluating monopoly power, it is not market share that counts, but the ability to

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[589] *See also Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 27 n.46 (1984) ("As an economic matter, market power exists whenever prices can be raised above levels that would be charged in a competitive market."), *abrogated on other grounds by Illinois Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 31 (2006); *cf.* Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 642 (4th ed. 2005) (noting that a firm has market power "if it is profitably able to charge a price above that which would prevail under competition"); William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 Harv. L. Rev. 937, 939 (1981) ("A simple economic meaning of the term 'market power' is the ability to set price above marginal cost.").

[590] *See also* Areeda & Hovenkamp § 801 (stating that "the Sherman Act § 2 notion of monopoly power . . . is conventionally understood to mean 'substantial' market power").

maintain market share." (emphasis in original)); *Colo. Interstate Gas Co. v. Nat. Gas Pipeline Co. of Am.*, 885 F.2d 683, 695–96 (10th Cir. 1989) (finding a firm lacked monopoly power because its "ability to charge monopoly prices will necessarily be temporary").[591]

"[M]arket share is just the starting point for assessing market power." *Hunt-Wesson Foods, Inc. v. Ragu Foods, Inc.*, 627 F.2d 919, 925 (9th Cir. 1980). It "should not be equated with monopoly power" but instead is "evidence from which the existence of monopoly power may be inferred . . . ." *Hunt-Wesson*, 627 F.2d at 924. Indeed, as the Ninth Circuit has cautioned, "[b]lind reliance upon market share, divorced from commercial reality, could give a misleading picture of a firm's actual ability to control prices or exclude competition." *Id.* In other words, "market share, while being perhaps the most important factor, does not alone determine the presence or absence of monopoly power." *Pac. Coast Agr. Export Ass'n v. Sunkist Growers, Inc.*, 526 F.2d 1196, 1204 (9th Cir. 1975) (affirming jury finding where defendant controlled anywhere from 45-70% of the market and competitors were fragmented with less than 12 to 18% of the market).

The threshold of market share for finding a *prima facie* case of monopoly power is generally no less than 65% market share. *See Image Tech. Servs. II*, 125 F.3d at 1206 ("Courts generally require a 65% market share to establish a prima facie case of market power."); *Hunt-Wesson*, 627 F.2d at 924–25 ("market shares on the order of 60 percent to 70 percent have supported findings of monopoly power").[592] A more conservative threshold would require a market share of 70% or higher for monopoly power. *See Kolon Indus. Inc. v. E.I. DuPont de Nemours & Co*., 748 F.3d 160, 174 (4th Cir. 2014) ("Although there is no fixed percentage market share that conclusively resolves whether monopoly power exists, the Supreme Court has never found a party with less than 75% market share to have monopoly power. And we have observed that when monopolization has been found the defendant controlled seventy to one hundred percent of the relevant market." (citations omitted)); *Syufy Enters. v. Am. Multicinema, Inc.*, 793 F.2d 990, 995 (9th Cir. 1986) ("[A]s far as we know, neither the Supreme Court nor any other court has ever decided whether a market share as low as 60-69% is sufficient, standing alone, to sustain such a finding."). Relatedly, "numerous cases hold that a market share of less than 50 percent is presumptively insufficient to establish" the requisite level of market power under a Section 2 claim. *Rebel Oil Co., Inc. v. Atl. Richfield Co.*, 51 F.3d 1421, 1438 (9th Cir. 1995).[593]

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[591] *See also* Areeda & Hovenkamp § 801d; *Oahu Gas Serv., Inc. v. Pac. Res., Inc.*, 838 F.2d 360, 366 (9th Cir. 1988) ("A firm with a high market share may be able to exert market power in the *short run*, but [s]ubstantial market power can persist only if there are significant and continuing barriers to entry." (internal quotation marks omitted) (emphasis supplied).

[592] *See also Grinnell Corp*., 384 U.S. at 571 (noting that the Supreme Court previously found "over two-thirds of the entire domestic field of cigarettes, and over 80% of the field of comparable cigarettes' constituted 'a substantial monopoly'" before finding monopoly power where defendant had an 87% market share).

[593] *See also Twin City Sportservice, Inc. v. Charles O. Finley & Co.*, 512 F.2d 1264, 1274 (9th Cir. 1975) ("We do, however, wish to remind the trial court when considering this case

By contrast, Section 1 claims can be satisfied with less market power. For instance, the Ninth Circuit affirmed a finding of a Section 1 violation where the market share was as low as 24% but has also found market share above 30% insufficient. *See*, *e.g.*, *Twin City Sportservice, Inc. v. Charles O. Finley & Co.*, 512 F.2d 1264 (9th Cir. 1982). *But see also Jefferson Parish*, 466 U.S. at 26 & n.43 (30 percent market share insufficient); *Pilch v. French Hosp.*, No. CV 98-9470 CAS(CWX), 2000 WL 33223382, at *7 (C.D. Cal. Apr. 28, 2000) (33.2 percent market share insufficient).

Here, the Court considers other market factors in the form of direct and indirect evidence. First, direct evidence is evidence "of the injurious exercise of market power" such as "evidence of restricted output and supracompetitive prices." *Rebel Oil Co.*, 51 F.3d at 1434. This kind of evidence is "direct proof of the injury to competition which a competitor with market power may inflict, and thus, [direct proof] of the actual exercise of market power." *Id.* (citing *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 460–61 (1986)).

The second and "more common type of proof is circumstantial evidence pertaining to the structure of the market." *Id.* To demonstrate market power indirectly, a plaintiff must: "(1) define the relevant market, (2) show that the defendant owns a dominant share of that market, and (3) show that there are significant barriers to entry and show that existing competitors lack the capacity to increase their output in the short run." *Id.*[594]

Because "[a] mere showing of substantial or even dominant market share alone cannot establish market power sufficient to carry out a predatory scheme," a plaintiff "must show that new rivals are barred from entering the market and show that existing competitors lack the capacity to expand their output to challenge the predator's high price." *Rebel Oil Co.*, 51 F.3d at 1438–39, n.10 ("telltale factors" include "market share, entry barriers and the capacity of existing competitors to expand output"). Entry barriers are market characteristics "that prevent new rivals from timely responding to an increase in price above the competitive level." *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658, 684 (N.D. Cal. 2019) (quotation marks omitted), *rev'd on other grounds*, 969 F.3d 974 (9th Cir. 2020). They include "additional long-run costs that were not incurred by incumbent firms but must be incurred by new entrants," or "factors in the market

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on remand of Judge Learned Hand's famous dictum that while 90% of the market 'is enough to constitute a monopoly; it is doubtful whether sixty or sixty-four per cent would be enough; and certainly thirty-three per cent is not.' It also should be recalled that on several occasions courts have considered a 50% share of the market as inadequate to establish a proscribed monopoly." (quoting *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945)).

[594] *See also Microsoft Corp.*, 253 F.3d at 51 ("Because such direct proof is only rarely available, courts more typically examine market structure in search of circumstantial evidence of monopoly power. Under this structural approach, monopoly power may be inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers." (citations omitted)); *Oahu Gas*, 838 F.2d at 367 ("A high market share, though it may ordinarily raise an inference of monopoly power . . . will not do so in a market with low entry barriers or other evidence of a defendant's inability to control prices or exclude competitors." (internal citation omitted)).

that deter entry while permitting incumbent firms to earn monopoly returns." *L.A. Land Co. v. Brunswick Corp.*, 6 F.3d 1422, 1427–28 (9th Cir. 1993) (quotation marks omitted).

2. *Analysis*

As a starting point, the Court has found Apple's market share in mobile gaming transactions appears to fluctuate anywhere from approximately 52% to 57% over the course of the three years in evidence. *See supra* Facts § II.E. While the prior figures suggest that Apple's share in mobile gaming is increasing, the more recent year reflects some stability in the market between Apple and its main competitor, Google. That Apple has more than a majority in a mostly duopolistic, and otherwise highly concentrated, market indicates that Apple has considerable market power.

Apple's market share is below the general ranges of where courts found monopoly power under Section 2. Nonetheless, the Court considers additional direct and indirect evidence to determine whether that market share should be sufficient under Section 2 or, under any event, sufficient under Section 1.

In considering *direct* evidence of monopoly power, Epic Games has failed to demonstrate that there is a necessary restriction in the output of the relevant product—here, mobile game transactions. The record contains substantial evidence that output has increased in mobile gaming transactions. *See supra* Facts §§ IV–V. Even though the Court has concerns about the 30% rate and its appearance of being artificially higher (*i.e.*, supracompetitive) than it would be in a more competitive market, there has not been the corollary impact on output. This could be because of the technological nature of the dispute. *Id.*; *see also supra* Facts § V.A.1.c. Nonetheless, given the manner in which this case was litigated, Epic Games failed to produce evidence that this rate has had any impact on the output of mobile gaming transactions.

"[S]upracompetitive pricing, on its own, is not direct evidence of monopoly power." *Safeway Inc.*,761 F. Supp. 2d at 887 (N.D. Cal. 2011) (*citing Forsyth v. Humana, Inc.*, 114 F.3d 1467, 1476 (9th Cir. 1997) ("The plaintiffs submitted evidence that [defendant] routinely charged higher prices than other [competitors] while reaping high profits. With no accompanying showing of restricted output, however, the plaintiffs have failed to present direct evidence of market power [under Section 2]."), *overruled on other grounds by Lacey v. Maricopa County*¸693 F.3d 896 (9th Cir. 2012); *see also Harrison Aire, Inc. v. Aerostar Int'l, Inc.*, 423 F.3d 374, 381 (3d Cir. 2005); *Geneva Pharmas. Tech. Corp. v. Barr Lab'ys Inc.*, 386 F.3d 485, 500 (2d Cir. 2004); *Blue Cross & Blue Shield United of Wisconsin v. Marshfield Clinic*, 65 F.3d 1406, 1412 (7th Cir. 1995). Indeed, "[t]o prove monopoly power directly, supracompetitive pricing must be accompanied by restricted output." *Safeway Inc*., 761 F. Supp. 2d at 887 (*citing Rebel Oil Co.*, 51 F.3d at 1434). In other words, "[b]oth are required to prove monopoly power directly." *Id.*[595] Given the Court has found the record, at best, incomplete, the lack of evidence

[595] Indeed, as the *Safeway* court notes and explains in a footnote:

> Plaintiffs nevertheless continue to argue that evidence of restricted output is not required because raising prices necessarily depresses sales. This is incorrect. Take for example a market in which demand

of decreased output for mobile gaming transactions and mobile game apps is fatal in demonstrating monopoly power using direct evidence.

With respect to indirect evidence, a more mixed result emerges. A share between 52 and 57 percent is not high enough to sustain a *prima facia* case of a monopoly, but is enough to permit the Court to evaluate the state and durability of the market. This evaluation includes whether (i) new rivals are barred from entering the market (*i.e.*, the degree of entry barriers) and (ii) whether existing competitors lack the capacity to expand their output to challenge the predator's high price. In general, entry barriers are "additional long-run costs that were not incurred by incumbent firms but must be incurred by new entrants" or "factors in the market that deter entry while permitting incumbent firms to earn monopoly returns." *L.A. Land Co.*, 6 F.3d at 1427–28. Such barriers include "(1) "legal license requirements, (2) control of an essential or superior resource, (3) entrenched buyer preferences for established brands; (4) capital market evaluations imposing higher capital costs on new entrants; and, in some situations, (5) economies of scale." *Rebel Oil Co.*, 51 F.3d at 1439 (citing *L.A. Land Co.*, 6 F.3d at 1428 n.4).

Here, the evidence is both undeveloped and mixed. Given that mobile gaming was not a proposed product market for either party, neither party has adequately presented evidence of these barriers or competitors' ability to challenge monopolistic actions. The Court nonetheless considers the limited evidence in record.

On the one hand, only a small number of platforms, and their attendant licenses on which to distribute mobile games, exist—namely iOS and Android. Moreover, economies of scale in the form of network effects favor these established digital gaming stores and platforms over new entrants. Finally, new entrants may face information barriers to entry, as users may not know that cheaper game distribution may be available on alternative platforms.[596] Although these factors do not create "lock-in," they are evidence of some entry barriers for new companies providing mobile game transactions.

On the other hand, there are significant changes in both the wider gaming market *and* the mobile gaming market—both appear to be in flux. Indeed, the evidence reflects that the wider gaming market is both dynamic and evolving. Mobile gaming transactions do not appear to be immune to this dynamism. The introduction of the hybrid platform the Nintendo Switch in 2017 provides some evidence that the barriers of entry are not so high as to deter competitors in

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> outstrips supply. In such a hypothetical market, a firm could raise prices—up to a certain point—without necessarily causing a commensurate reduction in sales.

Safeway Inc., 761 F. Supp. 2d at 887 n.3.

[596] *See* Ex. Expert 4 (Athey) ¶¶ 36–37, 45–46; Ex. Expert 1 (Evans) ¶ 118. Although, the Court notes that some platform owners require price parity among other platforms, such that prices are universal amongst each platform. *See supra* Facts §§ II.D.3–4.

related markets from entering the mobile gaming transactions market.[597] Moreover, Microsoft and Nvidia's efforts into mobile game streaming are further evidence that these entry barriers are not so substantial to prevent new market entrants.[598] Indeed, these competitors are moving into the same lucrative mobile gaming submarket without facing substantial market barriers to entry. In short, these competitors appear to be leveraging either existing intellectual property in the form of hardware and gaming content as well as existing established networks, including its own consumer and developer bases, to break into this market space. Given this recent movement by competitors, it is hard to characterize the entry barriers as oppressive or high on this record.

The evidence is further mixed on whether existing competitors, here Google, could increase output in the short run in order to erode Apple's market share. *See Pacific Coast*, 526 F.2d at 1204 (affirming jury's finding of monopoly power where defendant had a market share of 45 to 70% in the relevant years, and the remaining competitors "were relatively small, with no single competitor controlling over 18% [or] 12%" of the market). Beyond similar market share in this market, neither party explored mobile gaming and the record is inconclusive on Google's *actual* capabilities in disciplining and competing with Apple in this sphere.

In sum, given the totality of the record, and its underdeveloped state, while the Court can conclude that Apple exercises market power in the mobile gaming market, the Court cannot conclude that Apple's market power reaches the status of monopoly power in the mobile gaming market. That said, the evidence does suggest that Apple is near the precipice of substantial market power, or monopoly power, with its considerable market share. Apple is only saved by the fact that its share is not higher, that competitors from related submarkets are making inroads into the mobile gaming submarket, and, perhaps, because plaintiff did not focus on this topic.

C. Section 1 of the Sherman Act: Apple's Unlawful Restraint of the iOS App Distribution Market (Count 3) and Unlawful Restraint on the iOS In-App Payment Solutions Market (Count 5)

Epic Games brings two counts under Section 1 of the Sherman Act for unlawful restraint of trade in the iOS app distribution aftermarket (Count 3) and in the iOS in-app payment solutions aftermarket (Count 5). The legal framework is the same for both.

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[597] Although not in the record, the Court is further aware that Valve, a major player in the computer gaming market as the owner of the Steam platform, has also announced its own mobile and portable gaming platform. The Court does not rely on this fact in reaching its conclusions herein, but only mentions it to further support the Court's ultimate conclusion: that entries into the mobile gaming submarket appear to be possible and achievable from competitors in related gaming submarkets.

[598] Of course, game streaming is still relatively new and currently does not replicate freemium games, the primary driver of App Store revenue, because, with the exception of Nvidia's free access tier, such services generally require an up-front subscription payment. *See supra* Facts § II.D.3.d.

1. *Legal Framework*

Section 1 of the Sherman Act prohibits "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations." 15 U.S.C. § 1. Section 1 is understood "to outlaw only unreasonable restraints." *Amex*, 138 S. Ct. at 2283 (internal quotation marks and emphasis omitted); *State Oil Co. v. Khan*, 522 U.S. 3, 10 (1997); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1, 59–60 (1911). "To establish liability under § 1, a plaintiff must prove (1) the existence of an agreement, and (2) that the agreement was in unreasonable restraint of trade." *Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 836 F.3d 1171, 1178 (9th Cir. 2016).

Despite the broad language of the statute, antitrust law has developed to find that "[t]he essence of a Section 1 claim is concerted action." *E.W. French & Sons v. Gen. Portland*, 885 F.2d 1392, 1397 (9th Cir. 1989). "[E]xpress 'agreements'" are "direct evidence of 'concerted activity.'" *Paladin Assocs., Inc. v. Montana Power Co.*, 328 F.3d 1145, 1153 (9th Cir. 2003); *see also Sun Microsystems Inc. v. Hynix Semiconductor Inc.*, 608 F. Supp. 2d 1166, 1192 (N.D. Cal. 2009) ("One way of proving concerted action is by express agreement."). A plaintiff "need not prove intent to control prices or destroy competition to demonstrate the element of an agreement among two or more entities." *Paladin Assocs.*, 328 F.3d at 1153–54 (internal quotation marks and alterations omitted). "Unilateral conduct by a single firm, even if it appears to restrain trade unreasonably, is not unlawful under Section 1 of the Sherman Act." *The Jeanery, Inc. v. James Jeans, Inc.*, 849 F.2d 1148, 1152 (9th Cir. 1988) (internal quotation marks omitted); *see also Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 761 (1984) ("Independent action is not proscribed."). Thus, in evaluating the first element, the Sherman Act distinguishes between concerted conduct and unilateral conduct and "treat[s] concerted behavior more strictly than unilateral behavior." *Copperweld Corp. v. Indep. Tube Corp.*, 467 U.S. 752, 768 (1984).

With respect to the second element, some restraints are *per se* unreasonable. Where they are not, they are "judged under the 'rule of reason.'" *Amex*, 138 S. Ct. at 2284. "The rule of reason requires courts to conduct a fact-specific assessment of 'market power and market structure to assess the restraint's actual effect' on competition." *Id.* (quoting *Copperweld Corp.*, 467 U.S. at 768) (alterations omitted). "Under this rule, the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition." *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 885–86 (2007) (internal quotation marks and citation omitted). "Appropriate factors to consider include specific information about the relevant business and the restraint's history, nature, and effect." *Id.* (internal quotation marks and citation omitted). "Whether the businesses involved have market power is a further, significant consideration." *Id.* (citation omitted). "In its design and function the rule distinguishes between restraints with anticompetitive effect that are harmful to the consumer and restraints stimulating competition that are in the consumer's best interest." *Id.*

As the Supreme Court recently explained:

> To determine whether a restraint violates the rule of reason, . . . a three-step, burden shifting framework applies. Under this

> framework, the plaintiff has the initial burden to prove that the challenged restraint has a substantial anticompetitive effect that harms consumers in the relevant market. If the plaintiff carries its burden, then the burden shifts to the defendant to show a procompetitive rationale for the restraint. If the defendant makes this showing, then the burden shifts back to the plaintiff to demonstrate that the procompetitive efficiencies could be reasonably achieved through less anticompetitive means.

Amex, 138 S. Ct. at 2284 (citations omitted); *see also Qualcomm*, 969 F.3d at 989. The three steps "do not represent a rote checklist" and are not "an inflexible substitute for careful analysis." *NCAA v. Alston* ("*NCAA*"), 141 S. Ct. 2141, 2160 (2021). Rather, their purpose is "to furnish 'an enquiry meet for the case, looking to the circumstances, details, and logic of a restraint.'" *Id*. (quoting *Cal. Dental Ass'n v. FTC*, 526 U.S. 756, 781 (1999)).

2. *Count 3: iOS App Distribution Market Analysis*

a. Existence of an Agreement

Count 3 alleges that Apple "require[s] iOS developers distribute their apps through the App Store." Compl. ¶ 210. Starting with the first element, Epic Games relies on the DPLA to demonstrate an agreement.[599] As noted, express agreements provide "direct evidence" of concerted activity. *Paladin Assocs.*, 328 F.3d at 1153. Apple argues, however, that the DPLA does not qualify because Apple unilaterally imposes it on developers. *See Costco Wholesale Corp. v. Maleng*, 522 F.3d 874, 898 (9th Cir. 2008) (no "meeting of the minds" from unilateral rules).[600]

As explained above, the Sherman Act distinguishes between unilateral and concerted activity. *Jeanery*, 849 F.3d at 152. "Concerted activity subject to § 1 is judged more sternly than unilateral activity under § 2" because it "deprives the marketplace of the independent centers of decisionmaking that competition assumes and demands." *Copperweld Corp.*, 467 U.S. at 768–

[599] In its Section 2 rule of reason analysis, Apple argues that technical design of iOS cannot form the basis of antitrust liability. Apple COL ¶ 249. In response, Epic Games appears to disclaim any challenge to Apple's code signing restrictions. Epic Games COL ¶ 143. The Court here considers only the DPLA restrictions on distribution.

[600] In *Costco*, a retailer challenged Washington state's regulations of alcohol sales under antitrust laws. 522 F.3d at 883. Washington had required distributors to sell alcohol at a uniform price and to post those prices publicly, among other restrictions. *Id*. To evaluate the conduct, the Ninth Circuit distinguished "unilateral" restraints—which were not prohibited by the Sherman Act—from "hybrid" restraints, which involve concerted action and implicate Section 1. *Id*. at 886–87. The court found that that the price restrictions were unilateral state conduct, but that the requirement to post and adhere to the prices was "hybrid" because private parties still retained discretion. *Id*. at 894, 899. It then found that the posting requirement violates Section 1. *Id*. at 895. *Costco* shows that even *government command* can create "concerted activity" under Section 1. Apple's conduct here is far less unilateral.

69. It thus "warrant[s] scrutiny even in the absence of incipient monopoly." *Id*. Unilateral conduct, by contrast, may simply represent "robust competition." *Id*. at 767–68; *see Qualcomm*, 969 F.3d at 1005 ("hypercompetitive behavior" is not illegal under antitrust laws). Thus, even unreasonable unilateral restraints are not subject to antitrust scrutiny unless "they pose a danger of monopolization." *Copperweld Corp.*, 467 U.S. at 768.

Given this distinction, a business may set conditions for dealing unilaterally and refuse to deal with anyone who does not meet those conditions. *See Monsanto*, 465 U.S. at 761. However, where the conduct extends beyond announcing a policy and refusing to deal with non-compliant partners to coercing an agreement, the conduct falls under Section 1. *See id.* at 765; *see also Dimidowich v. Bell & Howell*, 803 F.2d 1473, 1478 (9th Cir. 1986) (recognizing an exception to the "unilateral refusal to deal" rule where a party "imposes restraints on dealers or customers by coercive conduct and they involuntarily adhered to those restraints").

For example, in *Jeanery*, a jeans manufacturer had set suggested prices for retailers and made clear that those who set prices below the suggested price would be terminated or receive less favorable treatment. 849 F.2d at 1150. A distributor undercut those prices and was promptly terminated. *Id*. at 1151. The Ninth Circuit found no Section 1 violation based on insufficient evidence of an agreement. *Id*. at 1155. Specifically, the Ninth Circuit found no evidence that the manufacturer "coerced" the distributors into adherence or that the distributors "communicated acquiescence to such an agreement." *Id*. at 1158–60 (reasoning that manufacturer did not nothing more than inform distributors of its policy). Conversely, such evidence was found in *Monsanto*, in which case an agricultural manufacturer threatened to withhold herbicide at a time of short supply and even complained to a distributor's parent company to force compliance, which the distributor expressly communicated in return. 465 U.S. at 764–65 & nn.9–10.

Here, the DPLA is a unilateral contract which the parties agree that a developer must accept its provisions (including the challenged restrictions) to distribute games on iOS.[601] Thus, under antitrust jurisprudence, element one would not be satisfied. *See Toscano v. Prof. Golfers Ass'n*, 258 F.3d 978 (9th Cir. 2001) (because the sponsors "did not help create anticompetitive rules" but only "agreed to purchase products" under "conditions set by the other party," they were not liable for concerted conduct under Section 1). *Id*.

That said, the Court addresses here the potential conflicts with the goals of antitrust law given this narrow view. The jurisprudence assumes that unilateral conduct may simply be the result of robust competition. That may not always be the case. Ending the analysis on that basis alone does not allow for those assumptions to be tested, especially where, as here, the Court is faced with a highly concentrated market.

Nor is the jurisprudence particularly consistent with tying claims which are allowed under Section 1. For example, a tying claim involves a seller exploiting "its control over the tying product to force the buyer into the purchase of a tied product." *Jefferson Parish*, 466 U.S. at 12. The buyer plays no role beyond purchasing the goods under conditions set by the seller.

[601] PX-2619; PX-2621.

Similarly, an exclusive dealing claim involves "agreement between a vendor and a buyer that prevents the buyer from purchasing a given good from any other vendor." *Aerotec*, 836 F.3d at 1180. Again, the buyer passively accepts conditions set by the vendor. More recently, *Amex* involved an anti-steering provision as a vertical restraint imposed by American Express on merchants. 138 S. Ct. at 2277. The merchants accepted the provision as a condition of dealing with American Express without further involvement. *Id.*[602]

Thus, while the Court does not find the DPLA provides sufficient evidence of an agreement, it nonetheless continues the analysis to inform the issues relating to anticompetitive and incipient antitrust conduct, especially given the anti-steering provision therein.

b. Reasonableness of the Restraint

For the reasons stated, the Court turns to the second element using the rule of reason test. *Amex*, 138 S. Ct. at 2284; *see also Copperweld Corp.*, 467 U.S. at 768 (explaining that vertical agreements "hold the promise of increasing a firm's efficiency and enabling it to compete more effectively" and so "are judged under a rule of reason"). As the Court described in *Amex*:

> The rule of reason requires courts to conduct a fact-specific assessment of "market power and market structure . . . to assess the [restraint]'s actual effect" on competition. *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768, 104 S. Ct. 2731, 81 L.Ed.2d 628 (1984). The goal is to "distinguis[h] between restraints with anticompetitive effect that are harmful to the consumer and restraints stimulating competition that are in the consumer's best interest." *Leegin Creative Leather Products, Inc. v. PSKS, Inc.,* 551 U.S. 877, 886, 127 S. Ct. 2705, 168 L.Ed.2d 623 (2007).

Amex, 138 S. Ct. at 2284. Recognizing that the rule of reason is not a "rote checklist," *NCAA*, 141 S. Ct. at 2160, the Court examines the app distribution restrictions and considers their anticompetitive effects, procompetitive rationales, and less restrictive alternatives. *Amex*, 138 S. Ct. at 2284. !

i. Anticompetitive Effects

"To demonstrate anticompetitive effects on the two-sided [mobile gaming] market as a whole," plaintiff must prove that Apple's app distribution provisions increased the cost of mobile gaming transactions "above a competitive level, reduced the number of [mobile gaming] transactions, or otherwise stifled competition in the [mobile gaming] market." *See Amex*, 138 S. Ct. at 2287. Evidence of this nature is considered direct evidence. *Id.* at 2284 (simplified).

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[602] *See Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 903 F.2d 612, 619 (9th Cir. 1990) ("*Image Tech Services I*") (rejecting the argument that party "acted unilaterally in tying parts to service" because otherwise, *Monsanto* "without discussing the courts' tying decisions, meant to overturn" tying arrangements); *Eastman Kodak*, 504 U.S. at 463 n.8 (conditioning sales is not a "unilateral refusal to deal").

Indirect evidence is also admissible and would involve "proof of market power plus some evidence that the challenged restraint harms competition." *Amex*, 138 S. Ct. at 2284.

Here, the Court recognizes significant challenges in assessing the anticompetitive effects of the app distribution restrictions. The market in mobile game transactions has grown dramatically over recent years due to growth in gaming generally, smartphone ownership, and digital transactions as a whole. Apple's commission rate has remained static throughout even though Google, Apple's main competitor (and who also charges a 30% commission rate), does not have the same app distribution restrictions. These facts suggest prices are artificially high given Apple's growing market power and growing demand. Evaluating competitive effects under these circumstances would require isolating the effects of a particular restriction. This is particularly difficult in light of the expansive market growth caused by innovation in the field. It is for these reasons that "novel business practices—*especially* in technology markets—should not be 'conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use.'" *Qualcomm*, 969 F.3d at 990–91 (emphasis in original) (quoting *Microsoft Corp.*, 253 F.3d at 91).

Having carefully considering the evidence, the Court finds that Apple's app distribution restrictions do have *some* anticompetitive effects. The evidence here shows that, unlike the increased merchant fees in *Amex*, Apple's maintenance of its commission rate stems from market power, *not competition* in changing markets. As explained above, Apple set its 30% commission rate almost by accident when it first launched the App Store without considering operational costs, benefit to users, or value to developers, that is, both sides of the platform.[603] That commission has enabled Apple to collect extraordinary profits as Mr. Barnes credibly shows that the operating margins have exceeded 75% for years. Yet the 30% commission rate has barely budged in over a decade despite developer complaints and regulatory pressure. High commission rates certainly impact developers, and some evidence exists that it impacts consumers when those costs are passed on.[604]

With respect to indirect evidence, the Court discusses these effects in Facts § V.A.1., but summarizes them here. Apple holds considerable market share, 55 percent. Its restrictions harm competition by precluding developers, especially larger ones, from opening competing game stores on iOS and compete for other developers and users on price. Given this but-for-world, increased competition could result in a reduction of Apple's commissions charged to developers,

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[603] Thus, the facts here differ from *Amex*. There, American Express raised fees only after a "careful study" of "how much additional value its cardholders offer merchants." 138 S. Ct. at 2288. It used higher merchant fees "to offer its cardholders a more robust rewards program," which created loyalty and "encourage[d] the level of spending that makes Amex valuable to merchants." *Id*. No study or evaluation exists here.

[604] For this reason, the spectacular growth of free apps on the App Store is not dispositive. While Apple may have decided, over time, to use freemium games to subsidize the rest of the App Store, there is no evidence that the commission is calibrated to the costs or value of providing free games, as the merchant fees in *Amex* were calibrated to providing rewards.

who could then pass on savings to users.[605] Competing game stores could compete on features, including "search and discoverability," in-app payment processing, and security. This could improve the innovation in and perhaps quality of "matchmaking" to increase output.[606] Further, competing game stores could provide specialized stores tailored to particular groups and otherwise innovate to meet user and developer needs.

Accordingly, Epic Games has put proffered both direct and indirect evidence of anticompetitive effects under Section 1.

ii. Procompetitive Justifications

In response, Apple offers three procompetitive justifications: security, intrabrand competition, and protecting intellectual property investment. A procompetitive rationale is a "nonpretextual claim that [defendant's] conduct is indeed a form of competition on the merits because it involves, for example, greater efficiency or enhanced consumer appeal." *Qualcomm*, 969 F.3d at 991. It is not enough that "conduct 'has the effect of reducing consumers' choices or increasing prices to consumers.'" *Id*. at 990 (quoting *Brantley v. NBC Universal, Inc.*, 675 F.3d 1192, 1202 (9th Cir. 2012)). That is because these effects may arise for procompetitive reasons, such as increased interbrand competition. *See Leegin*, 551 U.S. at 891–93. In a two-sided transaction market, a court must consider procompetitive effects on both sides of the market. *Amex*, 138 S. Ct. at 2287.

Here, the Court finds Apple's security justification to be a valid and nonpretextual business reason for restricting app distribution. As previously discussed, *see supra* Facts § V.A.2., centralized app distribution enables Apple to conduct app review, which includes both technical and human components. Human review in particular helps protect security by preventing social engineering attacks, the main vector of malware distribution. Human review also helps protect against fraud, privacy intrusion, and objectionable content beyond levels achievable by purely technical measures. By providing these protections, Apple provides a safe and trusted user experience on iOS, which encourages both users and developers to transact freely and is mutually beneficial. As a result, Apple's conduct "enhance[s] consumer appeal." *See Qualcomm*, 969 F.3d at 991.

As a corollary of the security justification, the app distribution restrictions promote interbrand competition. The Supreme Court has recognized that limiting intrabrand competition can promote interbrand competition. *Leegin*, 551 U.S. at 890. For example, restricting price

[605] The record is bare as to who would ultimately benefit from a reduction in commissions. With the limited examples in the record, some developers, like Down Dog, pass on the entirety of the reduction in the commission to consumers, whereas Epic Games split the 30% commission by retaining 12% and remitting 18% to consumers. Thus, it is unclear the extent or degree to which developers would pass on any savings to consumers.

[606] Under *Amex*, services for each of the two sides of the platform are both "inputs" to the single product, which is transactions. 138 S. Ct. at 2286 n.8. Although Apple does not directly restrict game transaction output, it limits the supply of these inputs on iOS, which reduces quality and may reduce output.

competition among retailers who sell a particular product can help the manufacturer of that product compete against other manufacturers. *Id.* at 890–91. It is this interbrand competition that "the antitrust laws are designed primarily to protect." *Id*. at 895. Here, centralized app distribution and the "walled garden" approach differentiates Apple from Google. That distinction ultimately increases consumer choice by allowing users who value open distribution to purchase Android devices, while those who value security and the protection of a "walled garden" to purchase iOS devices. This, too, is a legitimate procompetitive justification.

Epic Games does not persuasively rebut the security justification nor shows it to be pretextual. Instead, it focuses on the lack of app distribution restrictions (besides code signing) on Mac computers. *See supra* Facts §§ V.A.1.a, V.A.2.a.iv. However, Apple submits some evidence that Mac computers have more malware than iOS and, in any case, provides a compelling explanation for app review's increased effectiveness against certain types of attacks. Epic Games also questions the effectiveness of app review in practice. *See supra* Facts § V.A. That hardly provides a reason against app review. Epic Games' security expert agrees that "mayhem" would result if unfettered app distribution were allowed.[607] Thus, plaintiff's proffer is really one of the "effectiveness" of Apple's security procedures, not the need for them. Whether the precise restrictions Apple has selected could be replicated through less restrictive means is more properly addressed in the next section. Given the trial record, the Court finds that Apple's security rationale is a valid business justification for the app distribution restrictions.[608]

As for the intellectual property justification, the specific commission rate is pretextual, as the Court previously found. As discussed in Facts § V.A.2.b, there is no evidence that Apple set or maintains its specific commission rate with any consideration of the value or cost of intellectual property in mind.[609] Indeed, the Supreme Court recently rejected a justification without "any direct connection" to the challenged restraint in *NCAA*. 141 S. Ct. at 2162. There, a sport association argued that restrictions on student athlete compensation were necessary to preserve amateurism and related consumer demand. *Id*. at 2152. The Court rejected this justification based on the district court's findings that the association set those rules without any reference to considerations of consumer demand. *Id*. at 2162–63 (quoting *In re NCAA Athletic Grant-in-Aid Antitrust Litig*., 375 F. Supp. 3d 1058, 1070, 1075, 1100 (N.D. Cal. 2019)).

Eastman Kodak is further instructive. There, the photocopier maker argued that companies providing repair services for its machines were "exploiting the investment Kodak has made in product development, manufacturing and equipment sales." *Eastman Kodak*, 504 U.S.

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[607] Trial Tr. (Mickens) 2709:23–2710:2.

[608] Relatedly, Apple has a legitimate business justification in maintaining and improving the quality of its services, here, privacy and security. *See Cal. Computs. Prods., Inc. v. Int'l Bus. Machs. Corp.*, 613 F.2d 727, 744 (9th Cir. 1979) ("IBM, assuming it was a monopolist, had the right to redesign its products to make them more attractive to buyers whether by reason of lower manufacturing cost and price or improved performance.").

[609] *See, e.g.*, PX-0880.021; Ex. Depo. 8 (Cue) 137:23–138:14, 140:10–141:7; Trial Tr. (Malackowski) 3692:18–21, 3693:13–17.

at 485. The Supreme Court declined to accept this argument and find in Kodak's favor as a matter of law. *Id*. at 486. Ultimately, on remand, the Ninth Circuit affirmed a jury finding of pretext. The evidence showed that "patents 'did not cross [Kodak's] mind at the time Kodak began its parts policy" and that Kodak did not distinguish patented and unpatented parts in its policy. *Image Tech. Servs. II*, 125 F.3d at 1219–20.

Like the defendants in those cases, Apple did not consider intellectual property in setting its specific commission rate, nor does it list any specific intellectual property in the DPLA. Thus, the justification with respect to the 30% commission rate is pretextual.

That said, while the Court has found the *rate itself* pretextual, the Court cannot conclude that Apple's protection of its intellectual property is pretextual. Courts have found similar justifications based on the protection of intellectual property rights valid, albeit rebuttable, procompetitive justifications. *See*, *e.g.*, *Tech. Res. Servs., Inc. v. Dornier Med. Sys., Inc.*, 134 F.3d 1458, 1467 (11th Cir. 1998) (jury could have credited defendant's "need to protect its trade secrets and proprietary information"). Indeed, as the Court has found, Apple is entitled to license its intellectual property for a fee, and to guard its intellectual property from uncompensated use by others. The restrictions on app distribution on the iOS platform accomplishes that aim, whereas Epic Games' proposed alternatives (discussed in more length below) would weaken it. In short, Epic Games has failed to show that Apple's proffered intellectual property justification is pretextual as it relates to the restrictions on app distribution.

Accordingly, Apple has shown procompetitive justifications based on security and the corollary interbrand competition, as well as generally with respect to intellectual property rights.

iii. Less Restrictive Alternatives

Turning to the last step, the parties dispute whether these procompetitive justifications could be achieved through less restrictive means. Generally, "antitrust law does not require businesses to use anything like the least restrictive means of achieving legitimate business purposes." *NCAA*, 141 S. Ct. at 2161. "To the contrary, courts should not second-guess degrees of reasonable necessity so that the lawfulness of conduct turns upon judgments of degrees of efficiency." *Id*. (simplified).[610]

Thus, under the third step, an alternative must be "a significantly (not marginally) less restrictive means for achieving the same procompetitive benefits." *Id*. at 2164. It must be

[610] The Court notes slightly differing language at the third step between Section 1 ("plaintiff [must] demonstrate that the procompetitive efficiencies could be reasonably achieved through less anticompetitive means") and Section 2 ("the plaintiff must demonstrate that the anticompetitive harm of the conduct outweighs the procompetitive benefit"). *See Qualcomm*, 969 F.3d at 991. Although the Ninth Circuit has recently stated that the rule of reason analysis under both sections is "essentially the same," *id.*, prior case law has explicitly recognized that "there is no least restrictive alternative requirement in the context of a Section 2 claim." *Image Tech. Servs. I*, 903 F.2d at 620; *accord Apple iPod iTunes Antitrust Litig.*, No. 05-CV-0037-YGR, 2014 WL 12719194, at *1 (N.D. Cal. Nov. 25, 2014); *Allied Orthopedic Appliances, Inc. v. Tyco Health Care Grp. L.P.*, Nos. 05-CV-6419-MRP-AJW, 2008 WL 7346921, at *16 (C.D.

"virtually as effective in serving the procompetitive purposes" as current rules "without significantly increased cost." *In re NCAA Athletic Grant-in-Aid Cap Antitrust Litig.*, 958 F.3d 1239, 1260 (9th Cir. 2020) (simplified), *aff'd* 141 S. Ct. at 2161. Where a restraint is "*patently and inexplicably* stricter than is necessary to accomplish" the proffered procompetitive objective, "an antitrust court can and should invalidate it and order it replaced with a viable [less restrictive alternative]." *Id*. (quoting *O'Bannon v. NCAA*, 802 F.3d 1049, 1075 (9th Cir. 2015) (emphasis in original)).

Here, Epic Games argues that the app distribution restrictions can be replaced with the enterprise model or the notarization model. As discussed above, *see supra* Facts § V.A.2.a.iv., Apple already implements both of these models on iOS and Mac, respectively. The enterprise model enables Apple to certify organizations, such as companies, to distribute apps to their own employees. This model could be extended to certify app stores. The notarization model allows Apple to sign apps to verify security while allowing them to be distributed as the developer wishes. Epic Games argues that these models could be implemented on iOS with minimal technical difficulty.

However, missing from both the enterprise and notarization models is human app review which provides most of the protection against privacy violations, human fraud, and social engineering. These proposed alternatives would require Apple to either add human review to the notarization model or leave app review to third-party app stores. Apple executives suggested that the first option would not scale well.[611] Under the second option, Apple could in theory set minimum guidelines for app stores to provide a "floor" for privacy, security, and quality. However, security could increase or decrease depending on the quality and diligence of the store. Evidence shows that at least on Android, the experiment shows less security.

In evaluating remedies, no court should "impose a duty that it cannot explain or adequately and reasonably supervise." *NCAA*, 141 S. Ct. at 2163 (quoting *Verizon*, 540 U.S. at 883). Here, Epic Games has provided requests for its remedy which principally appear to eliminate app review.[612] The requests also leave unclear whether Apple can collect licensing

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Cal. July 9, 2008), *aff'd* 592 F.3d 991 (9th Cir. 2010). This is, in part, because the Sherman Act "does not give judges *carte blanche* to insist that a monopolist alter its way of doing business whenever some other approach might yield greater competition." *See Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 415–16 (2004). Regardless, the Court notes this distinction as a potential difference between the two analyses especially where, as recognized, proving a violation of Section 2 is more exacting than proving a violation of Section 1. To the extent appellate courts perceive a practical distinction, clarity is welcomed.

[611] Trial Tr. (Federighi) 3502:22–3503:15. Professor Mickens even suggested the courts should micro-manage policy decisions.

[612] *See, e.g.*, Dkt. No. 276-1 at 4 (requesting an injunction prohibiting Apple from enforcing its guidelines to "impede" or "disadvantage" app distribution outside of the App store). Although this request purports not to "prohibit Apple from taking steps to prevent the distribution of malware," it is not clear what constitutes "malware" and whether that distinction includes "broad" security (privacy, fraud, offline safety, etc.) or is limited to Dr. Mickens'

royalties and, if so, how it would do so. At closing argument, Epic Games' counsel suggested that "Apple can charge" for its license, so long as it does not discriminate among developers.[613] However, it has sought to require Apple to give competing app stores access to the same "iOS functionality that the App Store has access to," which is more than the DPLA currently licenses.[614] Thus, the Court need not consider these possibilities because Epic Games has not sufficiently developed them.

In short, Epic Games has not met its burden to show that its proposed alternatives are "virtually as effective" as the current distribution model and can be implemented "without significantly increased cost." *In re NCAA Athletic Grant-in-Aid Cap Antitrust Litig.*, 958 F.3d at 1260 (quoting *O'Bannon*, 802 F.3d at 1074). Nor has it shown that the restraints are "patently and inexplicably stricter than is necessary." *Id.* (quoting *O'Bannon*, 802 F.3d at 1074). "[A]ntitrust courts must give wide berth to business judgments before finding liability." *NCAA*, 141 S. Ct. at 2163. Here, Apple's business choice of ensuring security and protecting its intellectual property rights through centralized app distribution is reasonable, and the Court declines to second-guess that judgment on an underdeveloped record. *See In re Citric Acid Litig.*, 191 F.3d 1090, 1101 (9th Cir. 1999) ("Courts have recognized that firms must have broad discretion to make decisions based on their judgments of what is best for them . . . .").

Accordingly, the Court finds that Apple's app distribution restrictions do not violate Section 1 of the Sherman Act.

3. *Count 5: iOS In-App Payment Solutions Market Analysis*

In Count 5, Epic Games avers that Apple has unreasonably restrained trade in the "iOS In-App Payment Processing Market" by requiring developers to "use Apple's In-App Purchase for in-app purchases of in-app content to the exclusion of any alternative solution or third-party payment processor."[615] This claim fails for substantially the same reasons that Count 3 fails.

At step one, for the reasons stated, *supra* Facts § V.B.1. and Law § II.C.2.b.i., Epic Games has presented some direct and indirect evidence showing that Apple's IAP functionality has had anticompetitive effects.

At step two, for the reasons stated in both the Count 3 analysis as well as the Court's findings of facts with respect to IAP, *supra* Facts § V.B.2 and Law § II.C.2.b.ii, Apple has proffered more than three procompetitive justifications for the terms of the DPLA relating to IAP. One, IAP is the mechanism by which Apple can easily receive its commission and is further how Apple collects a royalty for the use of its intellectual property. Two, IAP provides

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definition of unauthorized access. Nor is it clear whether Apple can impose standards on other app stores.

[613] Trial Tr. (Closing Arguments) 4156:20.

[614] Dkt. No. 276-1 at 4.

[615] Compl. ¶ 227.

consumers with a unitary safe and secure means to execute transactions on the iOS platform. Three, IAP offers consumers a centralized purchasing system, whereby consumes have a convenient way to both execute and track transactions on the iOS platform.

At step three, Epic Games has identified no suitable less restrictive alternative for Apple's use of IAP based on the current record. The only alternative that Epic Games proposes is that Apple be barred from restricting or deterring in any way "the use of in-app payment processors other than IAP."[616] This proposed alternative is deficient for several reasons:

First, and most significant, as discussed in the findings of facts, IAP is the method by which Apple collects its licensing fee from developers for the use of Apple's intellectual property. Even in the absence of IAP, Apple could still charge a commission on developers. It would simply be more difficult for Apple to collect that commission.[617]

Indeed, while the Court finds no basis for the specific rate chosen by Apple (*i.e.*, the 30% rate) based on the record, the Court still concludes that Apple is entitled to *some* compensation for use of its intellectual property. As established in the prior sections, *see supra* Facts §§ II.C., V.A.2.b., V.B.2.c., Apple is entitled to license its intellectual property for a fee, and to further guard against the uncompensated use of its intellectual property. The requirement of usage of IAP accomplishes this goal in the easiest and most direct manner, whereas Epic Games' only proposed alternative would severely undermine it. Indeed, to the extent Epic Games suggests that Apple receive nothing from in-app purchases made on its platform,[618] such a remedy is inconsistent with prevailing intellectual property law.

Second, if Apple could no longer require developers to use IAP for digital transactions, Apple's competitive advantage on security issues, in the broad sense, *see supra* Facts § V.B.2.a., would be undermined and ultimately could decrease consumer choice in terms of smartphone devices and hardware.

Third, but to a lesser extent, the use of different payment solutions for each app may reduce the quality of the experience for some consumers by denying users the centralized option of managing a single account through IAP. This would harm both consumers and developers by weakening the quality of the App Store to those that value this centralized system.

Thus, the Court concludes that Apple's restrictions as to its IAP and separate payment processors do not violate Section 1 of the Sherman Act.

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[616] Epic Games COL ¶ 642.

[617] In such a hypothetical world, developers could potentially avoid the commission while benefitting from Apple's innovation and intellectual property free of charge. The Court presumes that in such circumstances that Apple may rely on imposing and utilizing a contractual right to audit developers annual accounting to ensure compliance with its commissions, among other methods. Of course, any alternatives to IAP (including the foregoing) would seemingly impose both increased monetary and time costs to both Apple and the developers.

[618] Epic Games COL ¶ 643.

D. Section 2 of the Sherman Act: Apple's Monopoly Maintenance of the iOS App Distribution Market (Count 1) and iOS in-App Payment Solutions Market (Count 4)

Epic Games brings two claims under Section 2 arguing monopoly maintenance: Count 1 is based on its theory of the iOS distribution market and Count 4 is based on the iOS in-app payment solutions market. The legal framework is the same for both.

1. *Legal Framework*

Section 2 of the Sherman Act prohibits persons from "monopoliz[ing], or attempt[ing] to monopolize, or combin[ing] or conspir[ing] with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations." 15 U.S.C. § 2. A claim for unlawful monopolization under Section 2 of the Sherman Act requires that a plaintiff show: "(a) the possession of monopoly power in the relevant market; (b) the willful acquisition or maintenance of that power; and (c) causal antitrust injury." *Qualcomm Inc.*, 969 F.3d at 989–90.

To recap: monopoly power is "the power to control prices or exclude competition." *Grinnell Corp.*, 384 U.S. at 571 (quotation marks omitted). "[A] firm is a monopolist if it can profitably raise prices substantially above the competitive level," *Microsoft Corp.*, 253 F.3d at 51, "without inducing so rapid and great an expansion of output from competing firms as to make the supracompetitive price untenable," *Harrison Aire, Inc.*, 423 F.3d at 380 (internal quotation marks omitted).

Section 2 monopolization claims "must be judged on a market-by-market basis." *Syufy Enters.*, 903 F.2d at 672 n.22; *see also Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 177 (1965) ("Without a definition of [the] market there is no way to measure [the defendant's] ability to lessen or destroy competition.").

2. *Count 1: iOS App Distribution Market Analysis*

In Count 1, Epic Games claims that Apple has a monopoly in the "iOS App Distribution Market" and has unlawfully maintained the monopoly by prohibiting iOS app developers from distributing their apps through alternative channels.

In short, this claim fails for two significant reasons: (1) Epic Games fails to prove the first element, that Apple has monopoly power in the relevant product and geographic market; and (2) Epic Games alternatively fails to satisfy the rule of reason analysis under Section 1—an acknowledged less exacting test as compared to Section 2.

First, the Court has found that the relevant market is the global mobile gaming transactions. Epic Games did not argue that Apple had monopoly power in this market. Instead, Epic Games focused on its two-tiered aftermarket theory. The Court will not rehash the failed analysis here. Suffice it to say, neither parties' proposed markets ultimately persuaded the Court. Rather, Epic Games' proposed market ignored greater market pressures, and Apple's proposed market was overbroad in its inclusion of similar products.

As demonstrated with respect to the relevant market, Apple does not have substantial market power equating to monopoly power. While considerable, Epic Games has failed to show that Apple's market power is durable and sustaining given the current state of the relevant market. For that reason, the Court finds that Epic Games failed to prove the first element of a Section 2 claim: the possession of monopoly power in the relevant market.

Second, and alternatively, Epic Games' Section 2 claims fail to satisfy the substantively similar rule of reason analysis for similar reasons as Section 1. Epic Games' Section 1 and Section 2 claims are based on the same conduct and restrictions: namely, restrictions on both distribution of apps as well as the use of non-IAP payment processors. As the Court has found above, Epic Games has failed to persuade on this record that these ultimate restrictions are anticompetitive. Because "the three-part burden-shifting test under the rule of reason is essentially the same" under Sections 1 and 2, and "proving an antitrust violation under § 2 of the Sherman Act is more exacting than proving a § 1 violation," the analysis here applies to the monopolization claims if required and fails for the same reasons. *Qualcomm*, 969 F.3d at 991–92; *see also Williams*, 999 F.2d at 448 ("[A] § 1 claim insufficient to withstand summary judgment cannot be used as the sole basis for a § 2 claim.").

In sum, Epic Games' monopolization claims fail because Epic Games has failed to demonstrate that (i) Apple possesses monopoly power in the relevant market and that (ii) the challenged restrictions are anticompetitive under the rule of reason.

3. *Count 4: iOS In-App Payment Solutions Market Analysis*

In Count 4, Epic Games claims that Apple has a monopoly in the "iOS In-App Payment Processing Market" and has unlawfully maintained the monopoly by requiring "iOS app developers that sell in-app content to exclusively use Apple's In-App Purchase." This claim fails for the same reasons as Count 2.

As with its Section 2 monopolization claim for the distribution of apps (Count 2), Epic Games' Section 2 claim fails at the outset because Apple does not have monopoly power in the relevant product market.

III. SECTION 1 OF THE SHERMAN ACT: TYING CLAIM (COUNT 6)

Epic Games' Count 6 alleges a violation of Section 1 of the Sherman Act based on the existence of a tie between app distribution, on the one hand, and IAP on the other.

A. Legal Standard

Tying involves the linking of two separate products from two separate product markets. *Jefferson Parish*, 466 U.S. at 21. "[T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms." *Id.* at 12.

Tying arrangements may be evaluated under Section 1 of the Sherman Act under either *per se* or rule of reason analysis. *See id.* at 29. The *per se* rule applies "only after considerable

experience with certain business relationships," *Broad. Music, Inc. v. Columbia Broad. Sys., Inc.*, 441 U.S. 1, 9 (1979) (citation omitted), shows that a restraint "always or almost always tend to restrict competition and decrease output," *Amex*, 138 S. Ct. at 2283 (citation omitted).

"For a tying claim to suffer per se condemnation, a plaintiff must prove: (1) that the defendant tied together the sale of two distinct products or services; (2) that the defendant possesses enough economic power in the tying product market to coerce its customers into purchasing the tied product; and (3) that the tying arrangement affects a not insubstantial volume of commerce in the tied product market." *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 913 (9th Cir. 2008); *see also Jefferson Parish*, 466 U.S. at 12–18; *Eastman Kodak*, 504 U.S. at 461–62.

The first element requires that the plaintiff must prove that the alleged tying product and the alleged tied product are "separate and distinct" products. *Rick-Mik Enters., Inc. v. Equilon Enters. LLC*, 532 F.3d 963, 974 (9th Cir. 2008). Further, if tied, the tie, would link "two separate product markets." *Jefferson Parish*, 466 U.S. at 21; *see also Microsoft Corp*., 253 F.3d at 85 ("[U]nless products are separate, one cannot be 'tied' to the other.").

"[T]he answer to the question whether one or two products are involved turns not on the functional relation between them, but rather on the character of the demand for the two items." *Jefferson Parish*, 466 U.S. at 19; *see also Rick-Mik*, 532 F.3d at 975. There must be "sufficient demand for the purchase of [the tied product] separate from [the tying product] to identify a distinct product market in which it is efficient to offer [the tied product] separately from [the tying product]." *Jefferson Parish*, 466 U.S. at 21–22; *see also Rick-Mik,* 532 F.3d at 975.

"[T]he 'purchaser demand' test of *Jefferson Parish* examine[s] direct and indirect evidence of consumer demand for the tied product separate from the tying product. Direct evidence addresses the question whether, when given a choice, consumers purchase the tied good from the tying good maker, or from other firms. Indirect evidence includes the behavior of firms without market power in the tying good market, presumably on the notion that (competitive) supply follows demand." *Rick-Mik*, 532 F.3d at 975 (internal quotation marks and citations omitted); *see also id.* ("If competitive firms always bundle the tying and tied goods, then they are a single product.").

With respect to the second element, a tie exists where "sale of the desired ('tying') product is conditioned on purchase of another ('tied') product." *Aerotec*, 836 F.3d at 1178. "[T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms." *Jefferson Parish*, 466 U.S. at 12. "A plaintiff must present evidence that the defendant went beyond persuasion and coerced or forced its customer to buy the tied product in order to obtain the tying product." *Paladin Assocs.*, 328 F.3d at 1159.

Finally, "the Supreme Court has condemned tying arrangements when the seller has the market power to force a purchaser to do something that he would not do in a competitive market." *Cascade Health Sols.*, 515 F.3d at 915. "[I]n all cases involving a tying arrangement,

the plaintiff must prove that the defendant has market power in the tying product." *Illinois Tool Works Inc.*, 547 U.S. at 46; *Rick-Mik*, 532 F.3d at 972.

B. Analysis

At the outset, the parties dispute whether the *per se* analysis or the rule of reason analysis should control the Court's analysis. The Court need not decide this dispute. Epic Games' claim fails under either framework because a tying claim cannot be sustained where the alleged good is not a "separate and distinct product." *Rick-Mik*, 532 F.3d at 974; *Microsoft Corp.*, 253 F.3d at 85 ("[U]nless products are separate, one cannot be 'tied' to the other."). Here, Epic Games argues that a tying claim exists because Apple is forcing distributors who use the iOS app distribution platform (the alleged tying product) to also use IAP (the alleged tied product). As discussed above, *supra* Facts § II.C., IAP is not a product. Two core factual issues lead to this conclusion: integration and consumer demand.

With respect to integration, the Court described in detail how IAP functions and the Court does not reiterate it here. Suffice it to say, IAP is not merely a payment processing system, as Epic Games suggests, but a comprehensive system to collect commission and manage in-app payments. This IAP system is not bought or sold but it is integrated into the iOS devices. "[I]ntegration [is] common" among technological products and services." *Microsoft Corp.*, 253 F.3d at 93.

Rick-Mik supports this conclusion. There, the Ninth Circuit found that Equilon's (also known as Shell Oil Co.) requirement that franchisees process all credit and debit card transactions through Equilon's own system did not involve two separate products. *Rick-Mik,* 532 F.3d at 967, 974. Said differently, the purchase of an oil company's franchise (the tying product) and the requirement that it use Equilon's credit-card processing system (the tied product) were not two distinct products. *Id*. Rather, the Court found that franchises are "almost by definition" a bundle of related products and services. *Id.* at 674. The proper inquiry was whether the allegedly tied products were "integral components of the business method being franchised." *Id*.

Here, as there, IAP is but one component of the full suite of services offered by iOS and the App Store. Moreover, and as discussed above, the App Store is a two-sided transaction platform. *See Amex*, 138 S. Ct. at 2286 n.8 (noting that "a two-sided platform" is one that "offers different products or services to two different groups who both depend on the platform to intermediate between them"). By definition, the platform has two sides: the developer on one side providing gaming apps and the consumer on the other, purchasing the apps. This is a single platform which cannot be broken into pieces to create artificially two products.[619] *See, e.g.*, *Serv.*

[619] This conclusion is further bolstered by comparison to other platforms in the wider gaming market. *See Microsoft Corp.*, 253 F.3d at 88 (comparing the bundling to competitive firms); *cf. In re: Cox Enters., Inc.*, 871 F.3d 1093, 1109 (10th Cir. 2017) (bundling in the premium cable industry found to be "simply more efficient than offering them separately"). As described above, the wider gaming industry routinely use walled gardens, including the PlayStation Store, the Nintendo eShop, and the Xbox Games Store. These game stores are vertically integrated with respect to distribution, content delivery, and payment functionalities.

& Training, Inc. v. Data Gen. Corp., 737 F. Supp. 334, 343 (D. Md. 1990) (rejecting tying claim because alleged tied product was "one feature of [defendant's] integrated and unified product"); Areeda & Hovenkamp § 1741a ("a car with tires attached might be deemed a single product because a vehicle that can be driven is the essence of what the customer buys").

Moreover, with respect to consumer demand, Epic Games presented no evidence showing that demand exists for IAP as a standalone product. As discussed above, *supra* Facts § II.C., Epic Games' argument mischaracterizes IAP and its functionality. Payment processing is simply an input into the larger bundle of services provided by the IAP system.[620] While there may be a market for payment processing, that fact is irrelevant as IAP is not just payment processing.[621]

In sum, whether analyzed as an integrated functionality or from the perspective of consumer demand, IAP is not a separate product from iOS app distribution. Thus, Epic Games' Count 6 fails to show the existence of an illegal tie under Section 1.

IV. CALIFORNIA'S CARTWRIGHT ACT (COUNTS 7, 8, AND 9)

Epic Games asserts three claims against Apple under the Cartwright Act: (i) Count 7 for unreasonable restraint of trade in the iOS app distribution market; (ii) Count 8 for unreasonable restraint of trade in the iOS in-app payment solutions market; and (iii) Count 9 for tying of app distribution and payment processing. Epic Games argues that its Cartwright Act claims are based on the same conduct as the analogous Sherman Act claims. Specifically, Count 7 is based on the same conduct as Count 3; Count 8 is based on the same conduct as Count 5; and Count 9

See supra Facts § II.D.3.c. The only exception is Epic Games Store. However, as noted, plaintiff's move occurred in the context of litigation planning. *Id.* § I.B.3.a.

[620] In fact, as noted, IAP does not itself even *process payments*—that function is performed by a third-party settlement provider like Chase Bank with which Apple contracts. And unlike the purported alternatives that Epic Games proposes (*e.g.*, PayPal), Apple has never tried to market the technology for use on other digital transaction platforms, and Epic Games does not contend otherwise.

[621] The Court also notes that in the but-for world where developers could use an alternative processor, Apple would still be contractually entitled to its commission on any purchase made within apps distributed on the App Store. Thus, so long as the alternative processor charged a non-zero commission or fee for its services, no economically rational developer would choose to use the alternative processor, because on each transaction, they would *still* have to pay Apple its commission, *and* they would have to pay the alternative processor a commission for its services. For the same reason, the fact that some developers like Facebook and Spotify have tried to avoid Apple's commission by bypassing IAP is not evidence that there is separate demand for IAP, only that developers would prefer not to pay Apple a commission. Epic Games' reliance on this evidence thus "conflates competition on the merits with Epic Games' goal of avoiding Apple's 30%." *Epic Games, Inc.*, 493 F. Supp. 3d at 843.

is based on the same conduct as Count 6. The basic legal framework is the same for all three claims.

A. Legal Framework

The Cartwright Act makes "unlawful, against public policy and void" "every trust," which is defined as "a combination of capital, skill, or acts by two or more persons . . . [t]o create or carry out restrictions in trade or commerce." Cal. Bus. & Prof. Code §§ 16720(a), 16726. Interpretations of federal antitrust law are at most instructive, not conclusive, when construing the Cartwright Act, given that the Cartwright Act was modeled not on federal antitrust statutes but instead on statutes enacted by California's sister states around the turn of the 20th century." *Aryeh v. Canon Bus. Sols., Inc.*, 55 Cal. 4th 1185, 1195 (2013). "The Ninth Circuit has recognized after *Aryeh* it 'is no longer the law in California' that the Cartwright Act is 'coextensive with the Sherman Act.'" *In re Lithium Ion Batteries Antitrust Litig.*, No. 13–MD–2420, 2014 WL 4955377, at *10 (N.D. Cal. Oct. 2, 2014) (quoting *Samsung Elecs. Co. v. Panasonic Corp.*, 747 F.3d 1199, 1205 n.4 (9th Cir. 2014)).

B. Analysis

Epic Games argues that, even if its claims under the Sherman Act fail, it is nevertheless entitled to relief on its Cartwright Act claims because the Cartwright Act is broader in range and deeper in reach than the Sherman Act.[622] Apple disagrees arguing that where, as here, Epic Games has not identified any specific and material differences between the Cartwright Act and the Sherman Act, plaintiff cannot prevail on a Cartwright Act where its claims fail under the Sherman Act.

The Court agrees with Apple. Epic Games has not cited any authority for the contrary position. Plaintiff's authorities contain conclusory statements about the broader "reach" of the Cartwright Act relative to the Sherman Act.[623] Because the context of these statements is inapposite, the statements do not support a finding that the Cartwright Act claims here can survive notwithstanding the failure of Sherman Act claims. *See, e.g.*, *Cianci v. Superior Court*, 40 Cal. 3d 903, 917–18 (1985) (holding that the "broad" scope of the Cartwright Act covers entities involved in anticompetitive conduct "in every type of business," including in the "medical profession," and noting, in dicta, that the reach of the Cartwright Act includes "threats to competition in their incipiency" similarly to Section 7 of the Clayton Act, which prohibits mergers that may substantially lessen competition); *In re Capacitors Antitrust Litig.*, 106 F. Supp. 3d 1051, 1072 (N.D. Cal. 2015) (declining to apply standard for federal antitrust standing in the context of claims brought under the Cartwright Act in light of the absence of a "definitive decision" by California courts that doing so would be permissible). Because Epic Games has not met its burden to show that it can prevail on its Cartwright Act claims despite the failure of its analogous Sherman Act claims, the Court finds and concludes that Epic Games' Cartwright Act claims fail for the same reasons as its analogous Sherman Act claims.

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[622] *See* Epic Games COL ¶ 426.

[623] *See* Dkt. No. 276 at 84–85; Epic Games COL ¶ 426.

This conclusion is confirmed by a review of California authorities applying the Cartwright Act in the context of claims asserting an unreasonable restraint of trade, as in Counts 7 and 8, and tying, as in Count 9.

As in the context of claims under Section 1 of the Sherman Act, California courts employ the rule of reason to determine whether a restraint of trade that is not subject to *per se* treatment, such as the DPLA[624], is unreasonable and, therefore, unlawful under the Cartwright Act. *See In re Cipro Cases I & II*, 61 Cal. 4th 116, 146 (2015) (holding that "antitrust illegality" under the Cartwright Act where a "challenged agreement involves a restraint of trade" depends on the "traditional rule of reason" analysis because both "the Cartwright Act and Sherman Act carry forward the common law understanding that 'only unreasonable restraints of trade are prohibited'" (citation omitted)). The rule of reason inquiry in the context of the Cartwright Act, as in the federal context, looks to "whether the challenged conduct promotes or suppresses competition," based on "the facts peculiar to the business in which the restraint is applied, the nature of the restraint and its effects, and the history of the restraint and the reasons for its adoption." *Id.* (internal quotation marks and citation omitted).

Here, the Court has carefully considered the evidence in the record and has determined, based on the rule of reason, that the DPLA provisions at issue in Counts 3 (app distribution) and 5 (IAP) have procompetitive effects that offset their anticompetitive effects, and that Epic Games has not shown that these procompetitive effects can be achieved with other means that are less restrictive. These findings, which defeat Counts 3 and 5, also defeat Counts 7 and 8. As noted above, Epic Games has cited no authority that compels a different conclusion.

The result is similar with respect to Count 9. As is the case with a tying claim in violation of the Sherman Act, a tying claim under the Cartwright Act requires the existence of two separate products. *See Freeman v. San Diego Ass'n of Realtors*, 77 Cal. App. 4th 171, 184 (1999) ("The threshold element for a tying claim is the existence of separate products or services in separate markets. Absent separate products in separate markets, the alleged tying and tied products are in reality a single product." (internal citation omitted)).

Here, as discussed above, the Court has found and concluded Epic Games' tying claim under the Sherman Act (Count 6) fails because plaintiff has not shown that IAP is a separate product from iOS App Distribution. Because the tying claim under the Cartwright Act (Count 9) is based on the same conduct as Count 6, that claim fails for the same reason as Count 6. *See*

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[624] Apple argues that Epic Games' Cartwright Act claims fail for lack of concerted action because the claims challenge "only unilateral conduct," and the Cartwright Act "does not impose liability for 'wrongful conduct on the part of a single entity.'" Apple COL ¶¶ 588–589. The Court disagrees with this interpretation of Epic Games' claims. While Counts 7 and 8, as Counts 3 and 5, are predicated on the theory that the DPLA is an agreement between Apple and Epic Games, it may include particular terms that would constitute unreasonable restraints of trade. *See Kolling v. Dow Jones & Co.*, 137 Cal. App. 3d 709, 719 (1982) ("If a 'single trader' pressures customers or dealers into adhering to" restraints of trade, then "an unlawful combination [under the Cartwright Act] is established, irrespective of any monopoly or conspiracy, and despite the recognized right of a producer to determine with whom it will deal" (citations omitted)).

Freeman, 77 Cal. App. 4th at 184 (holding that a tying claim under the Cartwright Act fails in the absence of two separate products in separate markets). Again, Epic Games has cited no authority that warrants a different outcome.

V. SECTION 2 OF THE SHERMAN ACT: APPLE'S DENIAL OF AN ESSENTIAL FACILITY IN THE IOS APP DISTRIBUTION MARKET (COUNT 2)

The legal elements of an essential facility claim under governing Ninth Circuit precedent are undisputed. To establish such a claim, a plaintiff must show that (i) the defendant is "a monopolist in control of an essential facility"; (ii) the plaintiff "is unable reasonably or practically to duplicate the facility"; (iii) the defendant "has refused to provide [the plaintiff] access to the facility"; and (iv) "it is feasible for [the defendant] to provide such access". *Aerotec*, 836 F.3d at 1185; *MetroNet Servs. Corp. v. Qwest Corp.*, 383 F.3d 1124, 1128–29 (9th Cir. 2004); *Alaska Airlines, Inc. v. United Airlines, Inc.*, 948 F.2d 536, 542–46 (9th Cir. 1991).

Epic Games has failed to prove this claim for myriad reasons, but most convincingly for two. First, for the reasons set forth above, Epic Games has failed to prove that Apple is an illegal monopolist in control of the iOS platform. This alone is sufficient to defeat the claim. Second, the claim would still fail because Epic Games failed to prove that the iOS platform is an essential facility. The best evidence of this is Epic Games' own expert, Dr. Evans, who refused to endorse the argument that the iOS platform is an essential facility.[625] On this issue, he and Professor Schmalensee agree.[626]

The term "essential facility" is a term of art under the antitrust laws. Caselaw describes essential facilities as those that are not capable of being replicated by competitors and serve as a conduit for the distribution of another product. For example, sports stadiums facilitate the display of indoor sports, *see Fishman v. Estate of Wirtz*, 807 F.2d 520, 532 (7th Cir. 1986), and railroad bridges permit continuation of rail service and delivery of freight, *see United States v. Terminal R.R. Ass'n*, 224 U.S. 383, 392–94 (1912). While prior cases have focused only on physical infrastructures of a finite availability (such as a bridge or a power network), an "essential facility" can exist even in the absence of such traditional physical attributes. *See MCI Commc'ns Corp. v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1148 (7th Cir. 1983).

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[625] Not only did Dr. Evans confirm in his live testimony that he would not describe iOS or Android as utilities, Trial Tr. (Evans) 2381:21–2383:18, Dr. Evans twice declined to express any opinion related to an essential facilities claim. Trial Tr. (Evans) 1673:4–11, 2390:16–2391:2; *see also generally* Ex. Expert 1 (Evans) § II.

[626] As a corollary, given that the nature of the "facility" is one solely comprised of intellectual property, as opposed to a physical structure, the question arises whether this claim could ever be recognized under Section 2 as a matter of law. Citing primarily district court cases, Apple argues it cannot be forced to license its intellectual property and to hold otherwise would chill innovation and investment. While the argument appears meritorious, the Court declines to rule on this issue as it was not fully vetted and is not necessary to the resolution of this claim.

To constitute an essential facility, "access to the facility or resource must be truly 'essential' in the sense that competitors cannot simply duplicate it or find suitable alternatives, and that absent access, competitors' ability to compete will be substantially constricted." 1 William C. Holmes, Intellectual Property and Antitrust Law § 6:10 (2021)[627]; *Paladin Assocs.*, 328 F.3d at 1162–63 (no viable claim under the "essential facilities" doctrine where customers were able to obtain gas from other pipelines and sources and noting that a facility is 'essential' only if control of the facility carries with it the power to eliminate competition in a downstream market").

Obviously, under its theory, given the proprietary nature of iOS, plaintiff could not replicate iOS. However, as defined by the Court, in terms of distribution of mobile apps, multiple avenues *do exist* to distribute the content to the consumer. Distribution can occur through web apps, by web access, and through other games stores. This doctrine does not require distribution in the manner preferred by the competitor, here native apps. The availability of these other avenues of distribution, even if they are not the preferred or ideal methods, is dispositive of Epic Games' claim. The doctrine does not demand an ideal or preferred standard.

Based on these reasons, the Section 2 claim based on an essential facilities theory fails.

VI. CALIFORNIA'S UNFAIR COMPETITION LAW (COUNT 10)

Antitrust law does not end with the Sherman Act. "States have regulated against monopolies and unfair competition for longer than federal government, and federal law is intended only 'to supplement, not to displace, state antitrust remedies.'" *In re Cipro Cases I & II*, 61 Cal. 4th at 160 (quoting *Cal. v. ARC Am. Corp.*, 490 U.S. 93, 102 (1989)); *see also* Areeda & Hovenkamp §§ 216, 2401 (describing legislative history).

California's Unfair Competition Law ("UCL") prohibits business practices that constitute "unfair competition," which is defined, in relevant part, as "any unlawful, unfair or fraudulent

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[627] Citing circuit cases: *e.g.*, *Pittsburg County Rural Water Dist. No. 7 v. City of McAlester*, 358 F.3d 694, 721 (10th Cir. 2004) (affirming dismissal of an essential facilities claim where the competitor admitted that it had a "suitable available alternative water supply"); *Midwest Gas Services, Inc. v. Indiana Gas Co., Inc.*, 317 F.3d 703, 713–14 (7th Cir. 2003) (dismissing an essential facilities claim where a distributor of natural gas had other routes available even if more costly); *Paddock Publ'ns, Inc. v. Chicago Tribune Co.*, 103 F.3d 42, 44–56 (7th Cir. 1996) ("Unlike *United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1912), the granddaddy of these cases, in which the Court held that a bottleneck facility that could not feasibly be duplicated must be shared among rivals, this case does not involve a single facility that monopolizes one level of production and creates a potential to extend the monopoly to others. We have, instead, competition at each level of production; no one can 'take over' another level of production by withholding access from disfavored rivals."); *Twin Lab'ys, Inc. v. Weider Health & Fitness*, 900 F.2d 566, 612–13 (2d Cir. 1990) (defendant's resource was not "essential" where alternate resources existed); *Directory Sales Mgmt. Corp. v. Ohio Bell Tel. Co.*, 833 F.2d 606 (6th Cir. 1987) (same).

business act or practice." Cal. Bus. & Prof. Code § 17200. Each of these descriptions provides a separate "variety" of unfair competition. Thus, "a practice may be deemed unfair even if not specially proscribed by some other law" and even if not violating an antitrust statute. *See Cel-Tech Commc'ns, Inc. v. L.A. Cellular Tel. Co.*, 20 Cal. 4th 163, 180, 187 (1999).

The UCL permits claims to be brought by any "person," which includes "natural persons, corporations, firms, partnerships, joint stock companies, associations and other organizations of persons." Cal. Bus. & Prof. Code §§ 17201, 17204. To bring a claim under the UCL, a plaintiff must "(1) establish a loss or deprivation of money or property sufficient to quantify as injury in fact, i.e., *economic injury*, and (2) show that the economic injury was the result of, i.e., *caused by*, the unfair business practice." *Kwikset Corp. v. Superior Court*, 51 Cal. 4th 310, 322 (2011) (emphasis in original); *see also* Cal. Bus. & Prof. Code § 17204.

Epic Games challenges Apple's conduct under the "unlawful" and "unfair" provisions of the UCL. Apple disputes both claims and further argues that Epic Games lacks "customer" standing. The Court addresses standing and then each claim.

A. Standing

The injury-in-fact requirement of the UCL incorporates standing under Article III of the United States Constitution. *Kwikset*, 51 Cal. 4th at 322–23. Accordingly, the injury in fact must be "concrete and particularized . . . and actual or imminent, not conjectural or hypothetical." *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992) (simplified). In addition, the UCL requires an economic injury. *Kwikset*, 51 Cal. 4th at 323. For example, "[a] plaintiff may (1) surrender in a transaction more, or acquire in a transaction less, than he or she otherwise would have; (2) have a present or future property interest diminished; (3) be deprived of money or property to which he or she has a cognizable claim; or (4) be required to enter into a transaction, costing money or property, that would otherwise have been unnecessary." *Id*. Last, a plaintiff must show "a causal connection" between the defendant's conduct and the alleged injury. *Id.* at 326 (internal quotation marks and citation omitted).

Here, Apple does not dispute Epic Games' standing as a potential competitor: Epic Games wanted to open a competing iOS game store and could not. Because Epic Games would earn revenues from a competing store, it has suffered an economic injury. However, Apple challenges Epic Games' standing as a consumer. For that interpretation, Epic Games argues that it is a business customer of Apple's App Store and has been economically injured because it could not distribute games directly to consumers at lower cost.

The precise meaning of "consumer" under the UCL is undefined. Generally, the UCL makes a distinction between "consumer" and "competitor" suits. *See Cel-Tech*, 20 Cal. 4th at 187 & n.12; *Barquis v. Merchs. Collection Assn.*, 7 Cal. 3d 94, 109–10 (1972); *Kasky v. Nike, Inc.*, 27 Cal. 4th 939, 949 (2002). There is no specific third category for non-competitor business.[628] Here, despite Apple's position, both parties' experts agree that developers like Epic

[628] The Court recognizes *Levitt v. Yelp! Inc.*, and finds it distinguishable. There, in terms of analyzing the UCL claim, the court found the competitor standard applied even though plaintiffs and *Yelp!* did not compete. There, "the crux of the business owners' complaint [was]

Games jointly consume Apple's game transactions and distribution services together with iOS users.[629] Thus, although the question is close, the Court finds that Epic Games has standing to bring a UCL claim as a quasi-consumer, not merely as a competitor.

B. "Unlawful" Practices

Under the "unlawful" prong of the UCL, Epic Games must show that Apple's conduct "can properly be called a business practice and that at the same time is forbidden by law." *Korea Supply Co. v. Lockheed Martin Corp.*, 29 Cal. 4th 1134, 1143 (2003) (internal quotation marks and citation omitted). "Virtually any law . . . can serve as a predicate for an action under Business and Professions Code section 17200." *Durell v. Sharp Healthcare*, 183 Cal. App. 4th 1350, 1361 (2010) (citation omitted).

Here, for the reasons stated above, Epic Games has not shown a violation of any other law. Accordingly, the claim under the "unlawful" standard fails.

C. "Unfair" Practices

The "unfair" prong of the UCL may differ for consumer and competitor suits. As a competitor who claims to have suffered injury from Apple's unfair practices, Epic Games must show that Apple's conduct (1) "threatens an incipient violation of an antitrust law," (2) "violates the policy or spirit of one of those laws because its effects are comparable to or the same as a violation of the law," or (3) "otherwise significantly threatens or harms competition." *Cel-Tech*, 20 Cal. 4th at 187. These findings must be "tethered to some legislatively declared policy or proof of some actual or threatened impact on competition." *Id.* at 186–87; *see also Hodson v. Mars, Inc.*, 891 F.3d 857, 866 (9th Cir. 2018).

As a quasi-consumer, on the other hand, Epic Games has several tests available for showing unfairness. Although some courts have continued to apply the "tethering" test stated above, others have applied a "balancing" test that requires the challenged business practice to be "immoral, unethical, oppressive, unscrupulous, or substantially injurious to consumers" based on the court's weighing of "the utility of the defendant's conduct against the gravity of the harm to the alleged victim."[630] *Drum v. San Fernando Valley Bar Ass'ndu pon*, 182 Cal. App. 4th 247,

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that Yelp's conduct unfairly injures their economic interests [relative] to the benefit of other businesses who choose to advertise with Yelp." 765 F.3d 1123, 1136 (9th Cir. 2014). Here, Epic Games is not claiming that it is injured relative to other developers—developers are all subject to the same restrictions. This action, unlike *Levitt*, includes a view that Epic Games is a consumer of Apple's two-sided platform.

[629] Ex. Expert 8 (Schmalensee) ¶¶ 31–34, 42; Ex. Expert 1 (Evans) ¶¶ 14, 22–24.

[630] Still others have applied the "FTC test," which requires that "(1) the consumer injury must be substantial; (2) the injury must not be outweighed by any countervailing benefits to consumers or competition; and (3) it must be an injury that consumers themselves could not reasonably have avoided." *Drum*, 182 Cal. App. 4th at 257 (internal quotation marks and citation omitted). The Court notes the Ninth Circuit has declined to apply the FTC test with respect to anti-consumer conduct "in the absence of a clear holding from the California Supreme

257 (2010) (citations omitted). Stated otherwise, the balancing test "involves an examination of that practice's impact on its alleged victim, balanced against the reasons, justifications and motives of the alleged wrongdoer." *Nationwide Biweekly Admin., Inc. v. Superior Court of Alameda Cty.*, 9 Cal. 5th 279, 303 n.10 (2020) (internal quotation marks and citation omitted).

These tests "are not mutually exclusive." *Lozano v. AT&T Wireless Servs., Inc.*, 504 F.3d 718, 736 (9th Cir. 2007); *see also Davis v. HSBC Bank Nevada, N.A.*, 691 F.3d 1152, 1169–70 (9th Cir. 2012) (applying both tests). Accordingly, the Court considers both.

1. *Tethering Test*

Under the "tethering" test, "California courts require a close nexus between the challenged act and the legislative policy." *Hodson*, 891 F.3d at 866 (citation omitted). That is because "courts may not apply purely subjective notions of fairness" or "determine the wisdom of any economic policy," which "rests solely with the legislature." *Cel-Tech*, 20 Cal. 4th at 184 (internal quotation marks and citation omitted). However, unfair practices under this test are not limited to violations of existing laws. *Id.* at 180. Instead, California courts distinguish between conduct made lawful (or for which relief is barred) by a statute and conduct not prohibited by any statute. *See id.* at 183. The latter may be actionable under the "unfair" prong. *Id.*

Here, Epic Games seeks relief for the same conduct that it challenged under the Sherman and Cartwright Acts. Apple argues that separate consideration under the UCL is inappropriate.[631] The Court disagrees. *Cel-Tech* expressly recognizes that "incipient" violations of antitrust laws and violations of the "policy or spirit" of those laws with "comparable" effects are prohibited. 20 Cal. 4th at 187. Under Apple's interpretation, that standard would be rendered meaningless because any conduct that fails under the Sherman Act failed would also fail the UCL. The UCL, however, has "broad, sweeping language[] precisely to enable judicial tribunals to deal with the innumerable new schemes which the fertility of [one's] invention would contrive." *Id.* at 181 (simplified). Thus, it warrants separate consideration apart from antitrust laws.

On the present record, however, Epic Games' claims based on the app distribution and in-app payment processing restrictions fail for the same reasons as stated for the Sherman Act. As explained, Epic Games has demonstrated real anticompetitive effects, but Apple has proffered mostly valid and non-pretextual procompetitive justifications. To a large extent that makes the conduct more than "not anticompetitive" but potentially beneficial to consumers. However, as the Court demonstrated, the procompetitive justifications were only tethered as to certain

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Court . . . ." *Lozano*, 504 F.3d at 736. The Court does not apply it directly, only as parallel guidance for purposes of the anticompetitive conduct which the Ninth Circuit distinguished. *Id.*

[631] Apple cites *Chavez v. Whirlpool Corp.*, 93 Cal. App. 4th 363, 375 (2001), but that case does not counsel otherwise. *Chavez* expressly rejected the notion that "an 'unfair' business act or practice must violate an antitrust law to be actionable under the unfair competition law," but found that conduct cannot be unfair where it is "deemed reasonable and condoned under the antitrust laws." *Id*. As explained here, there is a difference between conduct "deemed reasonable" and conduct for which a violation has not been shown.

restrictions. With respect to *those* restrictions, under the *Cel-Tech* framework, Apple's conduct is protected. 20 Cal. 4th at 183.

That does not, however, end the matter.[632] "A UCL action is equitable in nature." *Korea Supply Co.*, 29 Cal. 4th at 1144. Courts have "broad discretion" to fashion equitable remedies to serve the needs of justice. *Zhang v. Superior Court*, 57 Cal. 4th 364, 371 (2013); *see also Nationwide Biweekly Admin.*, 9 Cal. 5th at 300. The statute reinforces that discretion by permitting courts to "make such orders or judgments . . . as may be necessary to prevent the use or employ by any person of any practice which constitutes unfair competition." Cal. Bus. & Prof. Code § 17203.

Epic Games did challenge and litigate the anti-steering provisions albeit the record was less fulsome. While its strategy of seeking broad sweeping relief failed, narrow remedies are not precluded.[633] As discussed at length, the evidence presented showed anticompetitive effects and excessive operating margins under any normative measure. The lack of competition has resulted in decrease information which also results in decreased innovation relative to the profits being made. The costs to developer are higher because competition is not driving the commission rate. As described, the commission rate driving the excessive margins has not been justified. Cross-reference to a historic gamble made over a decade ago is insufficient. Nor can Apple hide behind its self-created web of interlocking rules, regulations, and generic intellectual property claims; or the lack of transparency among various businesses to feign innocence.

Apple's own records reveal that two of the top three "most effective marketing activities to keep existing users coming back" in the United States, and therefore increasing revenues, are "push notifications" (no. 2) and "email outreach" (no. 3).[634] Apple not only controls those avenues but acts anticompetitively by blocking developers from using them to Apple's own unrestrained gain. As explained before, Apple uses anti-steering provisions prohibiting apps from including "buttons, external links, or other calls to action that direct customers to purchasing mechanisms other than in-app purchase," and from "encourag[ing] users to use a purchasing method other than in-app purchase" either "within the app or through communications sent to points of contact obtained from account registrations within the app (like email or text)."[635] Thus, developers cannot communicate lower prices on other platforms either

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[632] The Court recognizes a contrary unpublished opinion in *LiveUniverse, Inc. v. MySpace, Inc*., 304 F. App'x 554, 557 (9th Cir. 2008) which summarily treated the UCL as rising and falling with the Sherman Act. The Court respectfully disagrees (on this record) for the reasons stated.

[633] The FTC Act, which California courts have used as guidance on the UCL, similarly permits remedies beyond the "specific violations alleged in the complaint" that were "litigated in the manner contemplated by the statute." *Sears, Roebuck & Co. v. FTC*, 676 F.2d 385, 390–91 (9th Cir. 1982).

[634] DX-3922.057.

[635] PX-2790 §§ 3.1.1, 3.1.3.

within iOS or to users obtained from the iOS platform. Apple's general policy also prevents developers from informing users of its 30% commission.[636]

These provisions can be severed without any impact on the integrity of the ecosystem and is tethered to legislative policy. As an initial matter, courts have long recognized that commercial speech, which includes price advertising, "performs an indispensable role in the allocation of resources in a free enterprise system." *Bates v. State Bar of Arizona*, 433 U.S. 350, 364 (1977) (citation omitted). Restrictions on price information "serve to increase the difficulty of discovering the lowest cost seller . . . and [reduce] the incentive to price competitively[.]" *Id.* at 377. Thus, "where consumers have the benefit of price advertising, retail prices often are dramatically lower than they would be without advertising." *Id.* Antitrust scholars have recognized the same: "The less information a consumer has about relative price and quality, the easier it is for market participants to charge supracompetitive prices or provide inferior quality." Areeda & Hovenkamp § 2008c.

In the context of technology markets, the open flow of information becomes even more critical. As explained above, information costs may create "lock-in" for platforms as users lack information about the lifetime costs of an ecosystem. Users may also lack the ability to attribute costs to the platform versus the developer, which further prevents them from making informed choices.[637] In these circumstances, the ability of developers to provide cross-platform information is crucial. While Epic Games did not meet its burden to show actual lock-in on this record, the Supreme Court has recognized that such information costs may create the potential for anticompetitive exploitation of consumers. *Eastman Kodak*, 504 U.S. at 473–75.

Thus, although Epic Games has not proven a present antitrust violation, the anti-steering provisions "threaten[] an incipient violation of an antitrust law" by preventing informed choice among users of the iOS platform. *Cel-Tech*, 20 Cal. 4th at 187; *cf. FTC v. Neovi, Inc.*, 604 F.3d 1150, 1158 (9th Cir. 2010) (requiring that "consumers ha[ve] a free and informed choice" under the FTC test for unfairness).[638] Moreover, the anti-steering provisions violate the "policy [and] spirit" of these laws because anti-steering has the effect of preventing substitution among platforms for transactions. *Id.*

Accordingly, the Court finds that the anti-steering provisions violate the UCL's unfair prong under the tethering test.

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[636] PX-0257; Trial Tr. (Simon) 365:3–367:5; Ex. Depo. (Shoemaker) 144:10–23.

[637] Ex. Expert 1 (Evans) ¶ 118.

[638] *See Cel-Tech*, 20 Cal. 4th at 185 (looking "for guidance to the jurisprudence arising under the 'parallel' section 5 of the [FTC] Act" to determine "what is unfair" under the UCL); *see also People ex rel. Mosk v. Nat'l Res. Co. of Cal.*, 20 Cal. App. 2d 765, 773 (1962) ("[D]ecisions of the federal court [as to what constitutes "unfair" under the FTC Act] are more than ordinarily persuasive.").

2. *Balancing Test*

Under the balancing test, the Court must weigh "the utility of the defendant's conduct against the gravity of the harm to the alleged victim." *Drum*, 182 Cal. App. 4th at 257. Under this test the focus is on the injury to consumers. Here, the harm to users and developers who are also quasi-consumers, is considerable.[639] This trial has exposed numerous anticompetitive effects which need not be recounted in detail. The only justification Apple offers is an analogy: just like a store such as Nordstrom does not advertise prices at Macy's on its goods, Apple should not have to advertise prices on the web or on Android.[640] Apple also cites *Amex*, 138 S. Ct. at 2280, which also involved anti-steering,to justify its anti-steering provisions.

Both are distinguishable. In *Amex*, American Express prohibited merchants from dissuading customers from using Amex cards as a way of avoiding its merchant fees. *Id*. at 2283. It did so because merchants would often advertise Amex acceptance to attract users who used American Express's rewards program, but then would steer them towards cards with lower merchant fees, such as Visa or Mastercard. *Id*. at 2289. The Court found that this was not anticompetitive because there was strong evidence of procompetitive effects (as discussed above) and "[p]erhaps most importantly, antisteering provisions *do not prevent Visa, MasterCard, or Discover from competing against Amex* by offering lower merchant fees or promoting their broader merchant acceptance." *Id*. at 2289–90 (emphasis supplied).

Here, the information base is distinctly different. In retail brick-and-mortar stores, consumers do not lack knowledge of options. Technology platforms differ. Apple created a new and innovative platform which was also a black box. It enforced silence to control information and actively impede users from obtaining the knowledge to obtain digital goods on other platforms. Thus, the closer analogy is not American Express' prohibiting steering towards Visa or Mastercard but a prohibition on letting users know that these options exist in the first place. Apple's market power and resultant ability to control how pricing works for digital transactions, and related access to digital products, distinguishes it from the challenged practices in *Amex*. The same would extend to the Nordstrom/Macy's analogy.[641] Apple has not offered any

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[639] *E.g.*, Trial Tr. (Simon) 365:3–367:5; Trial Tr. (Evans) 1715:11–16.

[640] *See* Trial Tr. (Schiller) 2821:8–20 (explaining that the "key idea" of anti-steering outside the App Store is to prevent "targeting this individual user who really is being acquired from the App Store").

[641] Best Buy may not be the traditional "brick-and-mortar" analogy as the Court previously footnoted and Mr. Cook, ironically, referenced. According to news reports, in order for Best Buy to compete with the likes of Amazon, and not just be a place where consumers physically test product but buy them more cheaply elsewhere, the company pivoted. It appears Best Buy actually rents square footage to companies like Apple and Samsung for "branded space" where they sell their own products and provide Best Buy not only with a revenue stream but the foot traffic to compete on other products. *Compare* Trial Tr. (Cook) 3864:24–3865:3 *with* Justin Bariso, Amazon Almost Killed Best Buy. Then, Best Buy Did Something Completely Brilliant, Inc., June 24, 2021, https://www.inc.com/justin-bariso/amazon-almost-killed-best-buy-then-best-buy-did-something-completely-

justification for the actions other than to argue entitlement. Where its actions harm competition and result in supracompetitive pricing and profits, Apple is wrong. Accordingly, the harm from the anti-steering provisions outweighs its benefits, and the provision violates the UCL under the balancing test.

D. Remedies

"[T]he primary form of relief available under the UCL to protect consumers from unfair business practices is an injunction." *In re Tobacco II Cases*, 46 Cal. 4th 298, 319 (2009). A private party seeking injunctive relief under the UCL may request "public injunctive relief," *McGill v. Citibank, N.A.*, 2 Cal. 5th 945, 954 (2017), which is "relief that by and large benefits the general public and that benefits the plaintiff, if at all, only incidentally and/or as a member of the general public," *id.* at 955 (simplified). "[F]ederal courts must apply equitable principles derived from federal common law to claims for equitable [relief] under California's Unfair Competition Law[.]" *Sonner v. Premier Nutrition Corp.*, 971 F.3d 834, 837 (9th Cir. 2020). This means that, "even if a state authorizes its courts to provide equitable relief when an adequate legal remedy exists, such relief may be unavailable in federal court because equitable remedies are subject to traditional equitable principles unaffected by state law." *Id.* at 841 (citation omitted).

Accordingly, under *Sonner*, a plaintiff seeking equitable relief under the UCL in federal court must demonstrate: "(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006).

Based on the reasoning discussed above, the Court finds the elements for equitable relief are satisfied. While Apple's conduct does not fall within the confines of traditional antitrust law, the conduct falls within the purview of an incipient antitrust violation with particular anticompetitive practices which have not been justified. Apple contractually enforces silence, in the form of anti-steering provisions, and gains a competitive advantage. Moreover, it hides information for consumer choice which is not easily remedied with money damages. The injury has occurred and continues and can best be remedied by invalidating the offending provisions. In terms of balancing, Apple's business justifications focus on other parts of the Apple ecosystem and will not be significantly impacted by the increase of information to and choice for consumers. Rather, this limited measure balances the justification for maintaining a cohesive ecosystem with the public interest in uncloaking the veil hiding pricing information on mobile devices and bringing transparency to the marketplace.

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brilliant.htmlhttps://www.inc.com/justin-bariso/amazon-almost-killed-best-buy-then-best-buy-did-something-completely-brilliant.html. Thus, there is no need to put a sign inside Best Buy as Apple's store is already there.

While the Court has defined the relevant market for antitrust purposes as the market for mobile gaming transactions, UCL jurisprudence does not require that the Court import that market limitation. The Court cannot discern any principled reason for eliminating the anti-steering provisions to mobile gaming only. The lack of information and transparency extends to all apps, not just gaming apps.

Apple argues that any equitable relief issued "under state law," presumably including under the UCL, must be "limited to California" to avoid a violation of the Commerce Clause. The only authority that Apple cites to support this proposition is *Healy v. Beer Inst., Inc.*, 491 U.S. 324, 336 (1989), which holds that "[t]he Commerce Clause precludes the application of a state statute to commerce that takes place wholly outside of the State's borders, whether or not the commerce has effects within the State."[642]

In *Healy*, an association of brewers and importers of beer sought declaratory judgment that a Connecticut statute was unconstitutional because it regulated out-of-state conduct in violation of the Commerce Clause. *Healy*, 491 U.S. at 326. The statute in question required out-of-state shippers of beer to affirm that their prices for beer sold to Connecticut wholesalers were no higher than prices at which those products were sold in bordering states. *Id*. at 326–27. The Supreme Court held that the Connecticut statute violated the Commerce Clause because the interaction of the Connecticut statute with beer-pricing statutes of bordering states had the "practical effect" of controlling prices "wholly outside" of Connecticut's borders. *Id.* at 336–37.

Healy is inapposite. Here, in contrast to *Healy*, there is no challenge to the constitutionality of the UCL. Rather than seeking to invalidate the UCL on the basis that it violates the Commerce Clause, Apple seeks to restrict the geographic scope of any injunction issued under the UCL to California based on the Commerce Clause. The proper scope of an injunction issued under state law is not an issue that was addressed in *Healy*. Further, even if *Healy* had any relevance to that issue, *Healy*'s holding that a state statute cannot be applied "to commerce that takes place wholly outside" of that state would nevertheless be inapposite. Here, neither the conduct at issue, nor its effects, are taking place "wholly outside" of California. Apple is headquartered in California; the DPLA is governed by California law; and the commerce affected by the conduct that the Court has found to be unfair takes place at least in part in California. Accordingly, Apple has not shown that *Healy* prevents the Court from enjoining conduct outside of California that undisputedly harms California and its residents. *See RLH Indus., Inc. v. SBC Commc'ns, Inc.*, 133 Cal. App. 4th 1277, 1291–93 (2005) (holding that "the commerce clause, even as construed in *Healy*, does not necessarily prohibit state antitrust and unfair competition law from reaching out-of-state anticompetitive practices injuring state residents").

By the same token, Epic Games provides the Court with no authority that an injunction could issue globally based upon a violation of California's UCL.

[642] *See* Apple COL ¶¶ 739–740.

Accordingly, a nationwide injunction shall issue enjoining Apple from prohibiting developers to include in their:

> Apps and their metadata buttons, external links, or other calls to action that direct customers to purchasing mechanisms, in addition to IAP.

Nor may Apple prohibit developers from:

> Communicating with customers through points of contact obtained voluntarily from customers through account registration within the app.

VII. APPLE'S COUNTERCLAIMS

Apple asserts counterclaims against Epic Games that arise out of Epic Games' breach of the DPLA, including (1) breach of contract; (2) breach of the implied covenant of good faith and fair dealing; (3) unjust enrichment; (4) indemnification; and (5) declaratory judgment.[643] These counterclaims are based on Epic Games' covert implementation of the hotfix in *Fortnite* and its failure to pay Apple its commission on in-app purchases through *Fortnite*. Apple alleges that these acts breached the DPLA provisions requiring developers (i) not to "hide, misrepresent or obscure any features, content, services or functionality" in their apps[644] and not to "provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store"[645]; and (ii) to pay Apple "a commission equal to thirty percent (30%) of all prices payable by each end-user" through the App Store.[646]

Plaintiff has admitted that it breached the DPLA in the manner that Apple alleges, and that Apple is entitled to relief on its counterclaim for breach of contract to the extent that the Court finds that the DPLA is enforceable. Epic Games does not admit liability as to any other counterclaim.[647]

Pointing to its affirmative defenses, Epic Games contends that all of Apple's counterclaims are barred notwithstanding its admitted breach of the DPLA because the DPLA

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[643] Apple asserted other counterclaims in its answer, Docket No. 66. Based on its proposed findings of fact and conclusions of law, the Court finds Apple has abandoned all counterclaims except those addressed herein. *See generally* Apple FOF and COL.

[644] Apple's Answer and Counterclaims ¶ 50 (citing DPLA § 6.1).

[645] *Id.* (citing DPLA §§ 3.2, 3.3.2, 3.3.3, 3.3.25).

[646] *Id.* (citing DPLA, Schedule 2, §§ 1.1(a), 3.4(a)).

[647] *See* Docket No. 474.

provisions it breached are unenforceable (i) under the doctrine of illegality; (ii) because they are void as against public policy; and (iii) because they are unconscionable.[648]

The Court first considers whether any of the DPLA's provisions upon which Apple's counterclaims depend are unenforceable based on Epic Games' affirmative defenses, and if they are not, the Court next considers whether Apple has shown that it is entitled to relief on each of its counterclaims.

A. Epic Games' Affirmative Defenses

1. *Doctrine of Illegality*

"[T]he general rule [is] that the courts will deny relief to either party who has entered into an illegal contract or bargain which is against public policy." *Tri-Q, Inc. v. Sta-Hi Corp.*, 63 Cal. 2d 199, 216 (1965). "Where a contract has several distinct objects, of which one at least is lawful, and one at least is unlawful, in whole or in part, the contract is void as to the latter and valid as to the rest." Cal. Civ. Code § 1599. Thus, if the alleged "illegality is collateral to the main purpose of the contract, and the illegal provision can be extirpated from the contract by means of severance or restriction, then such severance and restriction are appropriate." *Marathon Entm't, Inc. v. Blasi*, 42 Cal. 4th 974, 996 (2008) (quotation marks omitted). "The burden ordinarily rests upon the party asserting the invalidity of the contract to show how and why it is unlawful." *Rock River Commc'ns, Inc. v. Universal Music Grp., Inc.*, 745 F.3d 343, 350 (9th Cir. 2014) (citation omitted).

Epic Games alleges that Apple's counterclaims are barred because "the contracts on which Apple's counterclaims are based" are "illegal and unenforceable" on the basis that they violate the Sherman Act, the Cartwright Act, and the UCL.[649]

As discussed above, the Court has found and concluded that no provision of the DPLA at issue in this action is unlawful under the Sherman Act or the Cartwright Act and only one unrelated provision under the UCL.

While the Court has found that evidence suggests Apple's 30% rate of commission appears inflated, and is potentially anticompetitive, Epic Games did not challenge the rate. Rather, Epic Games challenged the imposition of any commission whatsoever. Nor did plaintiff show either that the provision of the DPLA which required developers not to "provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store," was illegal or unenforceable or that it was forced to violate the agreement to bring this

[648] Epic Games asserted other affirmative defenses in its answer, Docket No. 106. Based on its proposed findings of fact and conclusions of law, the Court finds Epic Games has abandoned all affirmative defenses except those addressed herein. *See generally* Epic Games FOFs.

[649] *See* Epic Games' Answer to Counterclaims at 17 (affirmative defenses 1 and 2).

lawsuit.[650] Accordingly, the Court finds and concludes that Apple's counterclaims are not barred on the basis that they arise out of an illegal and unenforceable contract.

2. *Void as Against Public Policy*

"In general, a contract contrary to public policy will not be enforced." *Kelton v. Stravinski*, 138 Cal. App. 4th 941, 949 (2006). A contract need not be contrary to a statute for it to be deemed contrary to public policy. *Altschul v. Sayble*, 83 Cal. App. 3d 153, 162 (1978) ("There is no requirement that a contract violate an express mandate of a statute before it may be declared void as contrary to public policy."); *see also* Cal. Civ. Code § 1667(2) ("That is not lawful which is . . . contrary to the policy of express law, though not expressly prohibited.").

"The authorities all agree that a contract is not void as against public policy unless it is injurious to the interests of the public as a whole or contravenes some established interest of society." *Rosenberg v. Raskin*, 80 Cal. App. 2d 335, 338 (1947). "California has a settled public policy in favor of open competition." *Kelton*, 138 Cal. App. 4th at 946. It also has a public policy of protecting consumers of goods and services. *See Margolin v. Shemaria*, 85 Cal. App. 4th 891, 901 (2000) ("Both legislative enactments and administrative regulations can be utilized to further this state's public policy of protecting consumers in the marketplace of goods and services."). "Where a contract has several distinct objects, of which one at least is lawful, and one at least is unlawful, in whole or in part, the contract is void as to the latter and valid as to the rest." Cal. Civ. Code § 1599.

Plaintiff alleges that Apple's counterclaims are barred in whole or in part because the contracts on which they are based "are void as against public policy pursuant to the antitrust laws and unfair competition laws[.]"[651] Epic Games contends that the DPLA violates "the public policy in favor of competitive markets" because it forecloses all alternative app stores and non-IAP payment solutions in the iOS app distribution market and iOS in-app payment solutions market, respectively; they facilitate the imposition of Apple's supracompetitive 30% commission; and they were forced upon Epic Games through Apple's exercise of its market power.[652]

The Court is not persuaded by Epic Games' broad-brush argument that it should not be bound by certain portions of the agreement. The DPLA provisions related to the breaching conduct arising from Project Liberty were not found to be invalid. For the reasons discussed at length above, the Court has found and concluded that these DPLA provisions are not contrary to the interests of the public as a whole and do not contravene some established interest of society, in the context of competition or otherwise. Accordingly, the remaining DPLA provisions are not unenforceable on the basis that they violate public policy. *Rosenberg*, 80 Cal. App. 2d at 338

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[650] *Id.* (citing DPLA §§ 3.2, 3.3.2, 3.3.3, 3.3.25).

[651] *See* Epic Games' Answer to Counterclaims at 17 (affirmative defense 3).

[652] *See* Epic Games FOF ¶ 547.

("The authorities all agree that a contract is not void as against public policy unless it is injurious to the interests of the public as a whole or contravenes some established interest of society.").

Even though the Court has found the anti-steering provisions to be unfair under the UCL, the result was a measured alternative to plaintiff's overreach. These provisions can be severed while maintaining the provisions that require honesty to control the parties' relations and the coding of apps. Epic Games never adequately explained its rush to the courthouse or the actual need for clandestine tactics. The marketing campaign appears to have resulted in indirect benefits but it does not provide a legal defense.

In light of the foregoing, the Court finds and concludes that Apple's counterclaims are not barred based on Epic Games' public policy affirmative defense.

3. *Unconscionability*

a. Legal Framework

"[A] contract or provision, even if consistent with the reasonable expectations of the parties, will be denied enforcement if, considered in its context, it is unduly oppressive or 'unconscionable.'" *Graham v. Scissor-Tail, Inc.*, 28 Cal. 3d 807, 820 (1981). "Unconscionability has generally been recognized to include an absence of meaningful choice on the part of one of the parties together with contract terms which are unreasonably favorable to the other party. Phrased another way, unconscionability has both a 'procedural' and a 'substantive' element. . . . [B]oth the procedural and substantive elements must be met before a contract or term will be deemed unconscionable. Both, however, need not be present to the same degree. A sliding scale is applied so that the more substantively oppressive the contract term, the less evidence of procedural unconscionability is required to come to the conclusion that the term is unenforceable, and vice versa." *Lhotka v. Geographic Expeditions*, 181 Cal. App. 4th 816, 821 (2010) (internal quotation marks and citations omitted).

"Unconscionability analysis begins with an inquiry into whether the contract is one of adhesion. The term contract of adhesion signifies a standardized contract, which, imposed and drafted by the party of superior bargaining strength, relegates to the subscribing party only the opportunity to adhere to the contract or reject it." *Armendariz v. Found. Health Psychcare Servs., Inc.*, 24 Cal. 4th 83, 113 (2000) (quotation marks and alterations omitted). "The procedural element of the unconscionability analysis concerns the manner in which the contract was negotiated and the circumstances of the parties at that time. The element focuses on oppression or surprise. Oppression arises from an inequality of bargaining power that results in no real negotiation and an absence of meaningful choice. Surprise is defined as the extent to which the supposedly agreed-upon terms of the bargain are hidden in the prolix printed form drafted by the party seeking to enforce the disputed terms." *Gatton v. T-Mobile USA, Inc.*, 152 Cal. App. 4th 571, 581 (2007) (internal quotation marks and citations omitted)).

"The substantive element of the unconscionability analysis focuses on overly harsh or one-sided results," *Gatton*, 152 Cal. App. 4th at 586, or "whether a contractual provision reallocates risks in an objectively unreasonable or unexpected manner," *Lhotka*, 181 Cal. App. 4th at 821. Substantive unconscionability "traditionally involves contract terms that are so one-

sided as to 'shock the conscience,' or that impose harsh or oppressive terms." *Wherry v. Award, Inc.*, 192 Cal. App. 4th 1242, 1248 (2011).

In California, "where a single contract provision is invalid, but the balance of the contract is lawful, the invalid provision is severed, and the balance of the contract is enforced." *Kec v. Superior Court of Orange Cnty.*, 51 Cal. App. 5th 972, 974–75 (2020). For example, when a contract is held to be unconscionable, "the strong legislative and judicial preference is to sever the offending term and enforce the balance of the agreement." *Lange v. Monster Energy Co.*, 46 Cal. App. 5th 436, 453 (2020) (quotation marks omitted); *see also* Cal. Civ. Code § 1670.5 ("If the court as a matter of law finds the contract or any clause of the contract to have been unconscionable at the time it was made the court may refuse to enforce the contract, or it may enforce the remainder of the contract without the unconscionable clause, or it may so limit the application of any unconscionable clause as to avoid any unconscionable result.").

b. Analysis

Again, Epic Games alleges that Apple's counterclaims are barred because "the contracts on which Apple's counterclaims are based are unconscionable" on the basis that they are "are contrary to the antitrust laws and unfair competition laws[.]"[653] Epic Games contends that the DPLA provisions upon which Apple's counterclaims depend are (i) procedurally unconscionable because they are non-negotiable terms in contracts of adhesion, and (ii) are substantively unconscionable because "they foreclose all alternative app stores and non-IAP payment solutions in the iOS app distribution market and iOS in-app payment solutions market, respectively, and they facilitate the imposition of Apple's supra-competitive 30% commission."[654]

The Court finds and concludes that Epic Games has not shown that the DPLA is unconscionable. A contractual term is not unconscionable unless it is found to be *both* procedurally and substantively unconscionable. Here, the absence of substantive unconscionability is dispositive. A contractual term is not substantively unconscionable unless it so "one-sided so as to 'shock the conscience,'" *Wherry*, 192 Cal. App. 4th at 1248. Based on the record before it, the Court cannot conclude that the DPLA meets that standard. Plaintiff's response that the unconscionability stems from the violations of antitrust and unfair competition laws fails.[655] Because the Court has found only one unrelated provision to violate the UCL, the Court cannot conclude that the remaining provisions are substantively unconscionable.

Epic Games points to no other evidence or authority based upon which the Court could find that the provisions at issue "shock the conscience." These are billion and trillion dollar companies with a business dispute. Epic Games itself uses adhesion contracts. Plaintiff points to no authority in which a court has held that contractual provisions similar to the ones at issue, despite their longevity and relative ubiquity, are unenforceable on the ground that they are

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[653] *See* Epic Games' Answer to Counterclaims at 17–18.

[654] Epic Games FOF ¶ 192.

[655] *See* Epic Games FOF ¶¶ 191–192.

unconscionable. The Court finds and concludes, therefore, that Apple's counterclaims are not barred on the basis that they arise out of contractual terms that are unconscionable.

The Court now turns to the question of whether Apple is entitled to relief with respect to any counterclaim that is based on breaches to DPLA provisions other than the one stricken.

B. Breach of Contract

Under California law[656], "the elements of a cause of action for breach of contract are (1) the existence of the contract, (2) plaintiff's performance or excuse for nonperformance, (3) defendant's breach, and (4) the resulting damages to the plaintiff." *Oasis W. Realty, LLC v. Goldman*, 51 Cal. 4th 811, 821 (2011). To prove causation, a plaintiff must show "the breach was a substantial factor in causing the damages." *US Ecology, Inc. v. California*, 129 Cal. App. 4th 887, 909 (2005).

Apple asserts a counterclaim against Epic Games for breach of contract arising out Project Liberty. In particular, Epic Games' actions violated the DPLA provisions (1) requiring developers not to "hide, misrepresent or obscure any features, content, services or functionality" in their apps[657] and not to "provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store,"[658]; and (2) requiring Epic Games to pay Apple "a commission equal to thirty percent (30%) of all prices payable by each end-user" through the App Store.[659]

As noted, plaintiff has admitted that it breached the DPLA as Apple alleges and has conceded that, if the Court finds that the breached provisions of the DPLA are enforceable against Epic Games, then Apple would be entitled to relief as a result of the breach.[660]

Because Apple's breach of contract claim is also premised on violations of DPLA provisions independent of the anti-steering provisions, the Court finds and concludes, in light of plaintiff's admissions and concessions, that Epic Games has breached these provisions of the DPLA and that Apple is entitled to relief for these violation.

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[656] The parties agree that the DPLA is governed by California law. *See* Dkt. No. 276 at 99; *see also* PX-2619 (DPLA) § 14.10 (providing that the DPLA is "governed by and construed in accordance with the laws of the United States and the State of California").

[657] Dkt. No. 66 ¶ 50 (citing DPLA § 6.1).

[658] *Id.* (citing DPLA §§ 3.2, 3.3.2, 3.3.3, 3.3.25).

[659] *Id.* (citing DPLA, Schedule 2, §§ 1.1(a), 3.4(a)).

[660] *See* Stipulation, Dkt. No. 474.

C. Breach of the Implied Covenant of Good Faith and Fair Dealing

"The covenant of good faith and fair dealing, implied by law in every contract, exists merely to prevent one contracting party from unfairly frustrating the other party's right to receive the benefits of the agreement actually made." *Durell*, 183 Cal. App. 4th at 1369 (emphasis and citation omitted). While "[a] breach of the implied covenant of good faith is a breach of the contract," "breach of a specific provision of the contract is not . . . necessary to a claim for breach of the implied covenant of good faith and fair dealing." *Thrifty Payless, Inc. v. The Americana at Brand*, *LLC*, 218 Cal. App. 4th 1230, 1244 (2013) (internal quotation marks and citation omitted).

"In California, the factual elements necessary to establish a breach of the covenant of good faith and fair dealing are: (1) the parties entered into a contract; (2) the plaintiff fulfilled his obligations under the contract; (3) any conditions precedent to the defendant's performance occurred; (4) the defendant unfairly interfered with the plaintiff's rights to receive the benefits of the contract; and (5) the plaintiff was harmed by the defendant's conduct." *Rosenfeld v. JPMorgan Chase Bank, N.A.*, 732 F. Supp. 2d 952, 968 (N.D. Cal. 2010) (citation omitted).

"In essence, the covenant is implied as a supplement to the express contractual covenants, to prevent a contracting party from engaging in conduct which (while not technically transgressing the express covenants) frustrates the other party's rights to the benefits of the contract." *Love v. Fire Ins. Exch.*, 221 Cal. App. 3d 1136, 1153 (1990) (emphasis in original). It exists to "prevent one contracting party from unfairly frustrating the other party's right to receive the benefits of the agreement actually made. The covenant thus cannot be endowed with an existence independent of its contractual underpinnings. It cannot impose substantive duties or limits on the contracting parties beyond those incorporated in the specific terms of their agreement." *Durell*, 183 Cal. App. 4th at 1369 (citations omitted) (emphasis in original). "If there exists a contractual relationship between the parties, . . . the implied covenant is limited to assuring compliance with the express terms of the contract, and cannot be extended to create obligations not contemplated in the contract." *Racine & Laramie, Ltd. v. Dep't of Parks & Recreation*, 11 Cal. App. 4th 1026, 1032 (1992).

Apple asserts a counterclaim against Epic Games for breach of the implied covenant of good faith and fair dealing. Apple contends that "*[t]o the extent that any of Epic's bad faith actions did not breach the express terms of the [DPLA]*, Epic Games frustrated Apple's right to receive the benefits of the agreement actually made, including by publishing an update to *Fortnite* that circumvented payment of commissions to which Apple was contractually entitled, by violating the Guidelines, and by otherwise undermining Apple's operation and maintenance of the App Store."[661] Accordingly, Apple asserts this counterclaim in the alternative to its breach of contract claim.

[661] Dkt. No. 66 ¶ 60 (emphasis supplied).

Because the Court has found and concluded that Apple is entitled to relief on its breach-of-contract claim, the Court denies relief to Apple as to its alternative claim for breach of the implied covenant of good faith and fair dealing.

D. Unjust Enrichment

"[T]he elements for a claim of unjust enrichment" are "[1] receipt of a benefit and [2] unjust retention of the benefit at the expense of another." *Lectrodryer v. SeoulBank*, 77 Cal. App. 4th 723, 726 (2000). "Under California law, unjust enrichment is an action in quasi-contract, and is not cognizable when there is a valid and enforceable contract between the parties." *Cont'l Cas. Co. v. Enodis Corp.*, 417 F. App'x 668, 670 (9th Cir. 2011) (citation omitted). "The doctrine applies where plaintiffs, while having no enforceable contract, nonetheless have conferred a benefit on defendant which defendant has knowingly accepted under circumstances that make it inequitable for the defendant to retain the benefit without paying for its value." *Hernandez v. Lopez*, 180 Cal. App. 4th 932, 938 (2009).

Apple asserts a counterclaim for unjust enrichment against plaintiff based on its alleged failure to pay Apple the agreed-upon 30% commission under the DPLA, but it asserts this counterclaim only "[i]n the alternative" to its claim for breach of contract. *See* Docket No. 66 ¶ 63.

Because the Court has found and concluded that Apple is entitled to relief on its claim for breach of contract, as discussed above, the Court denies relief to Apple as to its alternative claim for unjust enrichment.

E. Indemnification

Under California law, "[a]n indemnity agreement is to be interpreted according to the language and contents of the contract as well as the intention of the parties as indicated by the contract." *Myers Bldg. Indus., Ltd. v. Interface Tech., Inc.*, 13 Cal. App. 4th 949, 968 (1993); *see also Herman Christensen & Sons, Inc. v. Paris Plastering Co.*, 61 Cal. App. 3d 237, 245 (1976) (where the parties "have expressly contracted with respect to the duty to indemnify, the extent of that duty must be determined from the contract and not by reliance on the independent doctrine of equitable indemnity" (quotation marks omitted)). Such agreements "are construed under the same rules that govern the interpretation of other contracts." *Alki Partners, LP v. DB Fund Servs., LLC*, 4 Cal. App. 5th 574, 600 (2016).

Apple asserts a counterclaim against Epic Games for indemnification in the form of the recovery of its attorneys' fees and costs of defending this litigation and pursuing its counterclaims. This counterclaim is based on Section 10 of the DPLA, which provides:

> To the extent permitted by applicable law, You agree to indemnify and hold harmless, and upon Apple's request, defend, Apple, its directors, officers, employees, independent contractors and agents (each an "Apple Indemnified Party") from any and all claims, losses, liabilities, damages, taxes, expenses and costs, including without

> limitation, attorneys' fees and court costs . . . incurred by an Apple Indemnified Party and arising from or related to any of the following . . . : (i) Your breach of any certification, covenant, obligation, representation or warranty in this Agreement, including Schedule 2; . . . or (vi) Your use (including Your Authorized Developers' use) of the Apple Software or services, Your Licensed Application Information, Pass Information, metadata, Your Authorized Test Units, Your Registered Devices, Your Covered Products, or Your development and distribution of any of the foregoing.[662]

Apple contends that it is entitled to indemnification from Epic Games under this indemnification provision because plaintiff's lawsuit involves claims arising from or related to its breaches of its certifications, covenants, obligations, representations, or warranties under the DPLA, and its use of the Apple Software or services, its licensed application information, its covered products, and its development and distribution of the foregoing.

Epic Games counters that Apple is not entitled to indemnification under Section 10 because that section applies only to claims brought by third parties against Apple and not "claims between Epic and Apple," and because the indemnification clause would be unconscionable to the extent that it is interpreted as covering intra-party disputes.[663]

The Court's interpretation of the indemnification provision is guided by the following principles:

> Generally, an indemnification provision allows one party to recover costs incurred defending actions by third parties, not attorney fees incurred in an action between the parties to the contract. Courts look to several indicators to distinguish third party indemnification provisions from provisions for the award of attorney fees incurred in litigation between the parties to the contract. The key indicator is an express reference to indemnification. *A clause that contains the words 'indemnify' and 'hold harmless' generally obligates the indemnitor to reimburse the indemnitee for any damages the indemnitee becomes obligated to pay third persons*—that is, it relates to third party claims, not attorney fees incurred in a breach of contract action between the parties to the indemnity agreement itself. Courts also examine the context in which the language appears. Generally, if the surrounding provisions describe third party liability, the clause will be construed as a standard third party indemnification provision. *The court will not infer that the parties intended an indemnification provision to cover attorney fees*

[662] PX-2619 ¶ 10.

[663] Epic Games FOF ¶¶ 573, 578.

> *between the parties if the provision "'does not specifically provide for attorney's fees in an action on the contract*[.]"

Alki Partners, 4 Cal. App. 5th at 600–01 (internal citations omitted) (emphasis supplied).

Here, the indemnification provision at issue contains the words "indemnify" and "hold harmless," and the surrounding provisions describe third-party liability, which, under *Alki Partners*, suggests that any obligation by Epic Games to reimburse Apple would arise only in the context of third-party claims, and not claims between the two. Additionally, the provision does not specifically provide for attorneys' fees and costs in an action on the contract between the parties to the contract, which also weighs against interpreting the provision at issue as covering Apple's attorneys' fees and costs in this action.

Apple argues that the indemnification provision *does* contain language specifically providing "for attorneys' fees in an action on the contract" because the indemnification provision is "triggered" by Epic Games' breach of the DPLA.[664] The Court is not persuaded. For an indemnification provision to be interpreted as covering attorneys' fees and costs in an action on a contract *between the parties*, there must be language in the contract that "reasonably can be interpreted as addressing the issue of an action *between the parties* on the contract." *Alki*, 4 Cal. App. 5th at 601 (citation and internal quotation marks omitted) (emphasis supplied). For example, attorneys' fees and costs are recoverable in an action between the parties where the indemnity provision includes "*express language* for attorney's fees incurred *in enforcing [the] indemnity agreement*." *Id.* at 602 (citations omitted) (emphasis supplied); *see also Baldwin Builders v. Coast Plastering Corp.*, 125 Cal. App. 4th 1339, 1342 (2005) (holding that an indemnity provision authorized the recovery of attorneys' fees on an action on the contract between the parties because it included express language that "[s]ubcontractor shall pay all costs, including attorney's fees, *incurred in enforcing this indemnity agreement*'" (emphasis supplied)). No such express language is included in the indemnification provision at issue. In light of the absence of such express language, and in light of the terms used in the indemnification provision that suggest that it covers only third-party claims, as discussed in more detail above, the Court finds and concludes that Apple has not shown that it is entitled to recover attorneys' fees and costs from Epic Games pursuant to Section 10 of the DPLA.

F. Declaratory Judgment

1. *Legal Framework*

"In a case of actual controversy within its jurisdiction . . . , any court of the United States, upon the filing of an appropriate pleading, may declare the rights and other legal relations of any interested party seeking such declaration, whether or not further relief is or could be sought. Any such declaration shall have the force and effect of a final judgment or decree and shall be reviewable as such." 28 U.S.C. § 2201(a).

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[664] Apple FOF ¶ 841.

Courts have "substantial discretion in deciding whether to declare the rights of litigants" under the Declaratory Judgment Act. *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 136 (2007). This "substantial" discretion permits the Court to consider "equitable, prudential, and policy arguments" for or against the declaratory relief sought. *Id.* A "district court should avoid needless determination of state law issues," "should discourage litigants from filing declaratory actions as a means of forum shopping," and "should avoid duplicative litigation." *Principal Life Ins. Co. v. Robinson*, 394 F.3d 665, 672 (9th Cir. 2005) (quotation marks omitted). Courts also consider "whether the declaratory action will settle all aspects of the controversy; whether the declaratory action will serve a useful purpose in clarifying the legal relations at issue; whether the declaratory action is being sought merely for the purposes of procedural fencing or to obtain a 'res judicata' advantage; or whether the use of a declaratory action will result in entanglement between the federal and state court systems." *Gov't Emps. Ins. Co. v. Dizol*, 133 F.3d 1220, 1225 n.5 (9th Cir. 1998). Essentially, the district court must "balance concerns of judicial administration, comity, and fairness to the litigants." *Principal Life Ins. Co*., 394 F.3d at 672 (quotation marks omitted).

2. *Analysis*

Apple seeks a declaratory judgment that: (a) the DPLA is valid, lawful, and enforceable contracts; (b) Apple's termination of the DPLA with Epic Games was valid, lawful, and enforceable; (c) Apple has the contractual right to terminate the DPLA with any or all of Epic Games' wholly owned subsidiaries, affiliates, and/or other entities under its control; and (d) Apple has the contractual right to terminate the DPLA with any or all of the Epic Affiliates for any reason or no reason upon 30 days written notice, or effective immediately for any "misleading fraudulent, improper, unlawful or dishonest act relating to" the DPLA. Docket No. 66 ¶ 88.

Epic Games contends that Apple is not entitled to the declaratory judgment it seeks on the basis that the challenged provisions of the DPLA are "unlawful" and that Apple's termination of the DPLA as to Epic Games was "unlawful" retaliation.[665] The parties have not litigated every aspect of the DPLA, and the Court has raised concerns about issues lacking a full evidentiary record. Thus, it is not inclined to make a broad pronouncement that the DPLA in its entirety is valid, lawful, and enforceable.

That said, with respect to the sections of the DPLA requiring developers not to "provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store," DPLA §§ 3.2, 3.3.2, 3.3.3, 3.3.25, those have not been found to be unlawful under federal and state antitrust law or the UCL.

This case does not involve retaliation. Epic Games never showed why it had to breach its agreements to challenge the conduct litigated. Two parallel antitrust actions prove the contrary. Apple had contractual rights to act as it did. It merely enforced those rights as plaintiff's own

[665] Epic Games FOF ¶¶ 566–567.

internal documents show Epic Games expected. Accordingly, plaintiff's challenges to Apple's claim for declaratory relief fail as to the remaining requests.

G. Remedies

The relief to which Apple is entitled is that to which Epic Games stipulated in the event that the Court found it liable for breach of contract, namely:

(1) damages in an amount equal to (i) 30% of the $12,167,719 in revenue Epic Games collected from users in the *Fortnite* app on iOS through Epic Direct Payment between August and October 2020, plus (ii) 30% of any such revenue Epic Games collected from November 1, 2020 through the date of judgment; and

(2) a declaration that (i) Apple's termination of the DPLA and the related agreements between Epic Games and Apple was valid, lawful, and enforceable, and (ii) Apple has the contractual right to terminate its DPLA with any or all of Epic Games' wholly owned subsidiaries, affiliates, and/or other entities under Epic Games' control at any time and at Apple's sole discretion.[666]

CONCLUSION

This trial highlighted that "big tech" encompasses many markets, including as relevant here, the submarket for mobile gaming transactions. This lucrative, $100 billion, market has not been fully tapped and is ripe for economic exploitation. As a major player in the wider video gaming industry, Epic Games brought this lawsuit to challenge Apple's control over access to a considerable portion of this submarket for mobile gaming transactions. Ultimately, Epic Games overreached. As a consequence, the trial record was not as fulsome with respect to antitrust conduct in the relevant market as it could have been.

Thus, and in summary, the Court does not find that Apple is an antitrust monopolist in the submarket for mobile gaming transactions. However, it does find that Apple's conduct in enforcing anti-steering restrictions is anticompetitive. A remedy to eliminate those provisions is appropriate. This measured remedy will increase competition, increase transparency, increase consumer choice and information while preserving Apple's iOS ecosystem which has procompetitive justifications. Moreover, it does not require the Court to micromanage business operations which courts are not well-suited to do as the Supreme Court has appropriately recognized.

A separate judgment shall issue based on the findings of fact and conclusions of law set forth above, the Court will enter a separate permanent injunction barring the noted restraints.

For the reasons set forth herein, the Court finds in favor of Apple on all counts except with respect to violation of California's Unfair Competition law (Count Ten) and only partially

[666] *See* Dkt. No. 474 ¶ 3.

with respect to its claim for Declaratory Relief. The preliminary injunction previously ordered is terminated.

Each party shall bear its own costs. No party shall file any post-trial motions based on previously-made arguments.

IT IS SO ORDERED.

Date: September 10, 2021

YVONNE GONZALEZ ROGERS
UNITED STATES DISTRICT COURT JUDGE

APPENDIX: ORDER OUTLINE

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PART I
FINDINGS OF FACT

I. The Parties
- A. Overview
- B. Plaintiff Epic Games
  1. Gaming Software Developer: *Unreal Engine* and Epic Online Services
  2. Game Developer: *Fortnite*
     - a. *Fortnite*'s Game Modes
     - b. Key Features of *Fortnite*
     - c. *Fortnite*'s Business Model: In-App Purchases and V-Bucks
     - d. *Fortnite* on the iOS Platform
  3. Game Publisher and Distributor: Epic Games Store
     - a. Characteristics of the Epic Games Store
     - b. Finances of the Epic Games Store
  4. Prior Relationship Between Apple and Epic Games
  5. Project Liberty
- C. Apple: Relevant History of the iOS and iOS Devices
  1. The Early Years
  2. Role of App Developers Generally and Epic Games
  3. Apple's Contractual Agreements with Developers
     - a. Key Terms of the DPLA and App Guidelines
     - b. Apple's App Store as an App Transaction Platform
     - c. Apple's Commissions Rates: 30 percent; 15 percent; recent changes
  4. Apple's Management of Apps – App Guidelines
  5. App Store Operating Margins
  6. App Store Revenues From Mobile Gaming

II. Review of Parties' Proposed Product Market and Finding
- A. Epic Games: Facts Relevant to Foremarket for Apple's Own iOS
- B. Epic Games: iOS App Distribution Aftermarket
  1. Evidence of Switching Costs and Alleged "Lock-in"
     - a. Apple Documents
     - b. Dr. Susan Athey
     - c. Consumer Knowledge and Post Purchase Policy Changes
     - d. Apple's Rebuttal Evidence
  2. Substitutes
     - a. Single Homing and *Fortnite* Data
     - b. Dr. Rossi and Dr. Evans
     - c. Mobile Devices (Tablets and the Switch)
     - d. Non-Mobile Devices (Consoles and PCs)
  3. Gaming v. Non-Gaming and Apple's App Store

PART II
APPLICATION OF FACTS TO THE LAW AND CONCLUSIONS THEREON

I. Relevant Product and Geographic Market
- A. Legal Framework
- B. Analysis
  1. Relevant Product Market
     - a. Apple's Product Market Theory
       - i. Apps or Digital Game Transactions?
       - ii. All Gaming Transactions or Mobile Gaming Transactions?
     - b. Epic Games' Approach: Foremarket/Aftermarket Market Definition
  2. Geographic Market

II. Sections 1 and 2 of the Sherman Act (Counts 1, 3, 4, 5)
- A. General Framework
- B. Assessing Apple's Market Power in the Relevant Product and Geographic Market
  1. Legal Framework
  2. Analysis
- C. Section 1 of the Sherman Act: Apple's Unlawful Restraint of the iOS App Distribution Market (Count 3) and Unlawful Restraint on the iOS In-App Payment Solutions Market (Count 5)
  1. Legal Framework
  2. Count 3: iOS App Distribution Market Analysis
     - a. Existence of an Agreement
     - b. Reasonableness of the Restraint
       - i. Anticompetitive Effects
       - ii. Procompetitive Justifications
       - iii. Less Restrictive Alternatives
  3. Count 5: iOS In-App Payment Solutions Market Analysis
- D. Section 2 of the Sherman Act: Apple's Monopoly Maintenance of the iOS App Distribution Market (Count 1) and iOS in-App Payment Solutions Market (Count 4)
  1. Legal Framework
  2. Count 1: iOS App Distribution Market Analysis
  3. Count 4: iOS In-App Payment Solutions Market Analysis

III. Section 1 of the Sherman Act: Tying Claim (Count 6)
- A. Legal Standard
- B. Analysis

IV. California's Cartwright Act (Counts 7, 8, and 9)
- A. Legal Framework
- B. Analysis