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17 **UNITED STATES DISTRICT COURT**
 18 **NORTHERN DISTRICT OF CALIFORNIA**
 19 **OAKLAND DIVISION**

20
 21 EPIC GAMES, INC.,
 22 Plaintiff, Counter-defendant,

v.

24
 25 APPLE INC.,
 26 Defendant, Counterclaimant.

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

**FINDINGS OF FACT AND
 CONCLUSIONS OF LAW
 PROPOSED BY EPIC GAMES, INC.**

The Honorable Yvonne Gonzalez Rogers

Trial: May 3, 2021

1 Epic Games, Inc. respectfully proposes the Findings of Fact and Conclusions of
2 Law submitted herewith.

3
4 Dated: April 7, 2021

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I. INTRODUCTION.

1. This case is about Apple’s conduct to monopolize two markets within its iOS ecosystem: (i) the iOS App Distribution Market; and (ii) the iOS In-App Payment Solutions Market. To understand those markets and Apple’s conduct within those markets, it is important to understand Apple’s iOS ecosystem.

2. The foundation of this ecosystem is the iPhone’s mobile operating system, called “iOS”. (PX2573, at '1.)

3. iOS grew out of Apple’s macOS operating system (formerly known as Mac OS X), versions of which have been on Apple’s Mac computers since the early 2000s. iOS traces its roots back to the introduction of the iPhone in 2007. (*See* Section X.A below.)

4. Since the introduction of iOS in 2007, Apple has developed myriad services and features that tie together all Apple products to create an Apple “ecosystem”, but that are not compatible with devices running on other operating systems outside of the Apple ecosystem. As Apple has added more features and more devices that can interact with iOS, the reach and hold that iOS has on consumers’ lives has grown. (*See* Section II.A below.)

5. As a result, consumers—and often their households—become locked in to iOS, with high switching costs and decreased ability and willingness to extract themselves from the iOS ecosystem. (*See* Section II.B below.)

6. These switching costs run the gamut, from time, to financial costs associated with reacquiring digital content, to learning a new operating system, and to the frustration and complexity associated with having a device that is incompatible with a user’s remaining devices or the devices of friends and family members who remain on iOS. As one

of Apple's executives put it: "Who leaves Apple products once they've bought apps, music, movies, etc!" (PX404, at '427; Cue Dep. 67:13-19; 68:1-13; 69:1-5.)

7. While these features designed by Apple may be responsible for the lock-in, they are not what drew most users to the iOS ecosystem in the first place. Rather, the success of the iOS ecosystem stemmed from the combination of Apple's iPhone with iOS and with a world of software created by developers whose ingenuity, creativity and dedication has led to an array of apps that provide ever-more functionality to users within the iOS ecosystem. (See Section II.E below.) As Apple's iconic commercial noted, whatever a user wanted to do with her iPhone, "there's an app for that!" [REDACTED]

8. Developers of apps cannot reach users of iOS devices without writing apps specifically for iOS; native apps written for other operating systems do not work on iOS, and non-native apps, such as apps delivered over a web browser, are no match for native apps created specifically for iOS devices. (See Sections III.J-L below.)

9. In the fall of 2007, Apple recognized the need to allow third parties to develop native apps for iOS to help attract new users and grow the iOS ecosystem. In March 2008, Apple announced the release of software tools for developing iOS apps and the upcoming launch of the App Store. (See Section II.D below.)

10. The relationship between Apple and the developer community is, in some ways, synergistic. Apple develops iOS, and app developers design apps that deploy iOS to do wonderful, amazing, useful and fun things. Appealing devices, with appealing functionality, result in consumer adoption. A device that has great potential, but not great functionality, is of limited use to consumers. (See Section II.D below.) Apple has acknowledged that [REDACTED]

[REDACTED]

11. That synergy, however, does not result in a level playing field. As Apple has gathered more and more users into its ecosystem and locked them in, the importance of the Apple ecosystem to developers has increased to the point that nearly all developers rely on Apple—but Apple does not need to rely on any single developer. (*See, e.g.*, Part IV below.)

12. Although Apple had other options, and debated them internally as a policy matter, at the same time it decided to allow third parties to develop apps for iOS users, in 2008, Apple chose to make the newly created App Store the exclusive means of distribution of all apps on iOS. (*See* Section II.D below.)

13. Apple requires all app developers that wish to have their apps available on an iOS device to enter into non-negotiable contracts that establish the terms and conditions of their relationship. (*See* Section IV.A below.) Under these contracts, app developers are subject to a variety of restrictions related to distribution:

- a. Developers must submit all their apps and app updates for review by Apple, and await Apple's determination as to whether to approve or reject their app, which Apple makes in its sole discretion (*see* Section X.E below);
- b. Apple may delist developers' apps from the App Store at any time (PX2621, at '9);
- c. Developers cannot offer their own app store on iOS devices (PX2481, at '16); and
- d. Other than specified exceptions, developers cannot allow users to access content, subscriptions or features they purchased through

another app distribution channel, such as the developer's own website, without also selling it in the App Store (PX2481, at '16).

14. As a result of these restrictive policies, the App Store is the only place for iOS users to obtain and developers to distribute apps, for the range of tasks and activities users may want to do on iOS devices, such as banking, navigation, gaming, watching videos, social networking, and finding friends or romantic partners. (*See, e.g.*, Section IV.C below.)

15. The App Store started out with only 500 apps. (Cook 146:10-17.) That number grew by an order of magnitude within months. [REDACTED] Today, the App Store contains 1.8 million apps. (Cook.)

16. Apple's choice to make the App Store the exclusive means for distribution of iOS apps was a business decision; it was not necessary to ensure the security of the iOS ecosystem. (*See, e.g.*, Section XI below.)

17. Notably, Apple made a different business decision on the macOS operating system, which runs on Apple's Mac computers. On macOS, Apple allows developers to distribute their apps outside of Apple's own app store. macOS is a template of an open platform that Apple itself has held out to the world as secure—a place where users can download apps from the App Store or from other sources “worry free”. (*See* Section X.B below.)

18. The security of iOS is derived primarily from the operating system itself and the hardware on which it runs. Indeed, iOS was modeled after macOS and inherited many of its core architectural features. But iOS offers even more robust operating system-based security mechanisms. Apple could easily implement security features to support open

distribution on iOS without restricting app distribution to the App Store, just as it does with macOS. (*See* Section X.D below.)

19. Apple points to its App Review process and asserts that there are security benefits that flow from funneling all apps through the App Review process, but that is pretextual. (*See* Part XI below.) Apple’s App Review Process does little to keep iOS devices secure. It is cursory and has historically lagged behind the state of the art in terms of use of the automated tools needed for robust security checks. Many apps that should have been rejected under Apple’s own guidelines have been approved, and apps that should have been approved have been rejected. Developers have faced an inefficient and opaque app review process riddled with arbitrary decisions and errors coupled with poor customer service. (*See* Sections X.E-H below.)

20. Moreover, the manual portion of Apple’s App Review process screens primarily for non-security issues—including specifically for anti-competitive purposes. For example, Apple has used the App Review process to reject competitive threats even when the apps complied with Apple’s then-prevailing guidelines. And Apple has used App Review to preference its own apps over competing third-party apps to the detriment of consumers and developers. (*See* Sections X.E-H below.)

21. There is nothing security-related about Apple’s App Review process that Apple could not continue to do if distribution were open—similar to what Apple does on macOS today through a process it calls “notarization”—or that could not be replicated or even improved upon by third parties. Put simply, Apple has no security reason for restricting iOS app distribution to the App Store. Indeed, Apple has never even analyzed whether any other app stores would introduce security problems to the iOS platform. (*See, e.g.*, Part XI below.)

22. Not only is exclusive distribution through the App Store neither designed to nor essential to ensure security. Apple’s restrictions on app distribution degrade the experience of consumers and developers. Excluding competing app stores from the iOS ecosystem has resulted higher app prices, less innovation and fewer features for both developers and consumers. And Apple’s arbitrary App Review process is ripe for abuse. (*See* Parts **Error! Reference source not found., Error! Reference source not found.** below.)

23. As some developers’ business models evolved from selling apps up front to providing apps free to download and offering content for purchase within the app, Apple adapted its business model, as well, by adding a new restriction. In 2009, Apple introduced the In-App Purchase (“IAP”) system—a payment solution that Apple required all developers selling in-app digital content to use and that carried with it an automatic deduction of a 30% commission from all such in-app purchases of digital content. Later still, in 2011, Apple expanded the reach of IAP to subscriptions. (*See* Section II.F below.)

24. Apple’s price hikes have closed the door on many developers who wish to enter the iOS ecosystem. Some small businesses cannot afford to absorb Apple’s 30% fee and would lose business if they passed it on to their customers. As Apple’s founder Steve Jobs acknowledged, Apple’s commission “is prohibitive for many things”. (PX438, at ‘768.)

25. Of course, some developers have chosen to pass on part of Apple’s 30% fee to consumers. For that reason, Apple’s conduct has caused consumers to pay higher prices for apps and in-app content. (*See* Part **Error! Reference source not found.** below.)

26. The App Store and IAP are not technologically integrated. The App Store was created and existed for some time without IAP, and it still exists apart from IAP. While Apple requires the use of IAP for the purchase of in-app digital content, Apple does not

require the use of IAP for in-app purchases of physical goods and services made from iOS apps, such as Amazon purchases or Uber rides. (*See, e.g.*, Section VI.B below.)

27. Rather than technological, Apple's requirement that all in-app purchases of digital good use Apple's IAP is contractual. The IAP requirement is simply a tool for Apple to collect its outsized commission. (*See* Section VI.D below.) Specifically, under the same non-negotiable contracts discussed above, app developers are subject to a variety of restrictions related to IAP:

- a. They must use Apple's In-App Purchase system for digital in-app purchases and may not include an alternative payment solution within the app (PX56, at '10);
- b. They cannot steer users to alternative payment methods outside the app: "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" (PX56, at '10);
- c. They must allow Apple to collect a 30% commission on the sale of paid apps (PX2621, at '4-5);
- d. They must allow Apple to collect a 30% commission on digital in-app purchases including subscriptions (with a 15% commission on subscriptions after the first year) (PX2621, at '5);
- e. They may not mention the commission paid to Apple anywhere in the app (Shoemaker Dep. 144:10-23); and
- f. They must price their app within global pricing tiers set by Apple. (Fischer Dep. 266:12-15).

28. As with Apple's contractual requirement that apps be distributed exclusively through the App Store, Apple's decision to require apps to use IAP was a business decision. It was meant to capture revenue, not to create security benefits. Apple's assertion to the contrary is pretextual. (*See* Part XI below.)

29. Before Apple imposed its IAP requirement in 2009, non-IAP payment methods were used by some developers to process payments for digital content. Apple has no evidence that using those methods for those apps created any security issues. And Apple continues to permit non-IAP payment methods for various categories of apps. Apple has no evidence that the non-IAP payment methods in these apps have caused security issues. (*See* Part XI below.)

30. There are many third-party payment processors available for developers, including PayPal, Chase, Square and Stripe, just to name a few. They are trusted partners of thousands of companies, including Amazon, Spotify, Wayfair, Peloton, Uber, and Lyft.

██████████ Apple itself contracts with PayPal and Chase as part of the IAP process. (Gray Dep.

██████████ 75:12-19 ██████████) (*See* Part XI below.)

31. Apple's requirement that its IAP solution be inserted in the relationship between developers and these third-party payment processors does not ensure security. To the contrary, third-party payment processors may provide even better security than Apple. They have multi-platform datasets that detect fraud better than Apple can through IAP. Security could also be a vector on which third-party payment processors compete and innovate, leading to better security for everyone. (*See* Part XI below.)

32. Not only is Apple's IAP requirement neither designed nor essential to ensuring security on iOS. Apple's IAP requirement results in significant decreases in quality

to consumers and developers. It interferes with the relationship between developers and their customers, from forcing developers to rely on Apple for resolving transactional disputes, to processing refunds, to preventing developers from obtaining data and metrics about their customers to improve user experience and safety, and to reducing customer choice for more flexible payment options. (*See* Part VIII below.)

33. Apple also attempts to justify its restrictions and exclusionary conduct on the basis that it is entitled to compensation for its investments in iOS, but that too is pretextual. (*See, e.g.,* Part II below.)

34. Apple monetizes iOS through myriad ways, the primary of which is the sale of iOS hardware, such as iPhones. Apple launched iOS and the iPhone without any plan even to even offer an app store, let alone one that is an independent profit center. To the contrary, when the App Store launched in 2008, Steve Jobs, Apple’s founder, said that Apple’s 30% commission was to “pay for running the App Store”. (PX880, at ‘075; Forstall Dep. 163:14-164:3.) Mr. Jobs was asked specifically to address the concern of developers about Apple’s decision to make the App Store the exclusive distribution channel of apps on iOS, and he promised developers they had nothing to worry about because “just to make it a little clearer, **we don’t intend to make money off the App Store . . . we are basically giving all the money to the developers here**”. (PX880, at ‘081 (emphasis added).) Mr. Jobs never suggested Apple needs App Store revenue to sustain development of iOS.

35. In addition to the \$ [REDACTED] in annual operating profits that Apple earns from the sale of iPhones; it also charges app developers fees to be part of Apple’s Developer Program and write iOS apps for distribution on iOS devices; it charges developers for support services, if they need them; and it makes [REDACTED] more from developers by auctioning off

prominent listing of developers' apps when users search for apps within the App Store. (*See* Sections II.F, IV.C below.)

36. Apple would continue to have a strong incentive to invest in the iOS ecosystem even without its monopoly on in-app payment solutions. All successful platform providers make developer tools widely available to attract third-party developers. Given the many contributions of third-party developers to the iOS ecosystem, Apple will continue to invest in and make widely available its developer tools because doing so enhances the value of iPhones. (*See* Section II.D below.)

37. Epic Games, Inc. ("Epic") has suffered harm from Apple's conduct. (*See* Section IX below.)

- a. Epic has an app store, the Epic Games Store, that it has launched on personal computers ("PCs") and Macs. Epic would launch the Epic Games Store on iOS if it could, but Apple will not allow it to do so. If the Epic Games Store were on iOS, it would provide consumers with the benefits of competition in iOS app distribution.
- b. Absent Apple's rules, Epic would not distribute its apps through the App Store. (Sweeney.) Instead, Epic would distribute its apps through other means, including from its website and through EGS. (Sweeney.) By distributing its apps through the App Store, Epic has paid supra-competitive commissions and been deprived of the benefits that would flow from a competitive market. (Evans.)
- c. Epic has its own payment processing functionality—Epic direct payment. Apple forbids Epic from using Epic direct payment on

iOS, depriving Epic's customers of payment choices that would allow Epic to offer lower prices and comprehensive customer service.

38. Many other app developers are harmed by Apple's practices. (*See* Part VIII below.)

- a. There are app developers that are unable to innovate and produce products because of Apple's practices.
- b. There are app developers that cannot offer safety features to users because of Apple's practices.
- c. There are app developers that cannot financially survive because of Apple's practices, depriving customers of their offerings altogether.

II. BACKGROUND – APPLE AND ITS ECOSYSTEM

A. Apple's Business.

39. Apple is the largest company in the world by market capitalization.

40. Apple is headquartered in Cupertino, California, employs approximately 147,000 full-time equivalent employees worldwide, and has a market cap of over \$2 trillion.

41. Apple launched the iPhone in 2007. (Schiller; PX841, at '1.)

42. Smartphones require an operating system ("OS") to function. Among other things, an OS makes decisions about how a device's hardware resources are shared across different apps, coordinates activities among those apps and enforces security mechanisms to prevent those apps from interfering with the proper operation of the device.

(██████████ Mickens.)

43. The iPhone runs on a mobile operating system called "iOS". (PX2573, at '1.)

44. iOS is based on the operating system previously developed for the Mac: macOS (and formerly known as Mac OS X). (Forstall Dep. 64:19-21; PX880, at '064; *see also* Federighi Dep. 23:11-14 ("[T]he core operating system kernel, the graphics layers, the audio system . . . were common to macOS and iOS").)

45. Today, there are over 1 billion active iPhone users worldwide. (Cook.)

46. In fiscal year 2019 alone, Apple earned roughly \$142.4 billion in net sales and \$██████████ in operating profits from the sale of iPhones. ██████████ Similarly, it earned \$164 billion in net sales from the combination of iPhones, iPads, and iPods. ██████████

47. In addition, Apple develops iPads, which are based on the iPadOS operating system.¹ Historically, iOS was also the operating system used on iPads. In 2019, Apple announced that it would begin using the name iPadOS to refer to the operating system on iPads. (Federighi.)

48. Apple also develops wearables, home products and accessories, including AirPods, Apple TV, Apple Watch, Beats headphones, HomePod, iPod Touch and other Apple-branded products, which it sells together with various third-party accessories online and in retail stores. (PX2573, at '1.)

49. These devices and services together comprise the Apple “ecosystem”. (Fischer Dep. 244:12-15; 244:18-24.) As Eddy Cue, Apple’s Senior Vice President of Software and Services, testified, Apple “[doesn’t] just sell devices . . . We sell other things. We sell other – other devices from what you have. We sell accessories. We sell apps. We sell books. We sell videos. So those are all part of the ecosystem.” (Cue Dep. 74:20-75:1.)

50. Apple devices and services in this ecosystem are designed to operate “seamlessly” with each other. (PX405, at '325; Cue Dep. 73:15-74:6.)

51. Apple’s core business model is to “hook” its users on this integrated Apple ecosystem, so they “wouldn’t want to leave it”. (PX404, at '427; Cue Dep. 58:2-9; 69:1-5.)

52. To keep users repeatedly coming back to Apple’s offerings, Apple has worked to “build” its App Store and other services “as far into the iPhone OS experience as possible”. (PX403, at '802; Cue Dep. 64:3-4; 64:7-12; 65:13-18.)

¹ For simplicity’s sake, this document refers to the operating system on both devices as “iOS”. There are no differences between iOS and iPadOS that are relevant to the facts herein.

53. In an agenda for a 2010 executive team meeting, Apple founder and late CEO Steve Jobs wrote that he wanted to “tie all of our products together, so [Apple] further lock[s] customers into [its] ecosystem”. (PX892, ‘738; Forstall Dep. 248:25-249:1; 249:18-23.)

54. Apple recognized that “[g]etting customers using our stores (iTunes, App and iBook store) is one of the best things we can do to get people hooked to the ecosystem”. (PX404, at ‘427; Cue Dep. 68:1-13; 69:1-5.)

55. Apple has developed a number of apps, services and features that enhance “lock in” into the Apple ecosystem. iMessage (used in the Messages app), “Find My Friends” and “Continuity” are a few examples, all discussed below. As Apple has developed, updated and released its own apps over time, it has fully integrated them into the “iOS experience”. (Cue Dep. 67:9-68:12.)

56. Messages is a particularly popular Apple app. It allows for seamless messaging and multimedia communications across Apple iPhones, iPads and Macs. (PX416; Cue Dep. 114:14-115:2.)

57. Consumers have come to rely on the ability to iMessage each other on iOS devices. If an iPhone user attempts to send a text message to the user of a non-Apple device (such as an Android phone), iMessage transmits the message as a standard cellular text (called an SMS), meaning both users are deprived of the features uniquely associated with iMessage. (Federighi Dep. 118:13-18.) Apple prominently reveals to iOS users whether they are exchanging messages with someone who owns an iOS device: iMessages appears in blue bubbles, and standard text messages appear in green bubbles. (Cook; Schiller.)

58. Apple has recognized the power that iMessage has to attract and keep users within its ecosystem.

- a. As early as 2013, Apple decided not to develop a version of iMessage for the Android OS. (Cue Dep. 92:22-93:1.)
- b. Mr. Cue testified that Apple “could have made a version on Android that worked with iOS” such that there would “have been cross-compatibility with the iOS platform so that users of both platforms would have been able to exchange messages with one another seamlessly”. (Cue Dep. 92:5-9; 92:11-16.)
- c. However, Craig Federighi, Apple’s Senior Vice President of Software Engineering and the executive in charge of iOS, feared that “iMessage on Android would simply serve to remove [an] obstacle to iPhone families giving their kids Android phones”. (PX407, at ‘122.)
- d. Phil Schiller, an Apple executive in charge of the App Store, agreed that Apple should not offer iMessage on Android devices. (Cue Dep. 92:18-93:1.)
- e. In 2016, when a former Apple employee commented that “the #1 most difficult [reason] to leave the Apple universe app is iMessage . . . iMessage amounts to serious lock-in” to the Apple ecosystem, Mr. Schiller commented that “moving iMessage to Android will hurt us more than help us, this email illustrates why”. (PX416, at ‘610; Cue Dep. 114:14-115:2.)

f. iMessage is still not available on Android. (Federighi Dep. 118:13-18.)

59. “Find my Friends”, which allows users to “easily locate friends and family”, is also designed by Apple to work exclusively with iOS. (██████████ Federighi Dep. 117:8-12.)

60. “Continuity” is another Apple feature that draws users deeper into the iOS ecosystem. “Continuity” allows for the continuous use of a phone call or browsing session from one Apple device to another. (Federighi Dep. 112:22-9.) Apple has also designed features to improve functionality between iOS devices. (Cue Dep. 75:17-20; 75:22-76:21.) But “Continuity” works only across Apple devices.

61. In “most cases” “one of the results of the Apple ecosystem” is that products “don’t work seamlessly with devices written for other OSs”, such as Android. (Cue Dep. 75:17-20; 75:22-76:2.)

62. Mr. Federighi, testified that it would be “a horrible idea” to “make it easier for someone to switch away from our platforms” by “eliminat[ing] all of [Apple’s] differentiation”. (Federighi Dep. 123:23-124:8.)

63. Apple’s prior adjudicated antitrust violations have not deterred it from seeking to lock more and more consumers into its ecosystem, even when its conduct results in higher consumer prices.

a. When considering how to handle Amazon Kindle on iPhone in February 2009, Mr. Cue raised the possibility in an email to Mr. Jobs and Mr. Scott Forstall, former Apple Vice President, that “iTunes become[] an eBook reseller exclusive to Amazon and

Amazon become[] an audio/video iTunes reseller exclusive to Apple” and that “it would be very easy for [Apple] to compete and I think trounce Amazon by opening up our own eBook store”.

(PX2317)—or, in other words, that Apple and Amazon “simply divide the e-market for books and music”. (PX400; *U.S. v. Apple Inc.*, 952 F. Supp. 2d 638, 656 n.15 (S.D.N.Y. 2013).)

- b. When that failed, Apple instead “orchestrat[ed] a horizontal conspiracy among [eBook publishers] to raise eBook prices”—and was subsequently found to have violated § 1 of the Sherman Act by the District Court for the Southern District of New York and the Court of Appeals for the Second Circuit. (PX401; *U.S. v. Apple, Inc.*, 791 F.3d 290, 339 (2d Cir. 2015)); *see also* PX400.)
- c. Following a bench trial, the district found that Apple knowingly violated the antitrust laws.
- d. The court further found that injunctive relief was necessary to “guard against future anticompetitive conduct” by Apple. (PX401, at ‘339.)
- e. A monitor was appointed to ensure that Apple could not continue its anti-competitive conduct regarding eBooks. (Cue Dep. 39:5-39:8.)
- f. Mr. Cue was Apple’s primary trial witness at the eBooks trial.
- g. Mr. Cue was accused of orchestrating the conspiracy and testified at trial on behalf of Apple.

- h. The court “found that [Cue] lacked credibility in [his] testimony” in his defense of Apple’s conduct. (PX400, at nn.19, 38, 47, 52; Cue Dep. 37:19-22; 38:3.)
- i. The court’s findings did not convince Apple to refrain from pursuing anti-competitive conduct.
- j. According to Mr. Cue, Apple “did not” “take any disciplinary action against [him] as a result of [his] participation in the events that led to the adverse finding in the eBooks case”. (Cue Dep. 38:23-39:2.)
- k. Mr. Cue testified that if he “had to do it all over again, [he] would do it again” but only “keep better notes”. (Cue Dep. 41:2-3; 41:5-7; 56:2-4; 56:8; PX402; 402A.)

B. Switching Costs Tend To Lock Users into iOS.

64. The various types of costs for users to change platforms—for instance, from iOS to Android—are called “switching costs”.

- a. Switching costs include the amount of time and effort that it takes for a user to switch between an iOS and Android device—for instance, how much time it takes to ensure that all contacts, music, movies or photographs that were downloaded onto the user’s old device are transferred to the new one; which apps on the new OS replicate the functionality of those apps the user downloaded on the old OS; and accounts the user created can be transferred (Athey; PX79);

- b. Switching costs include the human confusion and frustrations involved in switching between operating systems, including learning how to use the new operating system. (Athey; PX79);
- c. Switching costs include the financial costs associated with the switch—for instance, losing valuable media, paid apps and in-app purchases that cannot be transferred from one device to another and must be downloaded again; and the cost of peripherals, such as charging cables and docks, that only work with one type of device and not another (Athey; PX79);
- d. Switching costs include the loss of utility or increased complexity of certain communication with family and friends—for instance, the loss of “Find my Friends” capabilities, parental control capabilities, FaceTime communications or family sharing on iOS devices; and (Athey; PX79.)
- e. Switching costs include the loss of services associated with a particular operating system (*e.g.*, access to cloud storage.) (Athey ; PX79.)

65. The switching costs of moving from using an iPhone to another mobile device, such as an Android smartphone are substantial. (Athey; PX79.)

66. Among the steps that a user considering switching needs to take are the following:

- a. Determining whether apps she uses to manage important devices and critical relationships exist on the new device with equivalent or

- sufficient functionality (*e.g.*, apps that operate their “smart” home devices such as thermostats and locks) (Athey; PX79);
- b. Determining whether other existing apps are available on the new platform (Athey; PX79);
 - c. Identifying and reinstalling her apps—the average user has over 100 (Athey; PX79);
 - d. Transferring her app-related data onto a new platform and reestablishing any configured settings (*e.g.*, account settings), which may require her user to reestablish her relationship with each app developer on the new platform (Athey; PX79);
 - e. For apps that involve subscriptions, users may need to continue to manage their subscriptions on the old platform if they change devices mid-subscription, or they may need to repurchase a subscription entirely (Athey).

67. Users also incur “mixing-and-matching costs” when they access apps and services on devices that have an operating system that is different from their mobile device. (PX79; Athey.)

68. Mixing-and-matching costs can be “within-user” (*e.g.*, a user wanting to access a note-taking app on both her phone and desktop computer), as well as within members of a group (for example, a parent wanting to set various types of monitoring and restrictions on his or her children’s devices). (Athey.)

69. Due to these switching and mixing-and-matching costs, many users choose devices that work on the same operating system as other devices they use, or that their family and friends use. (Evans.)

70. Once a user has chosen an operating system, she has made investments in the hardware, software and learning for such operating systems. (Evans; PX404.)

a. Users who use iOS devices overwhelmingly stick with iOS devices and do not also use (or switch to) Android devices. (Evans.)

b. [REDACTED]

71. Apple executives have acknowledged the that costs users face in switching between Apple and non-Apple platforms: “[t]he more people use our stores the more likely they are to buy additional Apple products and upgrade to the latest versions. Who’s going to buy a Samsung phone if they have apps, movies, etc already purchased? They now need to spend hundreds more to get to where they are today”. (PX404; Cue Dep. 67:9-19; 68:1-13; 69:1-5; PX79; PX80.) Buying a non-Apple phone could mean “buy[ing] some of these things again if [customers] wanted to have the exact same things there”. (Cue Dep. 70:15-20; 22-25.)

72. In one Apple document, an Apple executive observed: “[w]ho leaves Apple products once they’ve bought apps, music, movies, etc!” (PX404; Cue Dep. 67:9-19; 68:1-13.)

73. Apple executives have long recognized the costs of switching as an advantage for the Apple ecosystem.

- a. For instance, in June 2013, Phil Schiller, Apple’s then-head of marketing and now Apple Fellow, circulated a Goldman Sachs analyst report to others at Apple entitled “Switching from iPhone to Android: how hard can it be?” (PX79.) While no witness asked about the document could recall a conversation about it, the cover email did not indicate any disagreement with the document’s contents. (PX80.) The document set forth switching costs between Apple and Android devices and referred to “the raw time and ‘pain in the neck’ factor” of switching. (PX79; PX80; Cue Dep. 120:20-121:1.)
- b. The report concluded that “the cost of switching platforms [from iPhone to Android] is significant, and indeed, it was not possible to transfer all of [the] content” from the iPhone. (PX79.)

C. Because Users Are Locked into iOS, Mobile App Developers Cannot Forgo Developing Apps for iOS.

74. Consumer lock-in to the iOS ecosystem results in higher costs to developers. (Sweeney; Grant; Athey.)

75. In order to be successful, app developers typically try to reach as many consumers as possible, which generally requires that they develop apps for as many platforms as possible. As a result, they are unlikely to abandon or substitute away from smartphones, as that would cause them to either entirely lose access to users who do not access apps on other platforms. (Evans; Athey.)

76. Developers incur “multi-homing costs”, or costs of writing apps for multiple platforms. (Sweeney; Grant; Athey.)

- a. Developers incur not only the initial cost of writing apps for multiple platforms, but also the costs associated with maintaining, servicing and improving the app on multiple platforms over time. (Sweeney; Grant; Athey.)

77. Smartphones in particular are critical platforms for developers, given that they are the only devices that virtually everyone has access to most of the day and night. (Sweeney.)

78. Today, most mobile app developers write apps for both the Android and iOS platforms. (Sweeney; Grant; ██████████ Okamoto Dep. 305:21-306:3; 306:12-23; 307:21-308:2 ██████████

██████████ Professor Lafontaine, one of Apple’s economic experts, has acknowledged that developers can cover the waterfront of users through offering iOS and Android apps. (LaFontaine 211:24-213:15.)

79. Some mobile app developers choose to develop an Android version of their mobile app before developing the same app for iOS—a concept known in the industry as “Android first”. (PX42; Okamoto Dep. 311:15-312:18.)

- a. Apple has learned that developers do so because it is technologically easier to program an Android app and easier to assess consumers’ reactions to an app concept in the Android environment. (PX42; Okamoto Dep. 311:15-312:18; 312:20-25.)
- b. But after proving and refining their concept on Android, these developers then must turn to developing the app for the more

developer needs to offer its apps on iOS to reach a vast portion of the available consumers for smartphone apps. This dynamic makes developers heavily dependent on Apple—and App’els unilateral discretion to decide which apps will be available on iOS.

D. The Origin of the App Store.

83. When the first iPhone was launched in 2007, the only “native” apps available on the device were those written by Apple. (Cue Dep. 47:15-19.)

84. However, at that time, different executives at Apple had different views on whether Apple should enable “native” third-party app development for the iPhone. One group, including Apple’s then-CEO, Steve Jobs, felt that Apple should never allow third parties to create native apps for the iPhone, and that third parties could use web applications instead. Another group believed in a “hybrid model”, where third-party app developers would rely on a combination of web technologies and native abilities to create iOS apps. A third group, including Scott Forstall, former Senior Vice President of Apple (iOS Software), advocated for enabling third party native app development on iOS, in part because the “voluminous” technological benefits of native apps over web apps would provide a better experience for iPhone users. (Forstall Dep. 77:16-20; 77:24-78:12; 78:16-79:6; 80:6-20; 80:22-84:5; PX870.)

85. After the launch of the iPhone, Apple quickly realized that there was significant third party developer interest in writing native apps for iOS, and that new third-party apps would attract users and keep user interest. (Forstall Dep. 79:10-17; 80:6-20; 85:1-9; PX870.)

- a. Several third-party app developers approached Mr. Forstall and asked whether they could build native apps for the iPhone. (Forstall Dep. 85:1-9; 94:21-24.)
- b. In addition, app developers started “jailbreaking” iPhones—that is, a modification of iOS which allows the download and execution of apps not distributed via the official App Store (Mickens)—so that they could write native applications, which Mr. Forstall interpreted as an indication of demand for such capabilities. (Forstall Dep. 85:19-24; 86:1-5; PX871.)

86. At an August 2007 meeting, Mr. Forstall and Mr. Jobs, along with other top Apple executives, discussed “[o]pening up” the iPhone’s software to third-party app developers like Electronic Arts. (PX872; Forstall Dep. 91:12-13; 91:16-92:14.)

87. By October 2007, Mr. Jobs had changed his mind about enabling third-party native app development on the iPhone and told Mr. Forstall that he wanted such functionality enabled by early 2008. (PX874; PX876; Forstall Dep. 106:3-19.)

88. In the months that followed, Apple executives and software engineers debated the proper distribution method for third-party applications and specifically whether “Apple signed applications” would be posted exclusively to an “online store”, or whether third parties would be permitted to “distribute on their own”. (PX877; Forstall Dep. 125:12-15; 127:3-8; 129:8-130:1; 130:5-131:12; 145:12-146:9.) Apple’s security experts remained out of this debate, noting that the question of exclusive distribution is one of “policy”, as opposed to security. (Forstall Dep. 130:5-131:12.)

89. On March 6, 2008, Apple held an event before a group of developers and enterprise consumers to announce the opening of iOS to third-party apps, the release of developer tools for app development, and the launch of the App Store. (PX880; Forstall Dep. 161:20-162:16.)

a. At the event, Mr. Jobs announced that “the App Store is going to be the exclusive way to distribute iPhone applications directly to every iPhone user”. (PX880; Forstall Dep. 161:20-162:16.) He then described the App Store’s “business deal” for developers: “When we sell the app through the App Store, the developer gets 70% of the revenues right off the top. We keep 30[%] **to pay for running the App Store.** . . . So when a developer wants to distribute their app for free, **there is no charge for free apps at all.** . . . The developer and us have the same exact interest which is to get as many apps out in front of as many iPhone users as possible.” (PX880; Forstall Dep. 163:14-164:25.)

b. During the event’s Q&A session, Mr. Jobs was asked: “[Doesn’t] the fact that Apple is going to be the exclusive distributor for all these applications raise some questions about monopolies and so forth? What if a developer doesn’t want to distribute through the App Store?” Mr. Jobs responded: “Then they won’t be able to distribute their app on the iPhone but we don’t think that’s going to be the case with almost every developer. Remember, the developer wants to get their app out in front of every iPhone user and there is

no way for even large developers to do that, much less small developers. So we think this is going to be a boon for developers and they are going to love it”. (PX880; Forstall Dep. 171:5-16.)

- c. After confirming that “there wouldn’t be a way for [developers] to distribute [apps] without iTunes or [the] App Store”, Mr. Jobs continued: “And also, just to make it a little clearer, **we don’t intend to make money off the App Store [W]e are basically giving all the money to the developers here** and if that 30% of it pays for running the store, well that will be great, but we just want to create a very efficient channel for these developers to reach every single iPhone user”. (PX880; Forstall Dep. 173:5-174:10.)

90. The App Store was devised as a storefront that could incentivize developers to create innovative and useful apps for the iOS platform in order to attract users. (PX870; Forstall Dep. 79:10-17; 80:6-20; 85:1-9.)

91. The App Store was intended to be a way to promote the iPhone and sell more devices.

- a. Apple recognized that an important way to attract users to iOS was providing a variety of apps, including a robust set of apps developed by third-party developers. (Cue Dep. 45:10-14.)
- b. An Apple executive testified that Apple has always had “an interest in having a set of apps that would make the iPhone appealing to iPhone users”. (Cue Dep. 43:19-44:2.)

92. App development requires tools. (Grant; Okamoto Dep. 363:16-18; Haun Dep. 174:13-175:12.)

93. Apple had already developed a set of tools—prior to the launch of the App Store—for native iOS app development for the first iPhone in 2007. (Cue Dep. 49:1-8.) These tools were based in part on the Integrated Development Environment (which was marketed by Apple as Xcode) available for macOS, which Apple had developed since 2003. (Forstall Dep. 37:23-38:5.)

94. At the iPhone’s launch, third parties had neither the software tools nor the access necessary to write native apps for iOS and have them distributed on the iPhone. In connection with the App Store launch, Apple announced the release of the iOS “software development kit”, or “SDK”, as well as information regarding a series of “application programming interfaces” (“APIs”). (PX880; Forstall Dep. 161:20-162:16.)

- a. Developers can use the iOS SDK to create iOS apps. (Grant; Okamoto Dep. 363:16-18.)
- b. SDKs generally include information concerning APIs that developers use to create apps for a particular operating system. APIs are sets of definitions and protocols for building and integrating application software, and allow third-party developers to program their apps to connect to operating system-provided functionality. (Grant; Haun Dep. 174:13-175:12.)
- c. APIs made available to third-party developers are referred to as “public APIs”. (Grant; Haun Dep. 177:11-17.)

- d. A platform developer also often has “private APIs”, which are APIs not made publicly available. (Grant; Haun Dep. 177:11-17.)

95. Generally, every OS is different and its tools for development are created for its particular characteristics. An app written with Android SDKs does not run on the iOS platform and vice versa. (Cue Dep. 61:25-62:1; 62:3-62:5; 63:5-63:6; 63:8-9; Fischer Dep. 37:24-38:5; Grant.)

96. Apps can be written for all OS platforms if a developer has access to these platforms and has the skill, time and money to invest in writing apps for that OS. Most often, the company controlling the operating system makes the tools needed to write apps for that operating system available for free or at a nominal price, so as to attract third-party developers. (Grant; Sweeney; Evans.) Free or nominally priced tools incentivize app development. (Grant; Sweeney; Evans.)

97. Apple distributes its developer tools for free, but charges an annual fee for membership in its Developer Program.

- a. For example, Apple makes the SDK developers need to program apps for the macOS used by Mac personal computers available for free. (PX500, at ‘4; PX2622.)
- b. Apple also makes the tools necessary for iOS development available to developers for free through its Xcode Software Development Environment. Any interested developer with an Apple ID can download Xcode and begin programming iOS apps. (PX500, at ‘4; PX2622.)

- c. However, if developers wish to distribute their iOS apps to users, then they must join the Apple Developer Program. (PX500, at ‘4.) This requires developers to sign the Developer Program License Agreement and pay an annual \$99 fee to Apple. (PX500, at ‘4.)²
- d. Apple also charges developers for technical assistance in programming their iOS apps. Though the annual \$99 fee covers a consult with Apple’s Technical Services team on “two specific technical areas [for which developers] would like assistance, guidance or otherwise”, technical assistance beyond the two covered incidents costs an additional \$99 “per incident”. (Haun Dep. 29:18-30:3; 32:6-7.)

E. Apple Recognizes that Having More Developers on Its Platform Enables It to Sell More iPhones.

98. As more developers write apps for an OS platform, more users are attracted to that OS platform. (Forstall Dep. 40:24-41:4; 41:6-9; 41:11-13; 41:15-18; Sweeney; Evans.) As more users adopt an OS platform, so too do more developers, resulting in a positive feedback loop. (Evans.) This positive feedback loop is the result of indirect network effects. Indirect network effects occur when participants on one side of the platform value having more participants on the other side with whom they can have a mutually beneficial interaction. (Evans.)

² Developers may also distribute through the Developer Enterprise Program, for which they would pay Apple a \$299 annual fee to distribute apps within their organization. (See Section II.F below.)

99. Apple recognizes that “offer[ing] [well-known developers] on the iOS platform” “would attract users to the iOS platform”, and thus “sell more iOS devices”.

(Okamoto Dep. 324:7-325:1; 325:3-6; 325:8-9.)

100. Apple’s promotion of its hardware focuses on using developers’ creativity and innovation to showcase capabilities of these devices. As Apple’s Senior Director of Partnership Management and Worldwide Developer Relations testified, part of the appeal of Apple devices is that the “catalog of apps” is “impressive”. (Pruden Dep. 330:11-16; 330:22-331:1.)

101. In connection with promoting the iPad Pro in 2018, for example, Apple highlighted the availability of “over 1 million apps specifically designed to transform your iPad into anything you need with just a tap”. (Pruden Dep. 330:17-21.)

102. Similarly, when the iPhone 12 was launched in 2020, Apple held an event “to announce [the phone] to the world” (Pruden Dep. 286:10-11; 286:13-15) and invited about “a dozen” developers—including [REDACTED] (Pruden Dep. 284:18-21; 285:6-21)—“to show off new features for the phone”. (Pruden Dep, 284:18-21; 285:1-5.)

103. Apple wants developers of “popular games”, such as Epic Games, on iOS so that the platform is more “attractive for [its] users”. (PX854; Okamoto Dep. 324:14-24; Grimm 31:23-32:14.).

104. With regard to Epic, Apple recognized that Epic brought value to the platform by being “a very well-known developer that had some very strong titles on it” and that Epic’s apps could showcase “what a great gaming device the iPhone with iOS was.” (Okamoto Dep. 324:4-13.)

105. Apple even considered seeking Epic’s agreement to create exclusive games for iOS. (Okamoto Dep. 324:4-13.)

106. Apple has repeatedly sought exclusive content from Epic for iOS.

- a. Apple has requested exclusive *Fortnite* items to promote its App Store gift cards. (DX3008.)
- b. Apple has also requested other “iOS exclusive” game features, such as skins (*i.e.*, in-game costumes and other cosmetics). (PX2906.)

107. Epic has introduced several innovative technologies to iOS through the *Unreal Engine*. (Grant.)

- a. An Apple executive has acknowledged that Epic has introduced “sever[al] breakthrough technologies” for Apple. (PX42; Okamoto Dep. 326:16-327:10; 425:16-18.)

F. iOS App Store Profitability.

108. Even before Apple charges anything for distribution of apps through the App Store, Apple already has earned significant amounts that compensate it for its investments in its iOS products and ecosystem.

- a. Through sales of the iPhone and iPad (PX606.);
- b. Through sales of wearables and other accessories; (PX2391, at ‘5145.);
- c. Through fees paid to join the App Developer Program;
 - i. Apple charges developers \$99 annually to join and remain in the Apple Developer Program, which consists of “a set of services and information designed to assist third-party

developers in creating application software and physical hardware that works with various Apple products”. (Haun Dep. 28:12-29:1.)

- d. Through fees paid to join the Apple Developer Enterprise Program;
 - i. In addition to the Developer Program, Apple maintains a Developer Enterprise Program, which charges a \$299 annual fee and allows businesses, organizations and institutions to create and distribute “in-house, internal use applications for employees” on iOS. (PX2620.)

109. As discussed above, when Apple launched the App Store in March 2008, Mr. Jobs assured developers that the store’s 30% commission charged to developers for paid apps was designed only to cover its costs. He also stated that “when a developer wants to distribute their app for free, there is no charge for free apps at all”. (PX880; Forstall 164:4-11.)

110. Apple executives were aware prior to the launch of the App Store that there was a potential “leak” in the App Store model: C.K. Haun emailed Ron Okamoto in January 2008 noting that many games “have a healthy after-market in additional game levels, enhanced graphics for in-game activities, and other data up to and including completely new games that can be created from an installed base game engine” and that developers were likely to want to employ this model of monetization for their iPhone apps. (PX897.) In response to Haun’s warning that “the new level/enhanced graphics business for fee (outside of [the iTunes Music Store]) [is] possible easily”, Apple executive Greg Joswiak replied: “If this is accurate, it sounds like we’ll have to make sure our terms don’t allow this.” (PX897.)

111. Initially, App Store revenues were based on a commission structure in which app developers paid a percentage of their revenues (30%) for sales of apps. (PX99; Shoemaker Dep. 63:22-64:13.)

112. During the time between the launch of the App Store in 2008 and the introduction of IAP in 2009, in-app payment processing and app distribution were entirely separate and iOS developers were monetizing their apps with in-app payment solutions that were self-provided. (Forstall Dep. 230:5-11; 230:16-18; 230:20-231:2.)

113. When Apple introduced IAP, it also began requiring developers to use IAP for when they sold digital goods in their apps, at a 30% commission. (PX500.)

114. The App Store became profitable in 2009 and has been profitable ever since. (See PX406 (July 2009 email where Mr. Cue states, “(w)e are definitely making money”); Cue Dep. 89:13-90:7; 90:9-22; 90:24-91:13.)

- a. Mr. Cue testified that the App Store has “been financially successful (for Apple) since it was first introduced”. (Cue Dep. 79:4-6; 79:8-11.)
- b. Apple makes [REDACTED] on the App Store every year. (See Sections II.F, IV.C below.)
- c. At its current size, the [REDACTED] [REDACTED] (PX2171, at ‘2383.)
- d. Mr. Forstall, former Senior Vice President of Apple (iOS Software), testified the App Store “has obviously done, far, far better than” covering costs. (Forstall Dep. 175:11-25.)

- e. The App Store's operating margin is uniquely and persistently high, far in excess of virtually any other online marketplaces or retail distributors. (*See* Sections II.F, IV.C below.)

115. The 30% commission structure was never based on any analysis of Apple costs to run the store or provide services to app developers. (Cue Dep. 137:13-138:3; 138:9-14.)

116. At no time since the 30% commission structure was chosen have costs of the App Store or services provided to app developers been a consideration in its structure. (Cue Dep. 140:10-15; 140:17-21; 140:24-141:3; 141:5-10.)

117. "[D]evelopers have indicated their view that a 30 percent commission is too high" (Fischer Dep. 88:14-19) and have "complain[ed] about all of [Apple's] commission structures". (Cue Dep. 149:9-14.)

118. Some developers have said they would not launch a native iOS app because of the 30 percent commission structure". (Cue Dep. 150:5-12.)

119. Many businesses, including small businesses, cannot afford to absorb Apple's commission rates—whether 30% or 15%—and cannot afford to pass the costs on to consumers without losing users. (Evans.)

120. Apple often claims that it has never raised its prices to developers. (PX500, at '7 ("Since the launch of the App Store in 2008, Apple has never increased [its] commission rate".).) This is incorrect for at least the following reasons.

121. As noted above, when Apple introduced IAP in 2009, it began requiring developers to use IAP when they sold digital goods in their apps, at a 30% commission. (PX500, at '11-12.; Schiller.)

[REDACTED]

122. Apple followed through on Mr. Job’s idea. In 2011, Apple imposed a new requirement that developers who sold in-app subscriptions would always have to use IAP and pay a 30% commission, whereas before 2011 developers could instead send users outside of the app to purchase subscriptions at no cost. (PX48; Cue Dep. 85:19-85:22; Okamoto Dep.

366:10-367:10; PX99 (Apple added IAP in 2009, and “it has aided their bottom line significantly”); Shoemaker Dep. 63:22-64:13.)

- a. As Apple’s lead economist conceded, this constituted a price increase. (Schmalensee 223:3-12, 223:14-16.)

123. In 2016, Apple began asking developers to pay for the privilege of appearing first in Search results when iOS users search for apps within the App Store. (Cue Dep. 87:23-88:12; 94:9-13.)

- a. One of the ways that consumers find iOS apps they want to use among the millions of apps in the App Store is by searching app names or keywords in the Search bar in the App Store (similar to how users search for webpages using a search engine like Google). (Cue Dep. 87:23-88:12.)
- b. In 2016, Apple launched “Search Ads” in the App Store. (Cue Dep. 87:23-88:12; 94:9-13.)
- c. Through Search Ads, Apple auctions the first placement in App Store Search results to app developers. (Schiller; Friedman Dep. 132:25-133:13; Cue 93:19-21; 93:23-94:7.) For example, a user who searches the name of one app may not see that specific app as the first result in the list returned by Search, but instead may see a competing app whose developer has won the bid in the auction conducted by Apple. (Schiller; Cue Dep. 93:23-94:7; Friedman Dep. 133:2-133:13.)

- d. Some Apple executives conceived and proposed Search Ads as a way of profiting from certain app developers' willingness to pay "bot nets" to illicitly inflate their organic placement in Search, a form of "chart gaming" that Apple had been unable to prevent: [REDACTED]

[REDACTED]

[REDACTED]

(Friedman Dep. 137:21-138:10; 138:18-24; PX254.)

- e. Revenue from search ads in the App Store now exceeds [REDACTED] [REDACTED] per week and [REDACTED] dollars a year. (Cue Dep. 89:1-5; 94:19-22; 109:21-110:17; 116:24-117:6; 117:13-118:1; PX411; PX413; PX414.)

124. The total App Store "billings"—*i.e.*, the amount that customers spent on digital goods and services in apps from the App Store—was approximately \$ [REDACTED] in 2020. (Fischer Dep. 298:15-16, 298:20-25.)

III. THERE IS AN AFTERMARKET FOR iOS APP DISTRIBUTION.

125. As set forth in the following paragraphs, there is a relevant antitrust aftermarket for app distribution on iOS (the “iOS App Distribution Market”). (Evans.) Sections III.A-E discuss the existence of a foremarket for mobile operating systems; Section III.F discusses Apple’s market power in the foremarket; and Sections III.G-L discuss specifically the existence of the aftermarket.

A. There Is a Foremarket for Smartphone Operating Systems.

126. There is a relevant two-sided foremarket for smartphone operating systems. (Evans.)

127. All computing devices, including smartphones, are powered by an operating system. (Sweeney; Grant.)

128. Before a consumer can even consider purchasing an app, she must purchase a device on which to install and run apps. And when a consumer wishes to purchase a smartphone, the first choice she must make is which operating system she wants the device to run. As discussed below, there are currently only two smartphone operating systems with significant market share, each at the core of a separate, differentiated ecosystem of devices, accessories, apps and services: Apple’s iOS and Google’s Android OS. (*See* Sections III.E-F below.)

129. A “foremarket” is a market where there is competition for a long-lasting product and from which demand for a second product is derived. (Evans.) In this case, the consumer’s choice of a smartphone operating system determines her demand for apps; apps that are created for iOS cannot be used on Android devices and apps created for Android cannot be used on iOS devices. (*See* Section III.J below.)

130. There is a foremarket for mobile operating systems, and it is separate from the aftermarket for app distribution. (Evans.)

- a. The market for mobile operating systems is a foremarket because the smartphones running operating systems are long-lasting, and their operating systems facilitate the sale of OS-specific apps by developers to consumers. (Evans.)
- b. The market for app distribution is an aftermarket because it “derives” from the operating system market. The existence of the foremarket provides an installed base of smartphone users with a particular operating system for whom developers can create apps. Without an operating system used by consumers, developers could not distribute apps, and consumers could not purchase apps. (Evans.)

131. To define the foremarket, Dr. David Evans, Epic’s expert in antitrust economics, performed a standard test to determine product market boundaries: whether a hypothetical monopolist of mobile OSs could profitably impose a small but significant and nontransitory price increase (SSNIP) above a competitive level, or whether such a SSNIP would instead result in sufficient switching to an alternative product to make the price increase unprofitable. (Evans.) This test for market definition, known as the “hypothetical monopolist test”, or “SSNIP” test, is prescribed by both US antitrust agencies, the Antitrust Division of the Department of Justice and the Federal Trade Commission. The agencies typically assume a SSNIP to be in the 5%-10% range. (PX2860, at ‘10.)

132. To perform this analysis, Dr. Evans assumed that the average smartphone operating system costs \$30, which is the high end of the reported price range for Microsoft's Windows Phone OS. Dr. Evans applied a 10% SSNIP, or an increase of \$3, and added it to the average price of a smartphone globally, excluding China, which is \$338. Dr. Evans demonstrated that it is implausible that a material number of consumers would switch to other devices in the face of a \$3 price increase, or a change from \$338 to \$341. As a conservative check on his analysis, Dr. Evans also considered what the results of a 10% SSNIP would be using a smartphone operating system price of \$50, which is the price for the Windows personal computer operating system, leading to a \$5 increase in price. He showed it to be implausible that such an increase would lead to sufficient switching to make the price increase unprofitable. (Evans.)

133. Dr. Evans similarly calculated the effect of an increase in the cost of a smartphone OS to developers that use the platform. Using Apple's \$99 annual Apple Developer Program fee, Dr. Evans demonstrated that a SSNIP of 10%, or a \$9.90 increase, would not result in a significant number of developers leaving the iOS platform. (Evans.)

134. Finally, Dr. Evans applied a SSNIP test concurrently to both sides of the iOS platform—consumers and developers—and reached the same conclusion. Using conservative estimates of the number of app developers and their annual fees to Apple, as well as the number of smartphones in use worldwide excluding China, he estimated that the average developer price per smartphone, per year, is \$0.10. He also estimated that the average cost to consumers of using a smartphone OS is \$15 per year, which is half of the \$30 cost for a smartphone OS that a consumer spends every two years. Combining these costs to \$15.10 and applying a 10% SSNIP, Dr. Evans found that if developers and consumers faced a price

increase of \$1.51, neither group would leave the iOS platform in significant numbers. (Evans.)³

B. The Geographic Market for Smartphone OSs Is Global Excluding China.

135. Smartphones are sold globally, and leading smartphone companies introduce their latest flagship models close to simultaneously around the world. (Evans.)

136. The market for smartphone OSs excludes China, where government policies limit domestic competition. (Evans.)

- a. Due to government regulations, Android original equipment manufacturers distribute different versions of their devices, with different sets of pre-installed apps, inside and outside of China. Different versions of the Android operating system, known as “forks”, proliferate inside China. (Evans.)
- b. Government regulations, as well as other factors unique to China, also have resulted in the broader digital economy in China being dominated by domestic firms. Most consumers outside China would not consider buying a Chinese smartphone, along with its operating system, because they would not be able to use many relevant apps. (Evans.)
- c. Likewise, most developers would not be able to substitute to Chinese smartphones, and their operating systems, for writing apps

³ The same results hold using the more conservative \$50 price for smartphone operating systems, leading to a SSNIP of \$2.51, which likewise would not cause either developers or consumers to leave the iOS platform in significant numbers. (Evans.)

because they would not be able to reach most consumers outside of China. (Evans.)

C. Consumers Do Not View Other Electronic Devices as Substitutes for Smartphones.

137. There are a number of different types of devices that use apps to make certain functionality available to consumers. (Sweeney; Grant; Kreiner.)

- a. These devices come in a variety of shapes and sizes, and have a variety of qualities and characteristics.
- b. For many uses, they are not substitutable.

138. Among the devices that have been discussed in this matter are:

- a. Smartphones;
- b. Tablets;
- c. Personal Computers (“PCs”) (both Windows and Macs); and
- d. Gaming consoles such as the Microsoft Xbox, Nintendo Switch, and Sony PlayStation.

139. Smartphones are multi-purpose computing devices. Consumers use smartphones because these devices provide features that consumers want, including being small and portable, having access to the Internet anytime, anywhere, and providing GPS location services. (Sweeney; Evans.) Consumers value smartphones because when they are “away from home”, it may be the “only” device they have with them. (Haun Dep. 170:23-171:9; Sweeney.) And even if consumers do sometimes carry another device—such as a laptop—when away from home, smartphones are constantly connected to the Internet, are handheld and use touch controls that make them far more convenient to use when away from home, both for playing games and for other purposes. (Haun Dep. 171:25-172:8; Evans.)

- a. Developers that do not make smartphone apps will likely be unable to reach consumers who are on the go or who do not have other devices. (Evans.)

140. Feature phones are not substitutable for smartphones.

- a. Although they allow users to make phone calls and sometimes provide basic functionality (*e.g.*, send text messages, take pictures), they lack many other qualities of smartphones, including a touchscreen display, a connection to the Internet and the full suite of functionality that requires Internet access.

141. PCs are not substitutable for smartphones.

- a. PCs are not mobile. While individuals can carry laptops around, they are materially bulkier and heavier than smartphones.
- b. PCs require using a keyboard and often a mouse. Mobile devices do not. (*See* Haun Dep. 171:25-172:8; Sweeney; Grant; Kreiner.)
- c. To access the Internet for email, search and for other basic applications, PCs typically require access to a wired or WiFi connection. Smartphones can access these applications through cellular networks. (Evans; Sweeney; Grant; Kreiner.)
- d. Unlike with smartphones, consumers cannot perform functions on PCs while they are “on the go”—for example, taking photographs or ordering a car to pick them up at a specific location. (Evans; Sweeney; Grant; Kreiner.)

142. Game consoles, including the Sony PlayStation, Microsoft Xbox and Nintendo Switch, are not substitutable for smartphones. (Evans.)

- a. Gaming consoles are “single purpose” devices—they are intended and used almost exclusively for gaming. (Sweeney; Grant; Kreiner.) For example, a gaming console cannot be used to perform personal banking or order dinner. (Sweeney; Grant; Kreiner; Evans.)
- b. These single-purpose devices do not offer the same general computing features as smartphones, such as the ability to make calls or take photographs. (Sweeney; Grant; Kreiner; Evans.)
- c. There are significant hardware differences between smartphones and game consoles like the PlayStation 4, the Xbox One and the Nintendo Switch. (Cragg; Sweeney; Grant; Kreiner.)
- d. Dr. Hitt, one of Apple’s experts, took the position that *Fortnite* user data demonstrates substitution between iOS and Nintendo Switch. But Dr. Evans and Dr. Cragg demonstrated that Dr. Hitt’s analysis was flawed, and in fact revealed that the two platforms are complimentary—*i.e.*, that some users play *Fortnite* on both platforms, rather than one to the exclusion of the other. (Evans; Cragg.)

143. The lack of substitutability between mobile and other devices is evidenced in data about *Fortnite* player usage on different devices. *Fortnite* data show that 64.1% of *Fortnite* iOS users—over 70 million people—have accessed *Fortnite* exclusively on iOS devices. (Lafontaine.) From March 2018 through July 2020, these iOS-only users spent roughly \$500 million on *Fortnite*, which represents about two thirds of Epic’s iOS revenue. (Hitt.)

D. Developers Do Not View Other Electronic Devices as Substitutes for Smartphones.

144. App developers are incentivized to make apps for platforms that consumers use.

- a. If app developers ignore a platform that can support adequate functionality for an app, the developer loses out on that economic opportunity. (Evans.)

145. In light of the differences between smartphones and other electronic devices, app developers do not view them as substitute platforms for distributing their apps. (Evans; Sweeney.)

146. Developers view smartphones as different from other electronic devices because smartphones are ubiquitous among consumers and because the user experience on a smartphone is different from the user experience on other electronic devices. (Evans.)

147. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

a. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

148. The vast majority of users of mobile devices for game applications spend the bulk of their time playing on mobile devices. (PX2910.)

149. Epic's *Fortnite* was removed from Apple's App Store and the Google Play Store on August 13, 2020. A later study of iOS and Android *Fortnite* players showed that only 12.2 percent shifted to game consoles or PCs. (Evans.)

E. Apple and Google Are the Only Significant Participants in the Foremarket for Mobile OSs.

150. There are two participants with a significant share of the Smartphone Operating System Market: Apple and Google. Collectively, Apple and Google have generated more than 90% of the revenue in the Smartphone Operating System Market since 2013, and more than 99% of the revenue in the market since 2016. (Evans.) As of 2019, Apple's iOS holds a 40% revenue share, and Google's Android OS holds a 60% share. (Evans.)

151. There have been no successful entrants into the Smartphone Operating System Market since 2008, when Android OS entered the market. (Evans.) Major software developers have tried and failed to enter the Smartphone Operating System Market since 2008. For example, Microsoft attempted to enter the market in 2010 by launching the Windows Phone OS, only to discontinue the platform in 2015 after failing to gain significant market share. (Evans; PX2722; PX868.)

F. Apple Has Market Power in the Smartphone Operating System Foremarket.

152. Apple has market power in the Smartphone Operating System foremarket.

(Evans.)

153. Apple's market power is demonstrated by its market share. As noted, iOS has a 40% share of the Smartphone Operating System Market by revenue as of 2019. (Evans.)

Apple also has a 56% share of revenue for smartphones priced \$300 or more as of 2019.

(Evans.)

154. Several structural features of the Smartphone Operating System Market confirm Apple's market power:

- a. Apple's sole competitor in the relevant market is Google's Android;
- b. No new entrant has taken a significant share of revenue in the market since 2008;
- c. A new entrant would face significant barriers to entry, such as the cost of developing a smartphone OS, the challenge of convincing phone manufacturers to adopt the OS, the challenge of persuading developers to create software for the platform, and the challenge of persuading consumers locked into iOS or Android to switch to a new smartphone OS;
- d. There have been no successful new entrants since 2008, and even well-funded entrants like Microsoft have tried and failed;
- e. Apple's substantial market share has persisted for over a decade.

(Evans.)

155. Google does not constrain Apple's market power. iOS and Android are differentiated products, each of which makes use of OS-specific features that lock consumers into their ecosystems and create serious hurdles for switching between platforms. (*See* Section II.B above; Evans.)

156. Similarly, as explained above, developers do not face incentives to switch between iOS and Android and find it much more profitable to multi-home across both platforms and reach their separate groups of single-homing consumers. (*See* Section II.C above; Evans) As Apple's lead economist testified of iOS and Android, most consumers use either one or the other and do not regularly use both; therefore, they single home. (Schmalensee; Evans.) iOS users account for about half of all smartphone app usage, and developers cannot reach these consumers on their smartphone if they do not develop for iOS. (Evans.) Moreover, developers view iOS as their monetization platform of choice, as users have a higher propensity to spend on the iOS version of an app compared to its Android equivalent. (Schmalensee; *see also* Okamoto Dep. 320:4-10; 14-22; Sweeney.)

157. [REDACTED]

[REDACTED]

158. Apple's market power is further shown by the fact that developers have not left iOS even as Apple has required them to comply with unfavorable terms and conditions, including Apple's 30% fee for IAP. (Evans.)

G. There Is an Aftermarket for iOS App Distribution.

159. There is a relevant two-sided antitrust aftermarket for the distribution of apps on the iOS platform.

160. To demonstrate the existence of the iOS App Distribution Market, Dr. Evans performed a SSNIP test. He began by assuming that the App Store's "effective" commission rate is [REDACTED], which he calculated based on transaction data produced by Apple. (Evans; PX2306.) Assuming developers pass on 50% of their costs to consumers, Dr. Evans analyzed how the App Store's profits would be affected if consumers faced a 5% increase in prices, which would amount to a 30% increase in the App Store's commission [REDACTED] (Evans.) Dr. Evans found that if Apple raised its App Store commission to [REDACTED], it could have increased its profits [REDACTED]. (Evans.)

161. Dr. Evans similarly calculated the effect of an increase in the cost of app distribution to iOS developers. Dr. Evans began by calculating Apple's "effective" commission by dividing the App Store's annual revenues by its annual billings, in U.S. dollars [REDACTED]. (Evans.) Dr. Evans then conservatively determined that if Apple raised its effective commission by 10%, consumers would bear 50% of the price increase. (Evans.) [REDACTED]

[REDACTED] Using Epic and *Fortnite* as an example, Dr. Evans calculated Epic's overall average EBITDA margin for 2018 and 2019 to be 22.5%. (Evans.) He then demonstrated that it would not be profitable for Epic to leave iOS unless it could recoup at least 87.7% of its *Fortnite* iOS revenue from other platforms. (Evans.) As Dr. Evans demonstrated, when Epic left the iOS platform, it recouped no more than half of its iOS revenues, on the high end,

which means that Epic would find it more profitable to pay a 10% increase in price than to leave iOS. (Evans.) Dr. Evans also found that Epic was a conservative case, because, unlike many iOS apps, *Fortnite* is already available on other platforms where it can recapture some of its revenue. (Evans.)

162. Having applied the SSNIP test to both sides of the iOS App Distribution Market—consumers and developers—and showing that neither would leave the platform if their cost of using the platform increased by 10%, Dr. Evans demonstrated that a hypothetical monopolist in the iOS App Distribution Market could profitably increase its prices by a small but significant and nontransitory amount. (Evans.)

163. Dr. Evans's finding is confirmed by a consumer survey conducted by Professor Rossi. Professor Rossi surveyed 2,595 iOS users who had spent money on in-app purchases or subscriptions in the past 30 days. (Rossi.) Of these iOS users, 81% stated that they would have made the same in-app purchases if the cost of the digital content had been 5% higher, or 34.7%. (Rossi.) The remaining 19% of iOS users would have decreased their spending by 27%. (Rossi.) Only 1.3% of survey participants reported that they would have switched from iOS to a different device if the fees for in-app digital content increased by 5%. (Rossi.)

164. Dr. Evans used Professor Rossi's survey data to show that 74% of consumers would not have changed their spending behavior at all if their transaction costs increased by 5%, while just 0.8% of consumers would have switched to a non-iOS device.⁴

⁴ Dr. Evans and Mr. Rossi report slightly different numbers because Dr. Evans based his analyses on only the survey respondents who (1) completed the survey and had positive at-issue spending, and (2) provided valid answers to the survey questions relevant to his analysis.

(Evans.) Because consumers are not particularly responsive to increases in prices for iOS app distribution, they have inelastic demand. (Evans.)

165. Professor Rossi's survey confirms Dr. Evans's finding that consumers have inelastic demand for iOS app distribution and would not switch to Android phones or limit their in-app purchases even in response to a small but significant and nontransitory price increase. (Evans.)

166. None of Apple's four experts who testified on market definition in this case conducted a SSNIP test to disprove Epic's market definition or to prove an alternative market definition. (Lafontaine; Hitt; Hanssens; Schmalensee.) Their proposed "digital game transactions" market does not focus on the conduct at issue in this case, but on the identity on the plaintiff, Epic. (Schmalensee) The challenged conduct in this case is not specific to Epic or game apps; it focuses on Apple's conduct that applies to all iOS app developers and potential iOS app distributors. (Evans; Cragg.)

- a. If Apple's market definition were correct, two lawsuits challenging the same conduct by the same defendant could result in different product markets and different findings about the defendant's liability. (Evans; Cragg.)
- b. Dr. Hitt, for example, agreed that if the same allegations were made by match.com, the market definition would be different. (Hitt.)
- c. Dr. Schmalensee conceded that if this same lawsuit were brought by a large group of app developers that make different types of apps,

(Evans.) For respondents who would have switched devices, Dr. Evans reports the spending-weighted shares of respondents. (Evans.)

one might want to consider the possibility of multiple relevant markets, and testified that one might have no alternative but to consider all apps. (Schmalensee.)

- d. Dr. Schmalensee also testified that if the Department of Justice brought a lawsuit challenging the same conduct as Epic, it would be of interest to see whether it made sense to consider relevant markets within the broad app market. (Schmalensee.)

e. [REDACTED]

- f. Dr. Schmalensee testified that if Epic offered a portfolio of game and non-game apps, you might need to consider separate markets, which might lead to different ultimate outcomes for the different markets. (Schmalensee.)

H. The Geographic Market for iOS App Distribution Is Global Excluding China.

167. The geographic market for the distribution of iOS apps is global excluding China. (Evans.)

168. Apple markets the App Store to developers as “a great opportunity for developers to deliver apps and services across iPhone, iPad, Mac, Apple TV, and Apple Watch in 175 regions”. (Apple, “Making the Most of the App Store”, <https://developer.apple.com/app-store/>.)

- a. Accordingly, the same iOS apps appear in storefronts all over the world. (Kosmyнка Dep. 26:20-25.)
- b. Apple's developer rules and guidelines apply globally. (Kosmyнка Dep. 28:13- 28:17; Schiller.)
- c. The DPLA applies globally. A developer signs only one DPLA to distribute apps across the world. (Grant.)

169. The App Store has country-specific storefronts, which restrict where consumers can purchase apps and often what they can purchase. (LaFontaine.)

- a. These restrictions arise from Apple's policies. Absent those policies, customers would be free to shift their purchasing activity to alternatives if faced with a price increase in their own country, like stores outside their country or direct distribution. These are conditions of a global market. (Cragg.)

170. While Apple makes the App Store available in China, the rules imposed by the Chinese government on Internet activity generally, and app distribution specifically, result in materially different market dynamics in China than those prevailing in the rest of the world. (Evans.)

I. The iOS App Distribution Market Is a Properly Defined Aftermarket.

171. Apple's conduct in the aftermarket is not constrained by competition in the foremarket for mobile OSs.

172. As explained above, once a consumer has chosen a smartphone with a particular OS, he or she is substantially locked in to that OS. For example, there are switching costs that a user would have to incur to switch to a smartphone with a different OS.

173. In addition, competition in the foremarket does not constrain Apple in the aftermarket because of the lack of information that consumers have concerning the features and costs of the aftermarket when they make their choices in the foremarket. That is, consumers commit to a product in the foremarket without a full understanding of the costs and limitations of the aftermarket. (Evans.)

- a. At the time a consumer purchases a mobile phone, they are unaware of how much they will spend on app purchases over the life cycle of the device. Apple does not internally estimate—nor does it provide its consumers with information regarding—the amount of money a consumer spends on apps over the lifecycle of an iPhone. (Fischer Dep. 133:2-5; 133:8-11; 136:9-12; 136:14-17; Cue Dep. 188:2-9; 188:11-19; 188:21-22; 188:25-189:3; 189:5; 189:18-22.)
- b. The price of app distribution is a small fraction of the price of the mobile phone itself, meaning that even if consumers had better information it would not likely be a major factor in their thinking about which mobile phone (and which mobile operating system) to obtain. (Evans.)

174. Apple executives are unaware of any consumer that switched away from an iPhone because of an increased cost of an app or an increased cost of an in-app item.

- a. Mr. Cue is not “aware of anyone who has switched from an iPhone to an Android because they perceived there to be some difference in the pricing of apps across the two platforms”. (Cue Dep. 248:13-20.)

b. To Mr. Cue’s knowledge, this is not even something that Apple has studied. (*Id.*)

c. [REDACTED]

175. Apple prevents consumers from having insight into the commission structure app developers pay that keep app and in-app purchase prices high. (Shoemaker Dep. 144:10-23.)

- a. Apple has a policy and has enforced that policy against disclosing its 30 percent commission rate to consumers in the App Store and “did not like to see [it] in [a developer’s] marketing text” for the app. (Shoemaker Dep. 144:10-15.)
- b. This prevents consumers from accessing the very information they would need in order to assess lifecycle costs of apps. (Fischer Dep. 132:20-24; 134:6-13; 134:15-21.)

176. In its study of the “foreign exchange equalization process”, Apple has found that demand for apps is “highly inelastic” even in the face of changes in price—specifically because consumers generally lack actionable information concerning the relative costs of apps and digital content even at the time that they are purchasing that content. (PX544; Gray Dep. 308:13-20.)

- a. Apple requires developers to choose a single “price tier” for each app and in-app digital content; each tier includes both a U.S. price

(such as \$.99, \$1.99 or \$2.99) and prices in foreign currency that are intended to be equivalent to the U.S. price. (Gray Dep. 206:13-24; 208:6-14; PX2202.)

b. Because of fluctuations in relative currency values, Apple occasionally re-calibrates the non-U.S. prices in each tier to more closely equate to the corresponding U.S. price, which results in decreases or increases in the prices charged in non-U.S. currencies. (Gray Dep. 206:13-24.)

c. Apple studied the effect of these price changes in various regions and found that they are “highly inelastic” and do not affect the amount of units sold; “both declines and increases have had minimal impact on units and sizable impacts on billings/revenue”. Apple saw “no material change” and “almost no change in unit sales” even in response to changes as high as 11%. (PX544; Gray Dep. 308:13-20.)

d. [REDACTED]

J. App Stores on Other Mobile Operating Systems Are Not Substitutes for the App Store.

177. As noted above, there are effectively only two mobile operating systems: Google's Android OS or Apple's iOS, which account for nearly 100% of the worldwide mobile OSs. (Evans; Statista, "Mobile Operating Systems' Market Share Worldwide from January 2012 to January 2021", <https://www.statista.com/statistics/272698/global-market-share-held-by-mobile-operating-systems-since-2009/>.)

178. iOS is used by Apple for the iPhone. (PX2573; Fischer; Sweeney; Grant.) Apple does not license iOS to any other party. (PX2863, at 334; Fischer.)

179. Google licenses the Android OS to third parties. (Grant; Evans.) The firms that make smartphones are called "original equipment manufacturers", or "OEMs". (PX2571; Grant.) OEMs that make Android phones license the Android OS and related services from Google. (PX2571; Grant.) Among the major Android OEMs are Samsung, Huawei and Xiaomi. Google itself makes a mobile device that uses the Android OS. (PX2571; Grant; Evans.)

180. Together, Apple and Google's dominance in the smartphone operating system market give them a duopoly (a market defined by two primary participants). There is a strong presumption in the economics of industrial organization that where, as here, a market is a duopoly, both participants have substantial market power. (Evans.)

- a. Apple's iPhone commands a significant share of the smartphone market. In 2019, Apple accounted for 40% of total revenues in the global smartphone market, excluding China. (Evans.)

181. Android and iOS apps are not substitutes for each other. (Sweeney; Grant.) As noted above, switching costs limit users' ability to substitute between iOS and Android. (*See* Section II.B above.)

182. Android apps do not run on iOS devices. (Cue Dep. 63:5-6; 63:8-9.)

183. No Android app is distributed through the Apple App Store. (Fischer Dep. 40:4-8.)

184. iOS apps do not run on Android devices and are not sold in the Google Play Store on Android. (Fischer Dep. 38:3-5; Grant.)

K. Web App Distribution is Not a Substitute for Native App Distribution.

185. "Native apps" are those written for a particular platform and directly downloaded onto a device. (Fischer; Grant.) On iOS, Apple prohibits users from downloading native apps through any channel except the App Store. (Fischer Dep. 143:5-13; Grant.)

186. Under limited circumstances, Apple permits developers to offer web apps and streaming apps. A web app is an app that is available from a website and utilized on a device through a browser. (Cue Dep. 171:21-23.) Whereas native apps "go directly to the home screen" or "app library" of the device, web apps do not. (Kosmyinka Dep. 140:22-24.) Should a customer "want to have [a web app] persist on the home screen", she must manually add an icon to the home screen that links to the website where the web app is available. (Kosmyinka Dep. 140:25-141:2.)

187. Web apps have limited functionality compared to native apps. Native apps are "faster", "use less memory" and "can take advantage of native graphics libraries in a way that is either not available or would have to be shoehorned in a web app or a different

kind of application”. (Forstall Dep. 81:17-24; *see also* Shoemaker Dep. 249:13-18; Grimm Dep. 254:1-15, 258:18-259:19.)

188. Web apps have memory limitations. Whereas native apps can use large portions of an iPhone’s gigabytes of memory, web apps are limited to 50 MB of cache memory. This restriction severely limits the size of web apps and requires information to be overwritten frequently. (Grant; Kosmyinka Dep. 145:1-3; 145:5-7; 146:1-2; 146:4-5; 146:7-9; 146:11; Cue Dep. 175:12-21; Evans.)

189. Browsers need to call on APIs to enable certain functionalities. The APIs available through web browsers are different from, and more limited than, the APIs available to native apps. (Kosmyinka Dep. 141:3-5; 141:7-10.)

190. WebKit is Apple’s web browser engine. It is the only web browser engine Apple allows on iOS and is therefore the core software component of all browsers available on iOS. (PX56, § 2.5.6.) WebKit is responsible for rendering websites and, therefore, web apps on iOS.

- a. Apple prohibits developers from modifying WebKit or from adding features to Apple’s WebKit to enable additional features. (*Id.* § 4.7.)
- b. WebKit does not support certain web APIs available in other web browser engines. Accordingly, web apps on iOS do not have certain functionalities available in web apps on other OSs. (Kosmyinka.)
- c. Specifically, WebKit does not support Apple’s PushKit API, which is Apple’s framework that enables push notifications. (Kosmyinka

Dep. 141:3-15.) WebKit also does not support ARKit, Apple's augmented reality framework. (Kosmyka Dep. 141:11-22; 142:11-20.)

- d. Other limitations of WebKit include that users cannot lock the screen orientation in web apps; web apps cannot (even with user permission) get access to private information like contacts, GPS location or native social apps; and Apple's Siri assistant does not recognize web apps, even if they are saved on the user's home screen. (Grant.)

191. Software is composed of a series of commands or code written in one of several languages by humans. (Sweeney; Grant.) The most basic software for any app is referred to as its "source code". (Sweeney; Grant.)

- a. For source code to be understood by machines, it must be translated into "machine readable code". (Grant.)
- b. For purposes of this case, that translation can occur in one of two ways: the human readable source code can be "compiled", or it can be "interpreted". (Grant.)
- c. When source code is compiled, it is translated directly by the OS into the machine readable language before the app (or software program) is run. (Grant.)
- d. When source code is interpreted, it is not translated into machine readable language directly; instead, it goes through an "interpreter". (Grant.)

- e. When source code is interpreted, it takes significantly more time for the OS to execute a software program or app than it does when the source code is compiled. (Grant.)
- f. Because web apps must send source code through a browser, the code for web apps is interpreted, rather than compiled. (Grant; Kosmyinka.)
- g. The fact that the source code for web apps is interpreted causes web apps to run more slowly than native apps. (Grant.)
- h. As one Apple witness testified, “because of the architecture [of web apps], [they] sit[] as an extra layer on top of the native layer”, and therefore are “never going to be faster than the native layer”. (Forstall Dep. 83:8-17.)

192. Apple limits the distribution of web apps on iOS. It does this by preventing native apps from serving as a store or catalog of web apps. (PX111.) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

193. Apple has not performed any studies or analyses that have “examin[ed] potential performance differences between web apps and native apps”. (Cue Dep. 173:5-9; *see also* Kosmyinka Dep. 143:9-11.)

194. Consumers do not view web apps as adequate substitutes for native apps. (Grant; Evans.)

195. Developers do not view web apps as adequate substitutes for native apps.

(Sweeney; Grant; Evans.)

a. The ability to create and directly distribute web apps does not lead developers to opt out of distributing native apps through the App Store. (Sweeney.) Apple's longtime VP of Developer Relations could not name a single developer that withdrew an app from the App Store because the developer could substitute to distributing a web app. (Okamoto Dep. 277:19-22.)

b. [REDACTED]

c. Web apps have limitations and disadvantages that negatively affect the user experience in a way that native apps do not. (Sweeney; Grant.)

d. Epic, for example, does not make or distribute a web app version of *Fortnite* because the performance would be materially worse than that of a native application. (Grant.)

e. iOS developers that develop web apps must educate users on how to obtain and install the web app, which is significantly more challenging than instructing users to download an application from an app marketplace.

196. [REDACTED]

[REDACTED]

- a. [REDACTED]
- b. [REDACTED]
- c. [REDACTED]
- d. [REDACTED]

197. Web apps are not substitutes for native apps.

L. Streaming Services Are Not Substitutes for Downloading Games Locally as Native Apps.

198. “App streaming” occurs when an app resides on a remote server (often referred to as “the cloud”); a user accesses the server through an Internet connection; the user’s commands on its local device are conveyed through the Internet to the remote server and executed there. (Grant; PX2653, at ‘43.) The server that hosts the app then sends a live video or audio stream to the device on which the user then views the stream. (Grant; Athey.)

199. Nvidia, Google and Microsoft each offer streaming services.

- a. Nvidia’s service is called GeForce Now.
- b. Google’s service is called Stadia. (Fischer 68:23-69:13)
- c. Microsoft’s service is called XCloud. (Fischer 68:23-69:13.)

200. Users typically pay a separate fee to subscribe to these services. (Fischer; Evans.) For many services, users must pay this fee in addition to purchasing individual games.

201. When a user requests an app to perform a particular function, such as gameplay movements, playing or pausing a show or piece of music, the user input is transmitted from the displaying device—the mobile phone, for instance—back to the server. (Grant.)

202. This “round trip” for the video or audio feed and user input reacting to it can lead to time delays, or “latency”. (Grant; Cue Dep. 180:15-18.)

- a. Latency is “[u]sually measured in milliseconds . . . [F]or things like gaming, it’s really important because obviously if you’re moving around in a game, if it’s delayed, it can significantly impact the experience of the game”. (Cue Dep. 180:19-23; Grant.)
- b. Cloud-based gaming that is streamed inherently has more latency than playing a game locally, which can result in delayed interaction, competitive disadvantages and a poorer gaming experience.

203. Even under ideal conditions, streaming services have severe limitations that make them poor substitutes to native apps.

- a. As just noted, streaming services are vulnerable to latency issues.
- b. Streaming services are not able to host all of their users at one time due to limited server capacity; users who are not able to access the service may need to wait seconds, minutes or more, or be denied access entirely. (Grant.)

- c. The cost of streaming services is high, leading to limited scalability. (Grant.)
- d. The cost of streaming is high, requiring users to pay often in the form of subscription fees. (Grant.)
- e. Craig Federighi, Apple’s Senior Vice President of Software Engineering, described streaming services as “not very successful”. (Federighi Dep. 165:10-15.)

204. Streaming services are particularly poor substitutes for iOS apps. That is because Apple, under its general prohibition on a “store within a store”, does not allow on the App Store any apps that themselves offer a selection of third-party streamed apps. (PX56, at § 3.2.2. (prohibiting apps from “[c]reating an interface for displaying third-party apps, extensions or plug-ins similar to the App Store or as a general interest collection”).)

- a. In addition, Apple, under its general prohibition on a “store within a store”, does not allow on the App Store any apps that themselves offer a selection of third-party streamed apps. (PX56, at § 3.2.2. (prohibiting apps from “[c]reating an interface for displaying third-party apps, extensions or plug-ins similar to the App Store or as a general interest collection”).)

205. In September 2020, Apple modified its App Store Review Guidelines to allow streaming apps, but only if each streamed app is made available as a separate app on the App Store. (See PX56, at § 4.9.1. (“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.”.)

206. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

207. [REDACTED]

[REDACTED]

[REDACTED]

208. *Fortnite* is available through Nvidia's GeForce Now game streaming service on PCs, Macs, and Android devices, but not on iOS. (Weissinger; Sweeney.)

209. Streaming services are not a substitute for native iOS apps. (Sweeney; Federighi Dep. 159:11-17.)

IV. APPLE HAS MONOPOLY POWER IN THE iOS APP DISTRIBUTION MARKET.

210. [REDACTED]

A. Apple Uses Its Control over iOS to Monopolize App Distribution Through Contractual Restrictions.

211. When a consumer buys an iOS device, they do not contractually agree to obtain apps only through the App Store. (PX2146; PX2680.)

212. Apple conditions developers' access to the billions of iOS users on contractual restrictions that cement Apple's control over all iOS app distribution. (Sweeney.)

213. Any developer who wants to distribute a native iOS app must do so through the App Store. (Sweeney.)

214. To distribute an app through the App Store requires: (1) access to the software tools that allow developers to write code that will work on iOS; (2) access to the App Store itself. (Sweeney.)

215. Apple controls both of these inputs through a series of non-negotiable terms by which developers must abide. (PX2618 (Developer Agreement); (PX2481 (DPLA); PX2622 (Xcode and Apple SDKs Agreement); Okamoto Dep. 284:7-13, 284:15.)

216. To obtain access to testing and distribution of apps on iOS, developers must set up a Developer Program account with Apple. (Pruden Dep. 68:14-18; Cue Dep. 86:14-86:19; Grant; Sweeney)

- a. The Apple Developer Agreement establishes certain basic terms governing the developer account's relationship with Apple. (PX2618 (Developer Agreement).)
- b. A second agreement, the Developer Program License Agreement ("DPLA"), governs the terms and conditions of distribution through the App Store, and is itself governed by the laws of the United States and the State of California. (PX2481 (DPLA).)
- c. To distribute a free app, a developer must enter into Schedule 1 of the DPLA. (PX2481 (Schedule 1).)
- d. To distribute a paid app or have any in-app purchase offerings, a developer must enter into Schedule 2 of the DPLA. (PX2621 (Schedule 2).)

217. The Apple Developer Agreement and DPLA are "click-through" agreements; they are non-negotiable. (Okamoto 284:7-13, 284:15; Schiller; Sweeney)

218. Apple controls distribution of iOS apps through technological means by requiring that apps "be validated and signed by an Apple-issued" certificate. (Federighi 364:2-10.)

- a. All third-party apps must be validated and signed using an Apple-issued certificate. (PX461 at -381; *see also* Rubin.)
- b. If a developer is removed from the Apple Developer program, then previously held certificates are no longer valid. (Haun Dep. 40:12-25.) Instead, when a user launches an application, the operating system would communicate "the state of the certificate" and give

“the customer . . . opportunities to either run or not run the application.” (Haun Dep. 40:12-25.)

- c. Apple offers a special type of certificate for businesses seeking to write and distribute in-house applications for use within their organization. (Federighi Dep. 236:25-237:11; *see also* PX461 at -382.). Businesses apply to the Apple Developer Enterprise Program for an enterprise signing certificate. (*Id.*) With the enterprise signing certificate, the business is able to sign apps distributed and managed by that enterprise for its employees. (Federighi 236:25-237:11.) Apps that are part of Apple’s Enterprise Program can be distributed on iOS devices without going through the App Store. (Federighi Dep. 224:6-13, Mickens.)
- d. Apple also makes available special types of certificates for the purpose of developing and testing iOS apps prior to wider distribution. Development or ad hoc certificates allow a developer to distribute an iOS app to a limited number of pre-approved devices. For instance, if the developer wishes to beta test its app with a larger user base (up to 10,000 test devices), then it must use Apple’s TestFlight service. (Federighi Dep. 224:6-13; PX2481 (DPLA) § 7.4.)

219. The DPLA requires developers’ agreement that Apple’s App Store be the only channel for commercially distributing their apps on iOS through a number of unlawful restrictions on app distribution.

- a. Section 3.2(g) of the DPLA provides that “Applications for iOS Products . . . may be distributed only if selected by Apple (in its sole discretion) for distribution via the App Store”. (PX2481 (DPLA) § 3.2(g).)
- b. Section 3.3.2 of the DPLA provides that apps may not download or run executable code that, among other things, “creates a store or storefront for other code or applications”. (PX2481 (DPLA) § 3.3.2.)
- c. Section 7.6 of the DPLA provides that developers must “agree not to distribute [their apps] for iOS Products . . . to third parties via other distribution methods” than those expressly permitted under the DPLA. (PX2481 (DPLA) § 7.6.)

220. When developers sign the DPLA, they further agree to comply with the App Review Guidelines. (Schiller; PX2481 (Schedule 1) § 6.3; PX2621 (Schedule 2) § 7.3.)

221. Apple published its first set of App Review Guidelines in 2010. (PX56A; Schiller.)

- a. Prior to 2010, Apple did not make any guidelines available to third-party developers to explain the criteria it used for app review. (PX2316; Schiller.)
- b. The 2010 version of the Guidelines make it clear that Apple anticipated that the Guidelines would change from time to time. (PX56A; Kosmyinka Dep. 39:2 to 39:6; Kosmyinka Dep. 40:2 to 40:17)

- c. The App Review Guidelines have gone through a number of iterations. (PX56; PX56A; PX2030; PX2139; PX2145; PX2158; PX0077; Kosmyinka Dep. 39:2-39:6; 40:2 to 40:17; Schiller.)
- d. Apple periodically revises the App Store Review Guidelines as business practices change. (Schiller.)

222. The Guidelines contain a number of prohibitions that constrain competition and innovation. (Sweeney)

- a. The Guidelines prevent competing app stores from being distributed on iOS. (PX0056 (App Review Guidelines) § 3.2.2(i); Sweeney; Fischer.) This provision states: apps may not “create[e] an interface for displaying third-party apps, extensions, or plug-ins similar to the App Store or as a general-interest collection”. (PX0056 (App Review Guidelines) § 3.2.2(i).)
- b. The Guidelines prevent apps that compete directly with Apple apps. Developers are prohibited from “[c]reat[ing] an app that appears confusingly similar to an existing Apple product, interface (e.g. Finder), app (such as the App Store, iTunes Store, or messages) or advertising theme.” (§ 5.2.5.)
- c. The Guidelines prohibit any competing payment processing solution from being included within an app. (PX0056 (App Review Guidelines) § 3.1.1.)

B. Apple Has 100% Market Share in the Market for iOS App Distribution.

223. Apple has nearly 100% share in the market for iOS app distribution.

(Schiller, Evans.)

224. Apple has the power to set the price and control output in the market for iOS app distribution. (Sweeney, Schiller.)

225. Apple does not license iOS to any other mobile device maker. (PX2863, at 334; Schiller.)

226. The App Store is preloaded onto the home screen of all iOS devices.

(Fischer Dep. 40:15-22.)

- a. The App Store cannot be deleted from an iPhone. (Fischer Dep. 41:19-25.)

227. Other apps also come pre-installed in the iPhone—but all such apps are made by Apple, rather than third-party developers. (Fischer Dep. 235:14-17.)

228. With the exception of Enterprise Program apps (*see* Section X.I below) or jailbroken iOS devices, the App Store is the exclusive means by which iOS users download native iOS apps. (Sweeney, Okamoto Dep. 72:8-12; Fischer Dep. 143:5-13.)

229. Non-commercial and other distribution channels of apps on iOS do not provide competitively meaningful alternatives to distribution through the App Store.

- a. Apple allows limited distribution outside the App Store for testing purposes (“Test Flight”) and for internal distribution within a firm or institution (the “Enterprise Program”), but these distribution channels cannot be used to reach the broad iOS user base.
(Sweeney; Federighi Dep. 224:6-13; PX0072 at ‘5601-602.)

- b. Apple phones are sometimes “jailbroken” by users, meaning that users remove the protections within iOS again installation of third party apps through channels other than the App Store. (Shoemaker 509:13-25; PX871) Apple objects to jailbreaking of phones, makes efforts to prevent jailbreaking, and will not warrant jailbroken devices. (Okamoto Dep. 278:7-12.) Because jailbreaking is a demanding process with negative implications for the user, not many users jailbreak their phones, and distribution of apps only to “jailbroken” devices is therefore not a meaningful commercial alternative for developers. (Sweeney, Evans.)

C. The App Store’s Profit Margins Are Extraordinarily High.

230. One indication of market power in the relevant market is the sustained existence of higher profit margins than would exist in a competitive market. (Evans; Cragg; Schmalensee.)

- a. High profit margins suggest a company’s ability to charge a price far in excess of costs.
- b. This can indicate lack of competition in a market.
- c. In a competitive market, companies would vie for consumer dollars through price competition.
- d. In a market with robust price competition, prices trend downwards, to a level closer to a firm’s costs.
- e. When there is no price competition, margins can remain high.

231. Presentations given to Apple executives with decision-making authority over the App Store include detailed financials specifically relating to the App Store. (PX602; PX608; Rollins Dep. 56:6-8; 97:3-7; 234:12-15, 234:18-21.) Those presentations detail, among other things, the [REDACTED] [REDACTED] in fiscal years 2018 and 2019, respectively. These net revenues translate into profit margins of [REDACTED] for fiscal year 2018 and [REDACTED] for fiscal year 2019 after taking into account specific App Store expenses and categories of joint costs that are allocated to the App Store. Fiscal year 2020 predicted a similar margin-[REDACTED]. (PX602 at '3286; PX608 at '6318; Rollins Dep. 102:18-103:2; 103:4-8; 239:25-240:1, 240:3-5.)

232. Apple's profit margin for [REDACTED] times higher than the profit margins of other online marketplaces where profits are measured on a comparable basis. (Evans.)

233. Ned Barnes, Epic's forensic accounting expert, conducted further analysis to account for additional expenses associated with the App Store that were alleged by Apple. (Barnes; Rollins Dep. 139:5-140:14, 142:14-16, 142:24, 143:2-14, 143:16-25, 144:4-7, 148:10-149:2, 150:7-151:9.) After taking those additional costs into account, Mr. Barnes reported margins for the App Store of [REDACTED] for fiscal year 2018 and [REDACTED] for fiscal year 2019. (Barnes.)

234. These numbers are generally consistent with profit margins reflected in documents prepared by Apple's Corporate Financial, Planning & Analysis team, which reports directly to Apple's CFO and Mr. Cook and is responsible for setting Apple's external guidance range for the investment community. One such document, [REDACTED]
[REDACTED]

[REDACTED] (PX2385 at '6424.)

235. According to benchmarking performed by Apple itself, comparing the App Store's projected fiscal year 2020 operating margin percentage against the profit margin percentages for Apple's other service business lines—as well as external companies including Netflix, Disney, Nintendo, and Activision—[REDACTED]

[REDACTED]. (PX2392 at '5276.)

236. Consistent conclusions were reached by Epic's economic expert, Dr. Michael Cragg, [REDACTED]

[REDACTED]. (Cragg.)

237. [REDACTED] are a strong indication that the App Store's success cannot be attributed solely to competition on the merits, but from Apple extracting supra-competitive rents from developers and consumers. (Cragg.)

238. The absence of competition on the merits, including price competition, is also evident in how Apple originally set the price for distribution of apps, and how it has maintained it. (Evans.)

- a. When the App Store launched in 2008, Apple established the commission rate that developers would have to pay for sales of apps through the App Store. (Cue Dep. 135:8-12; 135:8-136:2.)
- b. The process for setting that price was an ad hoc one: Mr. Cue and Mr. Jobs simply decided the rate. (Cue Dep. 135:8-12; 135:8-136:2.)
- c. The commission rate was chosen without consideration of App Store costs. (Cue Dep. 136:3-14; 137:13-22; Schiller)
- d. The commission rate was set without regard to costs of providing developers with software development tools. (Cue Dep. 137:23-138:3; 138:9-14; Schiller.)

239. In June 2011, the individual in charge of marketing the iPhone, Phil Schiller, stated that he did not think “that 70/30 will last . . . forever” because “someday we will see enough challenge from another platform or web based solutions to want to adjust our model”. (PX417; Cue Dep. 143:25-144:6; 145:6-13.)

- a. The magnitude of the App Store profits—then over \$1 billion annually—caused Mr. Schiller to pose the question: “is that enough to then think about a model where we ratchet down from 70/30 to 75/25 or even 80/20” if that would permit Apple to maintain a “\$1B a year run rate”. (PX417; Cue Dep. 143:25-144:6; 145:6-13.)
- b. Since 2011, App Store profits have grown by more than an order of magnitude, to well over ██████████ per year. (See Sections II.F, IV.C below.)

240. Apple still does not consider costs in setting its commission to this day.

(Cue Dep. 140:10-15; 140:17-21; 140:24-141:3; 141:5-10.)

- a. The App Store Director of Business Management, Carson Oliver, testified that while he has been “involved in discussions about changes to the commission structure for IAP on the App Store”, he does not recall “any discussion about the costs associated with running the App Store, the costs associated with processing IAP” or “any cost component”, nor can he recall being “asked to do any kind of financial analysis pertaining to costs on the App Store as it relates to changes to the commission structure”. (Oliver Dep. 272:8-17; 280:5-23.)

241. After this lawsuit was filed, Apple lowered its commission structure for “small business owners”. (Schiller; Fischer 196:23-197:17)

- a. In late 2020, Apple announced the App Store Small Business Program, which entitles qualifying developers—those earning no more than \$1 million in total proceeds (sales net of Apple’s commission and certain taxes and adjustments) during the 12 fiscal months occurring in the prior calendar year—to “a reduced commission of 15%”. (PX2621 (Schedule 2) § 3.4(c).)
- b. Developers whose proceeds exceed \$1 million in proceeds will be charged the “standard commission” for the remainder of the calendar year, but may re-qualify for the program in subsequent calendar years if they fall below the \$1 million threshold. (*Id.*)

- c. The reduction in commissions represents a tiny fraction of Apple's commissions; for that reason, Apple expects "that the App Store will remain profitable notwithstanding the implementation of the Small Business Program". (Cue Dep. 134:4-134:6; 134:8.)

242. Apple has raised its prices at least twice: (i) in 2009, when it imposed the requirement that all in-app purchases of digital content be handled through IAP, and that such purchases be subject to a 30% commission; (ii) and in 2011, when it decided to unilaterally impose a new requirement that developers who sold in-app subscriptions would always have to use IAP and pay a 30% commission. (PX2665; *see* Section II.F above (discussing price increase with subscriptions).)

243. Apple's 30% commission is not akin to the commission charged by video game consoles, for example. Video game consoles operate under a radically different business model than smartphones. (Schmalensee; Evans.) Specifically, in those markets, console manufacturers sell their hardware at or below cost to ensure that a sufficient number of consumers will purchase the console and be reachable by developers. Console makers do this because game development for consoles is often a lengthy and expensive process—far more expensive than development for mobile platforms—and the console makers need to try to assure developers that there will be a large enough user base for it to be worth the developers' investment in developing a game for use on the console, which often takes years to complete. The console makers' commission rates are then the primary source of profit that they receive across the entire ecosystem. (Evans.)

- a. As Phil Spencer, head of Microsoft’s Xbox, explained: a change to the commission rate on console platforms would “collapse our . . . revenue stream that subsidizes the [hardware]”. (PX2444.)
- b. As a result, console makers engage in a host of negotiations with app developers regarding various terms and conditions, resulting in negotiated contractual arrangements in which a variety of terms factor into the overall value that the app developer receives.

(Sweeney.)

244. As noted above, Apple, [REDACTED], extracts [REDACTED] from the sale of iPhones, and developers do not participate in those profits, even though the availability of apps contributes greatly to the sale of devices. (See Sections II.F, IV.C below.)

D. Apple Does Not Track Relative Pricing of Apps on Non-iOS Platforms.

245. The pricing of apps on non-iOS platforms, including on Android, websites, or consoles, does not affect or constrain the commission Apple charges in connection with the distribution of iOS apps or with in-app purchases.

- a. One of Apple’s top executives who has been involved in the App Store since its launch, Eddy Cue, is not aware of “any studies as to the relative pricing of apps on the App Store vis-à-vis the Google Play Store”. (Cue Dep. 247:15-20.)
- b. Apple does not track relative pricing of apps on websites. (Fischer.)
- c. [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

246. Apple isolates its App Store from competition from other platforms by prohibiting app developers from informing iOS users, in the iOS app or on the App Store, of the availability of their app on other platforms. (See PX0056 (App Review Guidelines) § 2.3.10. (“[D]on’t include names, icons, or imagery of other mobile platforms in your app or metadata, unless there is a specific, approved interactive functionality”); *id.* at § 3.1.1 (“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.”); Shoemaker Dep. 117:1-2 (describing policy wherein “apps [were] generally prohibited from pointing to their availability on other platforms”.)

V. APPLE'S CONDUCT CAUSES ANTI-COMPETITIVE EFFECTS IN THE iOS APP DISTRIBUTION MARKET.

A. Apple's Conduct Foreclosed All Manners of Distribution of Apps on iOS by Third Parties.

247. Where OS developers did not limit third party distribution on their OS, they saw entry by multiple online stores, which operated alongside direct distribution.

- a. In Windows, where Microsoft has not imposed limitations on app distribution by third parties, multiple third-party app stores offer distribution of apps, alongside direct distribution by multiple developers. (Evans.)
- b. In macOS, where Apple itself has not imposed limitations on app distribution by third parties, multiple third-party app stores offer distribution of apps, alongside direct distribution by multiple developers. (Federighi Dep. 72:5-12; Evans, Sweeney.)
- c. Several app stores served older mobile operating systems, including Symbian, Blackberry and Windows Mobile. (Evans.)
- d. Dozens of app stores, alongside direct distribution, are used by developers of Android apps in China, where there is no limitation on distribution of Android apps. (Evans.)

248. Apple recognizes that given the option, many developers would prefer to distribute their apps outside the App Store, either through other stores or directly.

- a. Many developers of Mac apps choose to distribute their apps outside the Mac App Store. (Federighi Dep. 72:5-12.) Those

include major developers such as Microsoft. (Federighi Dep. 74:6-9.)

- b. Apple employees recognized that it would be “crazy” for Epic to distribute Fortnite on macOS through the Mac App Store. (Grimm; PX2381.)
- c. [REDACTED] the Mac App Store matters only for distribution of Apple’s own software and the apps of developers that cannot create their own download store, because big developers have too many other choices that allow them to avoid Apple’s fees. (Schiller, PX2386.)

249. Epic asked Apple to allow Epic to open EGS on iOS and distribute iOS apps but Apple refused. (Sweeney, Schiller.)

250. [REDACTED]
[REDACTED].

251. Big Fish, a gaming app, asked Apple to allow it to distribute games within its app under a subscription model, but Apple refused. (Shoemaker Dep. 184:7-18; PX114.)

- a. At the time Apple rejected Big Fish’s game subscription app, Apple did not have any guidelines prohibiting apps from offering other apps for distribution, leading Apple’s then-head of app review to declare the rejection “**chicken shit. We don’t have a guideline for this.**” (PX114.)

252. But for Apple's conduct, therefore, competing app stores would have entered the iOS App Distribution Market, alongside the option of direct distribution of apps, offering a competitive alternative to the App Store. (Evans.)

B. Apple's Conduct Increases the Price of Apps to Consumers.

253. Competition resulting from the elimination of artificial barriers generally results in increased productive efficiency and consumer welfare. (Evans.)

254. To examine the effect on competition in the iOS distribution market, Dr. Evans modeled entry of two new stores, each capturing 25% of the market (with Apple retaining a 50% market share). Under these assumptions of limited entry, and assuming the two entrants, rather than competing vigorously over price, would earn a profit margin of over 45%, Dr. Evans found that market-wide app store commissions would decline to a commission rate of 15.6%; the average price of apps (assuming a 50% pass-through rate) would decline by 6.5%; developers' revenue would increase by 26.5% per transaction; and output would expand by 16%. Dr. Evans further found that under his model, both the new entrants and Apple would be incentivized to spend hundreds of millions more than Apple does today on improving quality of app distribution. (Evans.)

255. Epic's EGS 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 direct payment for in-app purchases. Developers of apps distributed through EGS can also choose to use a competing payment solution. (Sweeney, Allison.)

- a. Absent Apple's restrictions, Epic would enter iOS and offer developers an alternative distribution platform at the same 12%

commission rate. (Sweeney) Developers may decide to pass on some of those savings to consumers.

- b. In addition, if EGS gains traction on iOS, Apple may be forced to lower the price it charges for distribution through the App Store. (Sweeney.) For example, shortly after EGS entered the PC and Mac space, Steam, an incumbent app store on these OSs, lowered its commission to certain developers from 30% to 20%. (Sweeney.)

256. Developers pass on the cost of Apple's commission to consumers.

(Evans.) Specifically, some developers currently charge consumers more on iOS than they charge through other distribution channels unencumbered by Apple's 30% commission, "to help offset the delta" of iOS's 30% fee. (Gray Dep. 177:19-178:2; Fischer Dep. 94:6-11; *see also* PX2136 ("Due to the 70/30 revenue split, [Pandora] will be charging \$12.99 on iOS at launch and the service will be available for \$9.99 on web.").)

- a. This price differential exists even between iOS and other Apple platforms. For example, CBS All Access charges \$6.99 on iOS, where Apple's fee is 30%, but only \$5.99 on Apple TV, where Apple's fee is 15%. (PX533 at 680; Gray Dep. 178:10-15; 178:16-21; 179:5-9; 177:2-4; 177:10-13; 177:15-17.)

C. Apple's Conduct Harms Innovation.

257. Apple's conduct harms innovation in both app distribution and app development.

258. Apple has recognized that the high costs it imposes on developers harm innovation.

- a. Many businesses—including small businesses—cannot afford to absorb Apple’s commission rates, whether 30% or 15%, and cannot afford to pass the costs on to consumers without losing users. (Evans.)
- b. Apple recognized this reality since the early days of the App Store. In a 2011 email to Mr. Cue and Mr. Schiller, Mr. Jobs acknowledged that paying Apple’s App Store commission “is prohibitive for many things.” (PX438; *Id.* (Mr. Cue noting that “[t]he problem is many can afford 30% but others will say they can’t.”).)
- c. When Apple ultimately announced the Small Business Program, Apple stated that it expected the reduced commission would enhance innovation. (PX839 (“Apple announces App Store Small Business Program”).)

259. Apple’s conduct further harms innovation by preventing new and innovative distribution models on iOS that could benefit developers and consumers.

- a. Apple blocked the entry of web app stores. (PX111; Shoemaker Dep. 175:4-176:13.)
- b. Apple blocked the entry of app streaming services as native apps, forcing them to enter only as inferior web apps.
- c. Apple blocked various “store within a store” models, including apps from Big Fish, [REDACTED] and others. (PX115; Shoemaker Dep. 186:1-186:15; PX191; Oliver Dep. 237:2-237:5.)

- d. Apple blocked competing app stores, including EGS. (Sweeney.)
- e. Apple blocks the direct distribution of apps.

260. Finally, Apple's conduct harms innovation by insulating the App Store from competitive pressures. As a result, Apple has been able to offer poor services to developers with impunity. Several examples follow.

261. Developers are not satisfied with the search and discoverability functionality of the App Store, as Apple has been slow to adopt innovations in search technologies. (Sweeney; Evans.)

- a. Discoverability refers to the way in which users can find apps in the App Store and how developers can make their apps known to, and discoverable by, users. (Evans.)
- b. One way for apps to be discovered on iOS is through Apple's "charts", which list the most popular apps in certain categories. (Fischer Dep. 203:13-204:14.)
- c. "Chart gaming" refers to a form of fraud whereby developers can "manipulat[e] . . . inputs to the charting level for them to appear more popular". (Friedman Dep. 137:9-137:17; *see also* Fischer Dep. 203:13-204:14.)
- d. Mr. Friedman, whose team was tasked with identifying instances of "chart gaming" in the App Store, testified that Apple's discovery features do little to help users and developers, as such features are fraud-ridden: "[O]ur App Store charts aren't really a discovery tool at all. Yes, they do drive some conversions, but that is (I suspect

and haven't verified) mostly the bots and/or humans responding to incentives from promotional companies". (PX254; Friedman Dep. 134:25-135:1, 141:12-142:3.)

- e. Another way by which apps are discovered is through search functionality. Developers, however, have been widely dissatisfied with the App Store's search functionality for years, as reflected in multiple surveys conducted by Apple over the years. (Evans; Apple document custodian PX2129; PX2284; PX2300; PX2062.)
- f. Developers' dissatisfaction with the search functionality was enhanced by Apple's introduction of paid search advertising on the App Store. [REDACTED]

[REDACTED]
[REDACTED] (Ong Dep. 59:14-60:14.)

262. Developers are likewise dissatisfied with Apple's promotion of apps.

- a. [REDACTED]
- b. [REDACTED]

- c. Apple’s data indicates that as of March 2020, 79 million downloads, or 69% of the iOS total downloads of *Fortnite*, were the result of users searching for *Fortnite* in the App Store, whereas downloads resulting from Apple’s “Games” or “Today” tabs accounted for only 19% of downloads. (PX634; Weissinger.)

d. [REDACTED]

D. Apple’s Self-Preferences.

263. Apple further harms competition by using its control over all iOS app distribution to self-preference its own apps at the expense of competing apps.

264. Apple’s excessive commissions raise the cost of rival apps and put such rival apps at a competitive disadvantage vis-à-vis Apple. (PX99; Shoemaker Dep. 75:12-76:5.)

265. Apple has self-preferenced its own apps through the app review process.

- a. Through App Review, Apple has learned details regarding third-party apps, which Apple has used to develop competing iOS apps. (Shoemaker Dep. 84:16-85:8, 480:7-480:25.)
- b. In addition, “competing apps” or apps that “arguably . . . compete with Apple in some way or another” have “faced a lot of barriers” to approval during App Review. (Shoemaker Dep. 76:6-77:2.)
- c. Apple has used the App Store “as a weapon against competitors” (PX99, Shoemaker Dep. 75:12-75:16) and has rejected or delayed

competing apps on “pretextual grounds”. (Shoemaker Dep. 88:2-8.) For example, Apple did not approve Google Voice—a calling app that Apple speculated could make “phone number[s] disappear”—for about a year after it initially went through the App Review process. (Shoemaker Dep. 76:13-76:22). The delay in approval was attributed to internal concerns that the iPhone would “disappear . . . in the guise of a Google phone”. (*Id.*)

- d. In another instance, [REDACTED] [REDACTED]—a potential competitor to the Apple Watch—was put on hold in App Review for several weeks. (PX2147.)

266. Apple has prioritized the discoverability of its own apps.

- a. In May 2016, Apple employees considered featuring on the App Store certain “Google and Amazon apps” that were accessible to individuals with visual disabilities. Tanya Washburn, the App Store’s Director of Operations, asked these Apple employees “to exclude [the Google and Amazon apps] from the lineup” because “[a]lthough they may be our best and the brightest apps, Matt [Fischer, Vice President of the App Store] feels extremely strong about not featuring our competitors on the App Store”. (PX58; Fischer Dep. 138:4-138:9, 138:22-139:8.)
- b. In 2018, Apple prioritized its “Files” filesharing app over the competing “Dropbox” app. As a result, “Dropbox wasn’t even visible on the first page” of search results when a user searched

specifically for “Dropbox” in the App Store. Instead, Apple had “manually boosted” its own Files app to “the top for the query ‘Dropbox’”. (PX52; Okamoto Dep. 387:18-388:1; *see also* Fischer Dep. 212:17-212:21.)

267. Apple does not apply some of its own rules to its own apps.

- a. In 2019, App Review rejected the LinkedIn app “for using the same language on their subscription call to action button that Apple uses in our own apps”. (PX857; Pruden Dep. 373:14, 373:23-373:25.) In response to complaints by LinkedIn that it was not permitted to engage in marketing that was seen for Apple’s own apps, Shaan Pruden, Senior Director of Developer Relations, wrote, “Developers (latest LinkedIn) cannot fathom why our apps are permitted to do things they are not” (PX858; Pruden Dep. 374:2-24.)
- b. Amazon also “complain[ed] about this”. (PX858; Pruden Dep. 377:11-377:12, 378:7-378:21, 379:5-379:9; 379:13-379:17.)

268. Apple has historically rejected apps that provide “embedded games” because they are “not allowed” under the Guidelines. (PX112; Shoemaker 177:2 to 177:8.)

- a. In 2019, Apple announced Apple Arcade, a subscription games service. Regarding this service, after his departure from Apple, Mr. Shoemaker commented, “[w]ith the new Apple Arcade announcement, it is making available a type of app that Apple has consistently disallowed on the store. But now it is OK for them to

make this app available, even though it violates the existing guidelines?" (PX99.)

- b. Apple also repeatedly rejects similar features and functionality in other developers' gaming apps.

E. Apple's Conduct Increases Barriers to Switching by Preventing the Development of Effective Middleware.

269. Middleware is any technology that reduces the cost of a user switching between operating system platforms, whether completely or by mixing-and-matching devices with different operating systems, or that reduces the cost for developers of developing apps compatible with multiple operating systems. (Athey.)

270. Multi-platform app stores (*i.e.*, app stores that are available across multiple platforms, such as iOS and Android) could be an important form of middleware. (Athey; Shoemaker Dep. 66:1-24, 67:6-9.)

- a. For example, a multi-platform store could recognize a user's purchases across platforms, which would allow the user to purchase an app once and use it on all of the platforms that are compatible with the multi-platform store. (Athey.)
- b. A multi-platform store would also allow parents to set various parental controls across a set of different devices across several operating systems. (Athey.)
- c. In turn, multi-platform stores could allow parents to purchase lower-cost smartphones or tablets for their children outside of the operating system(s) of the parents' devices, because parents would be better able to interact with their children's devices even though

they use a different operating system than the parent's devices.
(Athey.)

- d. A multi-platform store would reduce certain duplicative platform-specific costs by allowing developers to: (i) manage a single store front; (ii) manage customers in a coordinated way; (iii) submit updates across all platforms simultaneously; and (iv) market apps and gain marketing insights across platforms. (Athey.)

271. Apple recognizes the threat of multi-platform stores and other types of middleware and has taken active steps to prevent their emergence. Several examples follow.

272. By foreclosing all third-party app stores, Apple has prevented the development of multi-platform app stores.

273. Apple has likewise foreclosed other multi-platform development platforms. For example, Apple has declined to allow on the iPhone a multi-platform widget engine that Yahoo sought to build for the iPhone in 2008; Sun Java; Adobe Flash; Microsoft Silverlight; and Qualcomm Brew, all of which are cross-platform developer tools. (PX882; Forstall Dep. 183:22-184:7, 192:23-194:8, 194:21-22, 195:1-10.) Mr. Schiller summarized Apple's decision not to support the Yahoo engine as follows: **"we have a way to do Widgets that competes with theirs, so who cares?"** (PX882; Forstall Dep. 192:23-194:8.)

274. [REDACTED]

[REDACTED] At the time, Yahoo Finance noted: "We're tempted to wonder if this change will make its platform less popular with developers. But we won't, because, for better or worse, **when a platform can present so many attractive users the**

way Apple’s iPhone can, developers tend to get in line—no matter how much they don't want to.” (PX883; Forstall Dep. 196:12-24.)

VI. APPLE HAS AND EXERCISES MONOPOLY POWER IN THE MARKET FOR PAYMENT SOLUTIONS FOR ACCEPTING AND PROCESSING PAYMENTS FOR DIGITAL CONTENT PURCHASED WITHIN AN iOS APP.

A. There is a Separate Aftermarket for Payment Solutions for Accepting and Processing Payments for Digital Content Purchased Within an iOS App (“iOS In-App Payment Solutions Market”).

275. In-app purchases permit app developers to offer extra content for purchase by app users, such as an extra level in a game or enhanced features in a fitness app, without the user having to leave the app to make the purchase. (Sweeney; Ko; Forstall Dep. 252:24-253:11.)

276. In-app payment solutions are not substitutable with payment solutions for handling transactions outside of the app. (Sweeney; Evans.)

277. The goal of in-app purchases is to offer users transactions that are as frictionless and as easy as possible. (Sweeney; Hitt.)

278. Even where developers offer the same digital content for sale both in-app and outside the app, completing such sales outside the app—whether through a web browser on an iOS device or on a separate device—introduces substantial friction by requiring the user to go through multiple steps, including: leaving the app; identifying the alternative platform where relevant purchases can be made; navigating to the relevant website or app on that alternative platform; logging in to the user’s account; locating the content the user is interested in purchasing; entering payment credentials (typically required at least for an initial purchase); logging out of the alternative platform; and going back into the app. (Sweeney; Allison; Ko; Hitt.)

279. Accordingly, developers do not view payment processing solutions outside of iOS apps as interchangeable with in-app payment processing solutions.

- a. Convenience is particularly important for in-app purchases, many of which are small or time-sensitive. An extended delay may cause the consumer to change their mind. Consumers are less likely to make purchases if they have to leave the app to do so, meaning in-app purchases lead to more transactions and more revenue for developers. (Sweeney; Ko.)
- b. Consumers are more likely to stop engaging with an app if they have to leave the app to make a purchase. Therefore, developers view being able to offer in-app purchases as essential. (Sweeney, Ko.)

280. Multiple third party payment processors offer in-app payment processing solutions for app developers, including Stripe, Amazon Pay, Braintree and Square. (Ko; Fischer Dep. 101:18-25, 102:8-103:6.) These online payment processors compete with each other along a number of dimensions, including their ability to accommodate varying consumer payment preferences, service multiple geographies, improve user interfaces, and deliver insights from data on payment processing to provide business insights and prevent fraud. (Ko.)

281. Apple requires developers to use Apple's payment processing interface, known as the In-App Purchase ("IAP") API, for all in-app purchases of digital goods within iOS apps. (PX56 (App Review Guidelines) § 3.1.1.)

282. Because transactions outside the app are poor substitutes for in-app purchases, a hypothetical monopolist could profitably impose a SSNIP on fees for payment

processing solutions used to execute in-app purchases of digital content within iOS apps.

(Evans.)

- a. In fact, Apple is such a monopolist and profitably charges an order of magnitude more for payment processing services for in-app transactions on iOS involving digital goods than would competing providers of payment solutions. (Ko; Evans.)
- b. Dr. Evans performed a SSNIP test by considering a situation in which Apple did not impose its payment processing restrictions, and developers could choose between IAP and their own payment processing solutions. (Evans.)
- c. He assumed a 5% average fee for non-IAP payment processing solutions chosen by developers. He then considered what would happen if developers accounting for just 20% of in-app transactions would choose to use their own payment processing solutions, with those accounting for the remaining 80% of in-app transactions using IAP at Apple's 27.7% effective commission rate. That would decrease the average commission rate in the market to 23.2% (the weighted average of 5% and 27.7%). (Evans.)
- d. By eliminating that choice for developers, the hypothetical monopolist would maintain its 27.7% average commission, which is 19.4% higher—well above a SSNIP. (Evans.)

283. The relevant geographic market is global, with the exception of China.

(Evans.)

- a. Although Apple handles all payment processing for in-app purchases of digital goods both within and outside China, Chinese regulation of app distribution, payment processing and other related services create a different market dynamic within China than that existing outside of China. As part of this dynamic, Apple's market power in the mobile OS foremarket is more limited within China than outside of China. (Evans.)

B. There is Separate Demand for In-App Payment Solutions.

284. There is demand for in-app payment solutions that is separate from app distribution. (Sweeney; [REDACTED])

285. Developers wish to use their own payment processing solutions over Apple's IAP. (Sweeney; [REDACTED])

- a. Apple has rejected thousands of apps from distribution on iOS for failing to use Apple's IAP for all in-app sales of digital goods and services, in violation of Guideline § 3.1.1. (Schiller; Kosmyнка Dep. 53:10-13; 53:17-18; 60:25-61:5; PX300, at '301 (2017 iOS Apps Reviewed Summary); PX56 (App Store Review Guidelines).)
- b. In 2012, Microsoft requested to "handle signing up for subscriptions for Office from within their iOS app" "[i]nstead of using IAP" in order to "have a consistent experience for signing up users". (PX46; Okamoto Dep. 349:2-3; 349:8-10; 352:18-24) Microsoft offered to pay Apple the full 30% commission Apple demands for using IAP, so that Apple would "receive a portion of

the revenue as . . . if [Microsoft] used IAP”. In response, Phil Schiller stated that there was not “any chance” that Apple would agree because “[w]e run the store, we collect the revenue”. (PX46; Okamoto Dep. 349:2-3; 349:8-10; 352:18-24.)

- c. In 2011, Match.com requested to sell subscription services through its website, rather than use IAP. (PX49.) Apple rejected this, and continued to reject Match’s attempts to use its own payment processor over the course of several years. (PX49.)

d. [REDACTED]

- e. Google has requested to opt out of IAP for Google Books and Google Drive. (PX827.) Apple “rejected the Google Drive app (cloud storage) from the App Store for not offering the purchase of additional storage space through the app as they do through the Google website”. (*Id.*)

- f. Apple rejected Epic’s *Fortnite* app and terminated Epic’s developer account when Epic enabled Epic direct payment. (PX2459; Sweeney.)

g. [REDACTED]

286. Developers have many reasons for wishing to use alternative payment solutions aside from the level of Apple’s commission, including the ability to offer specific

services precluded by Apple's IAP. For instance, customized risk management and fraud protection tools, more flexible pricing structures, access to relevant commerce and payments data, visibility into the developer's payments stream, and the ability to provide direct and comprehensive customer service, all could be offered by alternative payment solutions.

(Evans; *see also* Sections VIII.CVIII.G below.)

287. When given a choice, developers prefer using payment processing and related services from third-party vendors rather than from Apple for in-app purchases on iOS apps.

- a. iOS apps offering in-app purchases of physical goods—such as Uber, Lyft, and Postmates—utilize third-party payment processing solutions and related services. (PX201; Oliver Dep. 385:20-386:3, 387:17-23.)
- b. In fact, many of the most significant apps, including Grubhub, Wish, StubHub, Uber, DoorDash, Lyft, Instacart, Postmates, Amazon Shopping, Walmart, eBay, Amazon Prime Video, Altice One, and Canal+, procure payment processing services from sources other than Apple, i.e., separately from the distribution services they are forced to obtain from the App Store. (Evans.)
- c. In June 2018, Apple sought to force Uber and Lyft to adopt IAP for their newly-introduced subscription services. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Oliver 404:24-405:3, 405:13-19, 405:21-

406:10.)

- d. Under Apple’s Video Partner Program, iOS developers that offer premium video entertainment apps on both iOS and tvOS are permitted by Apple to integrate non-IAP payment processors for certain transactions, and many do so, including Prime Video, Altice One, and Canal+. (PX2100; Evans.)

288. There are also non-price reasons why consumers prefer alternatives to IAP, including access to more a wider range of payment options, the cross-platform ability to obtain purchase history and pay using the same credentials, enable family sharing, and set persistent parental control and other settings. (Athey; Evans.)

289. Many users, when given a choice, would and do use third-party payment solutions over IAP for in-app purchases on iOS apps.

- a. Millions of iOS users use third-party payment solutions for in-app purchases, in iOS apps, of non-digital goods and services.
- b. “Black market” app stores in China offer a variety of payment options. (PX256 at ‘8635; Friedman Dep. 158:17-18).

- (a) Black market app stores arose in China in part because IAP offered particularly poor service to Chinese iOS users—specifically, alternative stores offered consumers “better penetration . . . of payment instruments that were popular with Chinese customers”. (Friedman Dep. 148:24-149:15)
- (b) Black market app stores became so popular in China that, by 2014, internal Apple employees observed that “[a]t this point, in China, it appears that the Black Market is the market”. (PX255 at ‘841; Friedman Dep 155:5-6, 157:4-158:8.)
- (c) One black market app store in China, Tongbu, “explicitly encourage[d] developers to upload their apps through tongbu.com”, citing the ability to “enjoy more flexible payment method[s], including AliPay (<http://alipay.com>), TenPay (<http://www.tenpay.com>) and many more” as one “advantage”. (PX256 at ‘635.)

c. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- d. During the two week period when both Epic direct payment and IAP were offered on iOS, only 34% of revenue and 27% of transactions for the iOS version of Fortnite came from players using IAP. (Evans.)

290. Epic has offered for a number of years, and continues to offer, Epic direct payment for *Fortnite* players on iOS. Absent Apple’s IAP requirement, Epic would continue to develop Epic direct payment for its iOS customers, including by customizing Epic direct payment to the needs of Epic and its customers and offering features and solutions not available in Apple’s one-size-fits-all IAP solution. (Sweeney; Ko.)

C. IAP and the App Store Are Not Integrated.

291. There is no technological integration of IAP with the App Store. The payment systems Apple uses for IAP “are also used for other [Apple] products outside of the App Store”, including “the iTunes Store on iOS, Apple Music, and iCloud or Cloud services” and “physical retail stores”. (Gray Dep. 65:17-22, 66:23-67:2, 110:2-7, 110:9-15; PX523 at ‘4737.)

292. But for Apple’s requirement to use IAP, in-app purchases would be direct transactions between developers and users of their apps, and would not involve the App Store at all. In-app transactions occur months or years after the app has been downloaded from the App Store and installed on a user’s device. Any additional content comes from within the app or from the servers of the developer, not from Apple; and Apple has no way of verifying delivery of the additional content. (Ko; Cue Dep. 166:6-20.)

D. Apple Has and Exercises Monopoly Power in the iOS In-App Payment Solutions Market.

293. Apple conditions developers' access to a billion iPhone users through the App Store on developers using Apple's IAP for all in-app transactions involving the sale of digital content.

- a. Section 3.3.3 of the DPLA provides that without IAP or "Apple's prior written approval", apps may not "provide, unlock, or enable additional features or functionality through distribution mechanisms other than the App Store". (PX2481 (DPLA) § 3.3.3.)
- b. Section 3.1 of Schedule 2 provides that "Apple shall be solely responsible for the collection of all prices payable by End-Users for Licensed Applications acquired by those End-Users under this Schedule 2". (PX2621 (Schedule 2) § 3.1.)
- c. Correspondingly, Section 3.4 of the DPLA forbids developers from "issu[ing] any refunds to end-users", instead providing that "Apple may issue refunds to end-users in accordance with the terms of Schedule 2". (PX2481 (DPLA) § 3.4.)

294. The Guidelines likewise restrict developers' in-app payment solution options.

- a. Guideline 3.1.1 contains the requirement that apps must use Apple's IAP—and no other payment processor—to process payments for in-app purchases of digital content. It provides that "[i]f 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.” (PX56 (App Review Guidelines) § 3.1.1.)

- b. Guideline 3.1.1 also prohibits developers from linking to alternative payment processing solutions outside the app: “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.” (PX56 (App Review Guidelines) § 3.1.1.)

295. Apple also requires developers using IAP to choose among Apple’s pre-defined “price tiers”. (Fischer Dep. 266:12-15.)

- (a) The price tiers in U.S. dollars all end in \$0.99; the highest tier is \$999.99. (Ko; Fischer Dep. 260:18-261:4, 266:12-15; PX2202.)
- (b) When a developer selects a price tier for one currency, Apple requires the developer to use the same tier for all foreign currencies. (Ko; Fischer Dep. 266:12-15; PX2202.)
- (c) Apple changes the foreign currency prices in each tier from time to time at its sole discretion. (Ko; Fischer Dep. 266:12-15; PX2202.)

296. Consistent with these contractual restrictions, Apple has prevented the implementation of other payment solutions. (Sweeney)

- a. In 2009, PayPal asked to be added to the iPhone SDK so that developers could easily choose to design apps that relied on PayPal to provide payment processing services. (PX47; Okamoto Dep. 358:18-19, 358:24-359:1.)
- b. Mr. Schiller rejected this and threatened to remove any such applications from the App Store: “If developers were to use an alternate mechanism for enabling additional features or functionality in their applications, such as via PayPal, they would be in violation of our developer program terms and we would not be able to distribute those applications in the App Store.” (PX47; Okamoto Dep. 359:23-360:9.)

297. Apple has set its 30% commission for in-app purchases without consideration of costs. (Cue; Schiller.)

- a. The competitive level of payment processing fees is around 3% or less in the United States. (Evans; [REDACTED]
[REDACTED]
[REDACTED])
- b. Epic offers developers selling apps through EGS the option of using Epic direct payment for their in-app purchases; Epic offers this service for a commission of 12%. (Sweeney.)

VII. APPLE HAS TIED TOGETHER TWO DISTINCT PRODUCTS—ITS APP DISTRIBUTION SERVICES AND ITS IN-APP PAYMENT SOLUTIONS.

298. Apple is a monopolist in the market for iOS app distribution. (Evans; *see* Part IV above.)

299. iOS app distribution is a separate product from payment processing and related services; but for Apple’s restrictions discussed above and below, developers of apps offering in-app purchases of digital goods could and would utilize payment processing and related services from third parties such as Stripe, Amazon Pay, Braintree and Square, or develop their own payment solutions using such services, just as developers of iOS apps offering in-app purchases of physical goods do today. (Evans; *see* Section IV.A above.)

- a. In fact, on platforms other than iOS, many app stores without market power do not tie distribution services and payment solutions. For example, EGS, itch.io, GetJar, SlideME, ONE Store, and Aptoide all allow developers to choose their own payment solutions. (Evans.)

300. Apple uses its monopoly power in iOS app distribution to coerce developers of iOS apps to use Apple’s payment solution, namely the IAP system, for all in-app transactions involving digital goods. (PX2481 (DPLA) § 3.3.3); PX0056 (App Review Guidelines) § 3.1.1; Evans.)

301. Apple contractually ties together app distribution and payment solutions for in-app purchases of digital goods through the DPLA and App Review Guidelines, which condition distribution through the App Store on the use of Apple’s IAP. (Sweeney; *see* Section VI.D above.)

302. Apple introduced IAP and tied it to app distribution even though it had originally told developers that “when a developer wants to distribute their app for free, there is no charge for free apps at all”. (PX880.) Around the time Apple made that presentation, and before the App Store launched, Apple employees knew that “many games have a healthy after-market in additional game levels, enhanced graphics for in-game activities, and other data up to and including completely new games that can be created from a[n] installed base game engine. Many for a fee. Some developers will want this for their iPhone apps.” (PX897.)

303. IAP has since been very profitable. In fiscal year 2019 alone, Apple’s commission on in-app purchases accounted for over [REDACTED] [REDACTED] (PX2367; PX608, at ‘6318; Evans.)

304. Apple enforces its tie vigorously and has removed thousands of apps from the App Store, or rejected their submission in the first place, because they did not use IAP. (See Section VI.B above.)

305. Apple retaliates against developers who do not use, or threaten not to use, IAP. (Sweeney; PX197; Oliver Dep. 351:12-24; 352:14-17; 359:16-22.)

- a. For example, in 2018, Netflix “ran a series of experiments to determine whether or not IAP was, in fact, increasing the number of subscribers it was obtaining in various geographies”. (Cue 154:7-12; Cue 190:4-10; 190:20-191:1.)
- b. Netflix wanted to conduct this test because it understood that “IAP customers had much shorter subscription lives due to voluntary churn than non-IAP customers” (Cue 154:25-155:3; 155:5) and it

was not sure that keeping IAP in the app was profitable. (Gray 163:12-14; 163:17-20; 163:22-25; 164:2-4; 164:13-16; 164:13-19; 164:22-165:2.) [REDACTED]

[REDACTED]

[REDACTED]

c. [REDACTED]

[REDACTED]

[REDACTED]

306. On August 13, 2020, after Epic activated its own Epic direct payment option within Fortnite on iOS, which Epic offered to users side by side with Apple's IAP, Apple threatened and ultimately did remove Fortnite from the App Store. (PX2459; Sweeney.)

VIII. APPLE’S CONDUCT CAUSES ANTI-COMPETITIVE EFFECTS IN THE MARKET FOR iOS IN-APP PAYMENT SOLUTIONS.

A. Apple’s Conduct Raises the Price of In-App Purchases of Digital Goods Within iOS apps.

307. IAP is the mechanism by which Apple imposes and collects its 30% commission on in-app transactions between developers and their customers. (PX2481 (DPLA) § 3.3.3); PX0056 (App Review Guidelines) § 3.1.1)

308. Apple is well aware that the 30% fee it charges for in-app purchases is far above market rates for comparable services. In December 2017, an Apple employee noted that through IAP “Apple creates a better experience for developers to engage users and offer promotions. It would have to be a LOT better to overcome the 30% hit however. It would also have to meet the need fulfilled by social media platforms for engagement, namely viral reach across friends. This is not something we’ve ever succeeded with (PX0257; Friedman 167:9-167:10; 167:13-167:14; 167:18-168:11; 169:11-169:15).

309. [REDACTED]

[REDACTED] (PX202; Oliver Dep. 404:24-405:3; 405:13-19; 405:21-406:10.)

310. Because Apple charges for IAP a fee reflecting its market power, rather than market rates or the value Apple provides, and for the reasons discussed previously (*see* Part VII above), Apple’s tying of IAP to app distribution leads to higher prices for iOS in-app purchases of digital content.

B. Many Developers Cannot Afford to Pay Apple’s 30% Commission for In-App Purchases of Digital Content.

311. Developers “have complained about the 30 percent commission for digital in-app purchases”. (Cue Dep. 149:15-20.)

312. Developers have expressed concern that “the 30% cut using [Apple’s] In App purchase . . . would mean [they are] losing money on every transaction”. (PX57; *see* Fischer Dep. 120:5-8; 120:18-22; 121:8-11; 122:4-8.)

313. When Apple attempted to impose the IAP requirement on iOS developers who sell physical goods and services, [REDACTED] [REDACTED] (PX422; Cue Dep. 185:2-9; 185-20-25.)

314. Some small businesses cannot afford to absorb Apple’s commission rates—whether 30% or 15%—and cannot afford to pass the costs on to consumers without losing users.

315. Developers pass on the cost of Apple’s commission to consumers (*See, e.g.,* PX438; (“[T]he problem is many can afford 30% but others say they can’t.”).)

C. By Standing as a Middleman in Every In-App Purchase of Digital Content, Apple Interferes with Developers’ Ability to Provide Effective Customer Service.

316. In executing transactions through IAP, Apple uses the iOS user’s Apple ID credentials and associated payment credentials the user gave to Apple when signing on to an Apple device. The developer, by contrast, does not receive any of the credentials related to the transactions. (Gray Dep. 147:8-12.) As a result, the developer selling in-app digital content in an iOS app is not privy to the payment process, which is performed entirely by Apple on the basis of information to which the app developer has no access.

317. Hence, if the transaction raises any issue such as a payment dispute, a request for a refund, etc., both the developer and the user must rely on Apple to communicate with the user and resolve the issue. (Sweeney; Ko.)

318. Developers cannot initiate a refund to customers for App Store IAP purchases, and customers are required to contact Apple for a refund. (Sweeney; Ko.) Apple, in turn, “just provides [to the developer] the transaction ID and the fact that the transaction ID has been refunded” after the fact (Gray Dep. 147:8-12), and “Apple ha[s] the right to retain the commission” when it offers such refunds. (Gray Dep. 134:20-22; 134:24-135:1.)

319. Developers are dissatisfied with the App Store’s refund process. (Gray Dep. 128:8-13, 128:15-25.) While Apple controls the payment solution for the transaction and all post-purchase interactions with the customer, Apple employees have acknowledged that “we have almost no insight into the complex IAP issues that customers present to us.” For example, Apple “cannot verify . . . claims” by customers that errors in apps render their in-app purchases obsolete, and “[a]s a result, AppleCare is forced to employ blanket rules for refunds” that “cause[] some customers to be treated unfairly while also allowing for fraudulent claims to be refunded”. (PX2189 at ‘3687.)

320. Developers are best situated to deal with issues raised by their own customers with respect to issues arising within their own apps; Epic’s support team, for example, is best situated to explain what, if anything, has gone wrong with a purchase, how to use a newly-acquired tool, skin, or weapon, etc. Apple, by contrast, has only one decision to make—whether to refund or not the price of a purchase. In Epic’s own experience, the disconnect between customer service and transaction servicing, and between Epic and its own customers over in-app transactions, has led to confusion and complaints from customers, who contact Epic hoping to rectify disputes over payments—and blame Epic for sending them to Apple about a transaction users rightfully view as a transaction between them and Epic. (Sweeney; PX2419; PX2445.)

321. Developers have complained that “[t]he App Store takes parts of our job that we’re already good at—like customer support, quick updates, easy refunds—and makes them all more stressful and difficult, in exchange for giving Apple 30% of our revenue.” (PX744; Federighi Dep. 469:1-23.)

D. Apple’s Management of IAP Refunds Increases Risk of Fraud.

322. Apple distinguishes in-app purchases of “consumables” from “non-consumables”. “Consumables” are digital items such as lives in a game or app-specific currency—items that are consumed by the user until they are depleted, at which point the user can purchase them again. Non-consumable items, like “skins”, weapons, etc., or an upgrade to the premium version of an app, are purchased once and do not expire after the initial purchase. (PX56 (Guidelines) at § 3.1.1.)

323. Prior to the summer of 2020, when a consumer would request Apple for a refund for a non-consumable product, Apple did not provide a developer “access at that level of detail where they can remove the non-consumable” that was refunded. (Gray Dep. 146:18-20; 146:22-147:6.) This attracted refund fraud, which occurs “when the customer buys and enjoys or resells the content and then requests a refund even though they have actually utilized it, therefore providing inaccurate information in their request for refund”. (Gray Dep. 146:9-13.) It is widely believed in the app industry that the most effective tool against refund fraud is the reversal of the purchase at issue; by contrast, the ability to obtain a refund *and* retain the non-consumable content incentivizes fraud by rewarding it. (Ko.)

324. Apple’s efforts to combat payment fraud appear to have been unsuccessful. As late as March 2019, Mr. Fischer received an analysis indicating that “we’re seeing more fraudulent activity on the platform”, and “potential fraud could be \$MMs”,

equivalent to “2% - 5% of gross revenues” “on iOS alone”. (PX67; *see* Fischer Dep. 205:19-25, 206:12-14.)

E. Apple Does Not Provide Developers Access to Key Analytics About Their Customers, Which They Could Use to Improve Their Offerings.

325. Apple’s IAP payment solution provides summary purchase metrics through App Store Connect. These include reports, data elements, filters and statistics pre-defined and controlled by Apple.

- a. The reporting features do not provide detailed data on payments transactions, including all of the data elements carried in the authorization and settlement messages. Epic, for example, receives a monthly statement from Apple that does not provide transaction details and makes it impossible for Epic to reconcile its transactions and revenue. (Ko.)
- b. When Epic has requested that Apple provide additional detail on payment processing similar to the details provided to Epic by other payment processors—for example, fraud behavior and patterns or authorization rates broken down by country and payment method—Apple has declined to do so. (PX2449; Ko.)

326. As a result of having to use IAP, Epic has also been prevented from forming a direct link between the customer ID in its system and the customer ID in Apple’s system. (Ko.)

- a. In summary transaction reports, Epic receives a record of customer transactions with anonymized subscribed IDs. Epic cannot readily identify the customers of its apps in the IAP payment transaction

details. This lack of information harms Epic’s ability to provide better service to customers on the basis of payments activity, as it is able to do in payment services with other payment processors.

(Ko.)

- b. Other payment processors that Epic works with, such as Adyen, provide for data tagging and reporting that facilitate developer identification of unique customers using a developer-generated ID.

(Ko.)

- c. This information would allow Epic to obtain real-time reporting about its customers’ spending behavior and identify potential areas of improvement in its offerings. (Ko.)

327. The ability to identify the transacting user could allow developers better to identify their users, which could be important for developers for a host of reasons—from better marketing to better safety protocols.

328. [REDACTED]

[REDACTED]

[REDACTED] (Ong Dep. 169:24-170:8, 170:9-19.)

329. [REDACTED]

[REDACTED]

[REDACTED] (Ong Dep. 171:14-173:19.)

F. Apple’s Price Tiers Interfere with Developers’ Pricing in Foreign Markets.

330. “Since 2010, the price for in-app purchases must either be free or . . . some number with .99 at the end”. (Fischer Dep. 266:12-15.)

331. “[A]t least since 2010, [Apple has] been asked from time to time by developers to have more flexibility to charge different prices for in-app purchases”, but “to date the answer has been no”. (Fischer Dep. 266:16-24.)

332. To use IAP for purchases, developers must submit the items they are going to sell using a template provided by Apple and select prices for each product from a list of “price tiers” provided by Apple. Each tier includes a fixed price for every international currency supported by Apple. Apple can and does change the foreign currency prices in each price tier from time to time, at Apple’s discretion and without input or choice from developers. (Sweeney; Ko.)

a. This structure prevents developers from pricing their in-app purchases flexibly to take account of local demand and local preferences.

b. For example, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]. (PX2027.)

333. The price points prescribed by IAP are expressed in U.S. dollars to developers, and Apple then determines the final price for local markets in local currency. Apple also determines the location of the user at the time of purchase, as well as the currency to use, effectively controlling the final price to consumers of developer offerings. (Sweeney; Ko.)

G. By Requiring Apple’s In-App Payment Solution, Apple Deprives Consumers of Innovative Payment Options that Would Offer More Flexibility and Convenience.

334. Absent Apple’s restrictions, developers could offer customers new and innovative payment options for their in-app purchases of digital goods.

335. For example, in other platforms, developers are able to offer customers payment through carrier billing. Carrier billing refers to charging a customer’s phone carrier (*e.g.*, Verizon, A&T), such that the charge appears in the customer’s phone bill. (Cue Dep. 259:4-10; Schiller.)

336. Apple has acknowledged that carrier billing gave customers the “ability of charging [their] carrier bill . . . instead of charging [their] credit card,” which can “make it easier for customers to buy” and could be a “great billing option[] for customers”. (Cue 258:22-260:1.)

337. However, Apple does not allow customers to have this option in connection with in-app purchases utilizing IAP. (Schiller.)

338. Apple’s IAP requirement also prevents consumers from enjoying the benefits of multi-platform payment processors, which also increases users’ mixing-and-matching costs. (Athey.)

- a. Such multi-platform payment processors would offer customers a more seamless experience across platforms, including the recognition of user purchases across multiple platforms, the ability to set and store payment preferences and other account settings, and a more consistent customer experience support. (Athey.)

IX. EPIC IS INJURED BY APPLE’S CONDUCT.

A. Background.

339. Epic has been and continues to be seriously harmed by Apple’s conduct. (Sweeney; Grant; Weissinger.)

340. Tim Sweeney founded the company that eventually became Epic in 1991 at his parent’s home. (Sweeney.)

341. Epic is headquartered in Cary, North Carolina and has more than 2,000 employees in 40 offices worldwide. (Sweeney.)

342. What started as a game company has evolved into much more. Epic now has a number of different lines of business. It is a distributor, publisher and developer of game and non-game apps. (Sweeney.)

343. Epic also makes and distributes tools used by developers for a wide variety of graphic applications in many different industries. (Sweeney.)

344. Epic is a would-be competitor of Apple in the distribution of apps. (Sweeney.)

345. Epic runs the Epic Games Store (“EGS”), an app store available on PCs and Mac computers. (Sweeney.)

346. EGS carries hundreds of games, such as Epic’s *Fortnite* and many third-party titles. It also carries non-game apps, such as Spotify. (Sweeney; Allison.)

347. Absent the restrictions imposed by Apple, Epic would operate a mobile version of the Epic Games Store on iOS that would compete with the Apple App Store. (Sweeney.)

348. Epic and Apple also compete as developers of game and non-game apps.

(Sweeney.)

- a. Epic develops a variety of apps, including games such as *Fortnite*, *Rocket League* and *Battle Breakers*.
- b. Epic also develops the social media app *Houseparty*. *Houseparty* is available to download on the App Store. (PX2781; Sweeney.)
- c. Apple develops its own apps in competition with Epic and other third party apps. (Evans.)

349. As a software developer, Epic develops tools that it licenses to third parties. (Sweeney; Grant.)

- a. Epic develops and distributes the *Unreal Engine*, a software suite that allows developers to create three-dimensional and immersive digital content. (Sweeney.)

350. Developers typically release apps on a global basis. Epic, for example, has distributed the mobile versions of its apps—for both Android and iOS—in more than 150 countries around the world.

- a. Epic distribution for *Fortnite*, its other apps (for instance, *Houseparty*), and *Unreal Engine*, is generally worldwide. (Sweeney.)

351. Epic also offers third-party developers a suite of backend online gaming services through Epic Online Services (“EOS”). (Sweeney.)

- a. These services include matchmaking, player lobbies, peer-to-peer network connectivity, player achievements and stats, leaderboards,

cloud storage for player data, game analytics, ticketing, title storage and access to the Epic account system. (Sweeney.)

B. *Fortnite.*

352. *Fortnite* is Epic’s most popular and successful game app. (Sweeney.)

- a. *Fortnite* currently has more than 400 hundred million registered users worldwide. (Sweeney.)

353. *Fortnite* is a game filled with characters, environments and stories.

(Sweeney.)

354. Since its initial launch in 2017, *Fortnite* has evolved into more than a game. (Sweeney)

- a. In addition to gameplay, *Fortnite* enables users to watch movies or TV shows, attend concerts and participate in global cultural events within the app itself. (Sweeney.)
- b. The development of this array of functionality is a stepping stone towards the creation of a *Fortnite*-based “metaverse”. (Sweeney.)
- c. 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. (Sweeney.)
- d. Gameplay can be a part of a user’s metaverse experience but need not be. (Sweeney.)

355. *Fortnite* is free to download and use. (Sweeney.)

- a. Users have the opportunity (but not the requirement) to purchase digital content within the app—referred to as “in-app purchases”.
(Sweeney.)

356. In-app purchases do not buy game play advantages in *Fortnite*’s two most popular game modes, *Battle Royale* and *Creative*. (Sweeney.)

- a. Users can make in-app purchases of different items that function as forms of self-expression. These include cosmetic enhancements, or “skins” (*i.e.*, in-game costumes); methods of transportation such as gliders; and dance moves known as “emotes”. (Sweeney; Weissinger.)

357. In *Fortnite*’s *Battle Royale* and *Creative* modes, there are two categories of in-app purchases: (1) purchases of V-Bucks, *Fortnite*’s in-app currency that can be redeemed for in-game content, such as each new season’s “Battle Pass” (a feature that provides access to challenges and unlockable content) or cosmetic upgrades, and (2) direct purchases of *Fortnite* content. (Sweeney; Weissinger.)

358. In addition, as of December 2020, players can subscribe to *Fortnite Crew*, which provides users with the Battle Pass for each new *Battle Royale* season, a monthly allotment of 1,000 V-Bucks and exclusive cosmetics. (Weissinger.)

359. Without being able to sell in-app content, Epic would have no viable way of monetizing *Fortnite*. (Sweeney.)

360. Alternative methods of monetization, such as those used by some other games, would fundamentally change the *Fortnite* experience. (Sweeney.)

- a. *Fortnite*'s success depends on its being available to a large number of users, many of whom play the game entirely for free. A pay-to-download model would deter many of these users from downloading the app and make *Fortnite* less attractive to users who spend money in the app and require a large population of players to enjoy the game. (Sweeney.)
- b. If Epic relied on in-game advertising to monetize *Fortnite*, the user experience would be greatly diminished, and many users would be deterred from playing the game. (Sweeney; Weissinger.)

361. Epic has developed and distributed versions of *Fortnite* for Microsoft Windows, macOS, PlayStation 4, PlayStation 5, Xbox One, Xbox Series X/S, Nintendo Switch, iOS and Android. (Sweeney.)

362. A beta version of *Fortnite* was released on iOS in March 2018 ahead of the full release in April 2018. A beta version of *Fortnite* for the Android mobile operating system was released in August 2018, ahead of the full release in October 2018. (Sweeney; Grant.)

363. *Fortnite* added 32 million new players in the second quarter of 2020 alone, the highest quarterly addition of new players since the third quarter of 2018. Although *Fortnite*'s monthly and daily active users have fluctuated over time, *Fortnite* remains hugely popular. (Sweeney; PX2455; PX2456; PX2463.)

364. Epic promotes in-app purchases in *Fortnite* through a number of channels. (Weissinger.)

- a. *First*, Epic runs a “Message of the Day” that appears in the game when players first log in and alerts them to new items in the *Fortnite* item shop that day. (Weissinger.)
- b. *Second*, Epic’s Party Hub feature allows players to preview the item shop—in 2020, more than 50% of all weekly active users swiped into the mobile shop tab within Party Hub. (Weissinger; PX2466.)
- c. *Third*, on Epic has over 100 million followers on its social media platforms such as Twitch, Instagram, Twitter, YouTube and Facebook. Through these channels, Epic promotes newly available in-game products. (Weissinger.)
- d. *Fourth*, Epic partners with popular brands, such as Nike, Star Wars and Marvel, to create new, cool in-game content available for purchase. (Weissinger; PX2446; PX2466; PX2782; PX2783; PX2784.)

365. Epic also offers access to *Fortnite*’s *Save the World* game mode. In June 2020, Epic began distributing *Save the World* in the form of a “Starter Pack”, which includes access to the game and certain exclusive content. Every few months, Epic retires the current Starter Pack and launches a new one, allowing players to get access to more content. (Weissinger.)

- a. Like the other *Fortnite* game modes, *Save the World* enables in-app purchases of V-Bucks. In *Save the World*, however, V-Bucks are redeemable for bundles of gameplay advancing content, such as

new characters and equipment that are updated daily.

(Weissinger.)

- b. *Save the World* is not available on iOS. (Weissinger.)

366. Epic has been responsible for the vast majority of promotional activity that drives in-app *Fortnite* purchases across its many platforms. (Weissinger.)

367. When *Fortnite* was released on iOS in 2018, it was already one of the most popular games in the world. (Weissinger.)

368. When *Fortnite* was available on iOS, Apple often requested to use *Fortnite* to promote the App Store or the iPhone. (Weissinger.)

- a. Being featured in the App Store or through Apple's social media channels had limited marketing value for Epic. (Weissinger; PX2436.)
- b. Apple's marketing team created numerous problems for Epic. For instance, on multiple occasions, Apple leaked *Fortnite*-related materials. (Weissinger.)
- c. In December 2018, Apple leaked a *Fortnite* skin a day before it was supposed to be released to the public. (Weissinger.)
- d. In February 2019, Epic hosted a virtual concert featuring DJ Marshmello on *Fortnite*. Several weeks prior to the concert, Apple asked Epic if it could use the concert as an opportunity to market Apple Music. Apple then leaked the Marshmello set list prior to the event going live in *Fortnite*. (Sweeney; Weissinger.)

- e. In October 2019, Mike Schmid, Apple's business development manager responsible for *Fortnite*, reached out to Mark Rein, Epic's Vice President, requesting assets in advance to support a promotion for *Fortnite*'s upcoming launch of Chapter 2, the largest update to the game since its original launch. Because Epic was planning a surprise release of Chapter 2, Schmid repeatedly assured Epic that he would take personal responsibility for ensuring that Apple did not leak the concept. Despite these assurances, Apple leaked *Fortnite* Chapter 2 artwork ahead of the planned launch, spoiling the surprise for *Fortnite* players on all platforms. (Weissinger; PX2435.)

369. A key feature of *Fortnite* is being an in-game universe that constantly evolves. Epic releases new content and updates, including major changes to the map and gameplay, on a weekly 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 user experience. (Sweeney.)

370. Another feature of *Fortnite* is cross-play. Cross-play is the ability to play with users on different platforms located anywhere in the world. (Sweeney; Kreiner.)

- a. 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 and (until recently) certain iOS mobile devices. (Sweeney; Kreiner.)

- b. Epic pioneered cross-platform play for the gaming industry. It persuaded Sony, Microsoft and Nintendo 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. (Sweeney; Kreiner.)

371. For *Fortnite* users to play together online, they must have the same “version” of *Fortnite* software. (Sweeney.)

372. Apple delisted *Fortnite* from the App Store on August 13, 2020. (Sweeney.)

- a. When Apple delisted *Fortnite*, it prevented Epic from further updating the iOS version of the game. (Grant.)
- b. This cut off iOS users from being able to play with users on other platforms once Epic released its next content update. (Sweeney; Grant.)

C. *Fortnite* Game Modes.

373. Most gameplay in *Fortnite* is multiplayer and requires an internet connection. People can play online with friends and family, with teams or with other gamers of similar skill levels with whom they are matched. (Sweeney.)

374. *Fortnite* includes three main game modes: (i) *Save the World*, (ii) *Battle Royale*, and (iii) *Creative*. (Sweeney.)

375. *Fortnite: Save the World* was the original game mode launched in July 2017. *Save the World* is a cooperative campaign where squads of up to four players team up

to build forts and fight non-playable, computer monsters. *Save the World* is not available on mobile platforms or on the Nintendo Switch. Epic stopped supporting *Save the World* on macOS following the termination of its Developer Program account on August 28, 2020. (Sweeney.)

376. *Fortnite: Battle Royale* is a player-versus-player elimination and survival match involving up to 100 players. *Battle Royale* is the most popular *Fortnite* gameplay mode with storylines and gameplay that evolve over time, as new chapters and seasons are released. A season typically lasts around ten weeks and is a subset of a larger chapter. Although the *Battle Royale* gameplay mode is available to download and play free of charge, users can make a range of in-app purchases for digital content. In-app purchases include special and limited edition digital avatars, costumes, dance moves and other cosmetic items. (Sweeney.)

377. *Fortnite: Creative* mode allows users to create their own content in *Fortnite*, including custom structures. Players that spend time in *Creative* mode are typically more engaged and more social than the average *Fortnite* player. (Sweeney; PX2470.)

D. *Fortnite* as a Social Space.

378. *Fortnite* connects players from around the world in a social experience that, for many, could not be replicated outside the app. *Fortnite*'s capacity to bring people together has been particularly important during the COVID-19 pandemic. (Sweeney.)

379. *Fortnite* has several features that enable social interactions outside of gameplay. (Sweeney.)

380. *Fortnite*'s "Party Hub" feature allows players to see which friends are online, start a virtual party and voice chat. (Sweeney)

381. *Houseparty* is a social media app distributed by Epic. It enables group video chatting and socializing on mobile devices and personal computers. Epic has integrated *Houseparty* into *Fortnite* by enabling players to video chat with friends who are also signed into *Fortnite*. (Sweeney.)

382. *Fortnite* is one of the world's largest event venues. Users can see movies, watch concerts or attend cultural events with their friends within the app. (Sweeney.)

- a. Travis Scott's in-game concert in April 2020 drew over 12.3 million concurrent users, including 2 million iOS users. (Sweeney.)
- b. Three of Christopher Nolan's films—*The Dark Knight*, *Inception* and *The Prestige*—were virtually screened within *Fortnite* in June 2020. (Sweeney.)
- c. Exclusive episodes of ESPN's *The Ocho* and the Discovery Channel's *Tiger Shark King* aired within *Fortnite* on August 8 and 10, 2020, respectively. More than two million users viewed *The Ocho*, while 900 thousand users viewed *Tiger Shark King*. (Sweeney.)
- d. In July 2020, Epic aired *We the People*, a series of discussions on racial equity and voter suppression in America, within *Fortnite*. More than 1.5 million users viewed each event. (Sweeney.)
- e. In March 2021, the DJ Kaskade hosted a virtual concert on *Fortnite*, *Fortnite*'s first concert of 2021. (Sweeney.)

383. The size and impact of *Fortnite*'s events have continued to grow. On December 1, 2020, a record 15.3 million concurrent users joined *Fortnite*'s in-game event

concluding the Marvel-themed Chapter 2, Season 4, with players teaming up to stop the supervillain Galactus from destroying *Fortnite*'s island. (Sweeney.)

384. *Fortnite* continues to evolve from a social game into a more immersive and varied social space that competes not only with gaming companies but also with other social media companies such as Facebook and Netflix. In fact, Netflix has publicly identified Epic as one of its major competitors. (Sweeney.)

E. Cross-Progression Enhances the Complementary, Not Substitutable, Nature of Other Platforms.

385. *Fortnite* supports cross-progression, which means *Fortnite* users can access *Fortnite* across multiple platforms using the same account. This feature allows users to access the same in-game content, and maintain their progress, regardless of the platform on which they play. For users who play *Fortnite* on multiple platforms, cross-progression is an important feature. (Sweeney; Grant.)

386. Epic's data on cross-progression demonstrates that *Fortnite* players use different platforms for different purposes. (Sweeney; Weissinger; Kreiner; PX2442; DX4133.)

- a. *Fortnite* is best experienced on a PC or console, where players can take advantage of a large screen and dedicated game controllers.
- b. *Fortnite* users generally cannot access a PC or console while on the go, such as when they're riding a subway or waiting for an appointment. (Sweeney; Grant.)
- c. Epic's data on cross-progression demonstrates that *Fortnite* users who play on both mobile and non-mobile platforms spend and play more than users who play only on a single platform. This suggests

that for *Fortnite* users, mobile platforms are a complement to, rather than a substitute for, non-mobile platforms. (Sweeney; DX4133.)

- d. Epic’s data shows that users who play *Fortnite* on multiple devices typically spend most of their time within the game on a console or PC, suggesting they only play on mobile where such alternatives are not available.
- e. More than 116 million registered users have accessed *Fortnite* on an iOS device—more than any other platform. (Sweeney.)
- f. But 64% of *Fortnite* for iOS users—73 million in total—have only ever played *Fortnite* on iOS, suggesting they do not have a readily available alternative. (Sweeney.)

387. *Fortnite* also supports cross-purchases, which means that—with the exception of the Sony and Nintendo platforms—*Fortnite* users can buy V-Bucks on one platform and spend them on another platform. (Sweeney.)

F. Epic Games Store (“EGS”).

388. Epic launched the Epic Games Store—also known as EGS—in 2018. (Sweeney; Allison.)

389. EGS both publishes and distributes apps. (Sweeney; Allison.) EGS offers developers an 88/12 split of all revenues from the sale of their games through EGS. EGS also provides developers the choice of using Epic direct payment for in-app purchases within their apps, an optional service it also offers for a 12% commission on sales. (Sweeney.)

- a. EGS’s primary competitor is the digital PC store, Steam, operated by Valve Corp. (Sweeney.)

- b. Steam, as the incumbent, is the source for a substantial share of all game downloads on PC computers. (Sweeney.)
- c. Originally launched in 2003, Steam had historically charged developers a 30% commission. (Sweeney.)
- d. In November 2018, just days before Epic launched EGS with a 12% commission, Steam announced that it was implementing a tiered commission structure whereby it would charge developers 30% on the first \$10 million in sales for an app, 25% on sales between \$10 million and \$50 million, and 20% on all sales above \$50 million. (Sweeney.)

390. Epic has developed business plans to expand EGS's offerings to include mobile apps. (Sweeney; Allison.)

391. Currently, Apple prevents users from downloading EGS onto iOS. (Sweeney; Allison.)

- a. EGS would constitute a "store within a store" if carried in the App Store, violating App Review Guideline 3.2.2. (Sweeney; Allison.)
- b. Users cannot download and install EGS on their iPhones directly from Epic's servers. (Sweeney; Allison.)
- c. EGS's inability to achieve distribution on iOS prevents it from obtaining the scale that would enable further innovations and consumer offerings. (Sweeney; Allison.)

G. Distribution of EGS.

392. At present, EGS is available for direct download onto PCs and Mac computers through Epic's website. (Allison.)

393. Today, EGS has over 160 million registered accounts and more than 56 million monthly active users. (Allison.)

394. EGS supports more than 200 third-party app developers and publishes over 400 of their apps. (Sweeney; Allison; Kreiner.)

395. EGS is available around the world. EGS currently accepts 29 different currencies and supports regional pricing in more than 190 countries and over 30 territories. (Sweeney; Allison; Kreiner.)

H. Epic's Financial Arrangements with Developers Distributing Through EGS.

396. Epic enters into a variety of financial arrangements with third-party developers to distribute their apps through EGS. (Sweeney; Allison; Kreiner.)

397. Epic does not require any developer to use its payment processing system, called Epic direct payment, for in-app purchases. (Sweeney; Allison; Kreiner; PX2434.)

- a. Developers who do not use Epic direct payment do not pay Epic anything for in-app purchases. (Sweeney.)
- b. Several app developers have elected to use their own payment and purchase functionality for in-app purchases. (Sweeney.)
- c. For instance, the developers Ubisoft and Wizards of the Coast use their own payment processing system for in-app purchases in their games distributed through EGS. (Sweeney; Allison; Kreiner; PX2425; PX2429; PX2430; PX2432.)

398. To date, Epic has paid third party developers more than \$700 million in revenue share. (Sweeney; Allison; Kreiner.)

399. Prior to deciding on the 12% revenue share, EGS considered its own costs and revenues and studied the revenue shares of competing distributors of PC games. (Sweeney.)

- a. Epic decided to charge developers a 12% revenue share after it concluded that 12% would be competitive, sufficient to cover its costs of distribution and allow for further innovation and investment in EGS. (Sweeney; Allison; Kreiner.)

400. Many developers who create apps using the *Unreal Engine* distribute those apps through EGS, among other platforms. (Sweeney; Allison.)

- a. Epic waives the *Unreal Engine* licensing fee for all sales made through EGS. (Sweeney; Allison; Kreiner.)

401. EGS offers app developers several services: (1) distribution services (*i.e.*, hosting their games), (2) payment processing services (*i.e.*, facilitating sales of their games and other digital products) and (3) merchandising services (*i.e.*, promoting and advertising their game). (Sweeney; Allison; Kreiner.)

- a. Epic also maintains a developer portal for EGS where developers can publish their games, upload new builds and marketing assets, and access sales and financial data. (Sweeney; Allison; Kreiner.)
- b. Developers who distribute their games through EGS benefit from access to the platform's substantial, growing user base. (Sweeney; Allison; Kreiner.)

402. Epic has developed a software development kit (“SDK”) that developers can integrate into their app to enable publishing through EGS. (Sweeney; Allison; Kreiner.)

403. To create a positive user experience on EGS, Epic has invested substantial resources into acquiring distribution rights for popular games, as well as developing new store features. (Allison.)

- a. Over the past year, Epic has added multiple new features to EGS, including OpenCritic reviews, self-service refunds, additional payment methods and supported currencies, and various searching and browsing enhancements. (Sweeney; Allison.)
- b. EGS gives away different free games to users each week and also runs seasonal sales. (Sweeney; Allison; Kreiner.)

404. EGS operates a single storefront across multiple geographies. (Sweeney; Allison; Kreiner.)

405. Epic expects EGS to become profitable by 2023. (Sweeney; Allison; Kreiner; PX2469.)

- a. EGS is not yet profitable at its current scale and stage of development because it has front-loaded its marketing and user-acquisition costs to gain market share. (Sweeney.)
- b. EGS’s 12% transaction fee is sufficient to cover the variable costs of running EGS, including payment processing, customer service and bandwidth. (Sweeney.)

406. Epic has developed EGS with security in mind. (Sweeney; Allison; Grant.)

- a. EGS users log in to the store using the secure Epic account system.
- b. EGS requires multi-factor authentication and account ownership verification.
- c. EGS requires strong passwords and does not allow users to sign up using common (or easily hacked) passwords.
- d. EGS employs tools to detect, and protect users against, automated login requests. (Sweeney; Allison; Kreiner.)

407. Epic would like to make EGS available on iOS. (Sweeney.)

- a. Apple has prevented Epic from offering EGS to iPhone users by enforcing restrictive policies that forbid third parties from competing with the App Store to reach users on iOS devices. (Sweeney; Allison.)

I. Epic Online Services (“EOS”).

408. Epic offers game developers EOS, an SDK containing a suite of tools. (Sweeney.)

409. EOS includes tools to track app analytics, provide real-time stats and leaderboards, and allow users to see when their friends are online. (Sweeney.)

410. EOS gives developers the option to use Epic’s user account system for their own games, although they are not required to do so. (Sweeney.)

411. EOS is compatible with multiple platforms and software engines including Windows, Mac, Linux, PlayStation, Xbox, Nintendo Switch, iOS and Android. The EOS SDK also can be integrated with an app that uses any graphics engine, including both *Unreal Engine* and a popular competitor called *Unity*. (Sweeney.)

412. EOS is free. (Sweeney.)

J. iOS is an Essential Distribution Channel for *Fortnite*.

413. Because apps are specific to an operating system, Epic had to build separate versions of *Fortnite* for each platform where it chose to offer the game. (Sweeney; Grant.)

414. Smartphones are a necessity for everyday life. They are the only platform devices owned by a majority of people around the globe. And they are the only devices that people keep with them at nearly all times. (Sweeney.)

415. Epic's ability to offer competitive and attractive digital products depends on its ability to offer mobile apps to consumers. (Sweeney; Grant.)

416. There are approximately 3.4 billion mobile users with access to some sort of smartphone technology. (Evans.)

- a. Apple has reported there are over one billion active iOS users.
(Sweeney; Cook; Schiller.)

417. From the time *Fortnite* was launched on iOS in 2018 through August 13, 2020, it averaged 2.5 million daily iOS players, representing nearly 10% of *Fortnite*'s total average daily players. iOS users have spent more than 2.86 billion hours in the app. (Sweeney.)

418. iOS is an important platform to Epic in terms of *Fortnite* revenue. Since the launch of *Fortnite* on iOS and through July 2020, *Fortnite* players spent nearly \$750 million on in-app purchases in *Fortnite* on iOS. Nearly \$500 million of these purchases were made by players who only ever made *Fortnite* purchases on iOS. (Sweeney.)

419. Epic cannot duplicate the iOS platform. Apple has created a unique platform based on the popularity of the iPhone, which has over 40% of the revenue in the smartphone market. (Evans.) Epic is also a game developer, and is not in the business of creating smartphones. (Sweeney.)

K. Engineering Issues.

420. Apple's requests and requirements have caused Epic to spend considerable engineering time and resources to keep *Fortnite* in compliance with Apple's changing developer rules. (Grant.)

421. Epic spent more than a year updating *Fortnite*'s code to make it compatible with the reduction of memory resources that Apple imposed on developers with the launch of iOS 12 and Xcode 11. Epic's engineers have provided feedback to and worked with Apple to resolve bugs in Apple's software. (Grant.)

422. The engineering issues Epic discussed with Apple covered:

- a. The discovery and resolution of graphics driver bugs in iOS and macOS (Grant);
- b. Memory usage and bugs affecting Epic's ability to implement and support iOS and macOS features (Grant);
- c. Investigation into rendering issues in *Fortnite* caused by Apple's Metal software (Grant); and
- d. Epic's testing and providing feedback on Apple developer tools (Grant).

423. Epic also spent nearly a year working to implement Apple’s “Sign in with Apple” service after it was made a mandatory part of the App Review Guidelines in September 2019. (Grant.)

424. Epic officers and employees, including Mr. Sweeney himself, were invited several times to Apple’s Worldwide Developers Conference to showcase Apple’s hardware and graphics APIs through demonstrations of how those could be used by *Unreal Engine*.

L. Epic’s Experience on iOS.

425. Until August 28, 2020, Epic had a Developer Program account with Apple. (Sweeney; Grant.)

- a. Epic first opened its Developer Program account in September 2010. (Sweeney.)

426. Apple terminated Epic’s account on August 28, 2020. (Sweeney; Grant; Schiller.)

- a. As of August 28, 2020, Epic’s Developer Program account was associated with five apps distributed through the App Store: *Fortnite*, *Battle Breakers*, *Spyjinx*, *Infinity Blade Stickers* and *Shadow Complex Remastered*. (Grant.)

427. Epic owns and operates a number of subsidiaries that relate to different parts of its business. Epic’s subsidiaries are separate legal entities that are fully capitalized and maintain all necessary corporate formalities. (Sweeney; PX2467.)

428. Five of Epic’s subsidiaries have separate Developer Program and/or Developer Enterprise Program accounts pursuant to separate agreements with Apple. (Grant.)

429. Epic's subsidiary Epic Games International S.à r.l. ("Epic International") has had a Developer Program account with Apple since 2010. (Grant.)

- a. Epic International published its first app using the account, *UDK Remote*, in November 2010. (Grant.)
- b. Epic International's Developer Program account is currently associated with five apps distributed through the App Store: *Unreal Remote 2*, *Unreal Match 3*, *Action RPG Game Sample*, *Unreal Remote*, and *Live Link Face*. (Grant.)
- c. Epic International has entered into a Developer Agreement and Developer Program License Agreement with Apple for its account. These agreements are separate from Epic's agreements. (Grant.)

430. Epic's subsidiary Life on Air, formerly YEVVO Entertainment Inc., has two Developer Program accounts and a Developer Enterprise Program account with Apple. (Grant.)

- a. One of Life on Air's Developer Program accounts is associated with the *Houseparty* app for iOS and macOS. (Grant.)
- b. There are currently no apps distributed through the App Store associated with Life on Air's other Developer Program account. (Grant.)
- c. Life on Air has entered into Developer Agreements and Developer Program License Agreements and/or Developer Enterprise Program License Agreements with Apple for each of its accounts. These agreements are separate from Epic's agreements. (Grant.)

431. Epic's subsidiary Ka-Ra S.A.S. has a Developer Program account with Apple. (Grant)

- a. There are currently no apps distributed through the App Store associated with the Ka-Ra S.A.S. Developer Program account. (Grant.)
- b. Ka-Ra S.A.S. has entered into a Developer Agreement and Developer Program License Agreement with Apple for its account. These agreements are separate from Epic's agreements. (Grant.)

432. Epic's subsidiary Psyonix has a Developer Program account with Apple.

- a. There are currently no apps distributed through the App Store associated with Psyonix's Developer Program account. (Grant.)
- b. Psyonix has entered into a Developer Agreement and Developer Program License Agreement with Apple for its account. These agreements are separate from Epic's agreements. (Grant.)

433. Epic's subsidiary Games Sweden Scanning AB ("Epic Sweden"), formerly Quixel AB, has a Developer Program account with Apple. (Grant.)

- a. There are currently no apps distributed through the App Store associated with Epic Sweden's Developer Program Account. (Grant.)
- b. Epic Sweden has entered into a Developer Agreement and Developer Program License Agreement with Apple for its account. These agreements are separate from Epic's agreements. (Grant.)

M. Epic's Challenge to Apple's Policies.

434. Mr. Sweeney has long been outspoken regarding his view that Apple should open up iOS to competing app distribution and payment processing solutions. (Sweeney.)

435. In 2015, Mr. Sweeney emailed Tim Cook and other Apple executives urging Apple to consider “separating iOS App Store curation from compliance review and app distribution”. (Sweeney; PX2374.)

436. In January 2018, Mr. Sweeney sought a meeting with Apple through Mark Rein, Epic's Vice President, “to talk about the potential for iOS and future Apple things to operate as open platforms” and discuss how Epic has “a PC and Mac software store and would love to eventually support it on iOS”. (Sweeney; PX2421.)

437. On June 30, 2020, Mr. Sweeney wrote to Apple's senior leadership team asking for Apple to allow Epic to provide a competing app store and competing payment processing, and expressed the wish that Apple “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”. Mr. Sweeney explained that providing these options to iOS device users would allow consumers “an opportunity to pay less for digital products and developers would earn more from their sales”. (Sweeney; PX2457.)

438. On July 10, 2020, an Apple lawyer responded, rejecting Mr. Sweeney's requests. (Sweeney; PX2459.)

439. On July 17, 2020, Mr. Sweeney wrote back to Apple, expressing his continued disagreement with Apple's policies and practices. He wrote: “Epic is in a state of

substantial disagreement with Apple’s policy and practices, and we will continue to pursue this”. Apple did not respond. (Sweeney; PX2458.)

440. Given Apple’s continued refusal to change its policies, Epic chose to take a stand against Apple and demonstrate through Epic’s own actions that competition for payment solutions could exist on iOS, and that consumers would welcome and benefit from such competition. (Sweeney.)

441. On August 13, 2020, Mr. Sweeney informed Apple that in the *Fortnite* app on iOS, Epic was launching Epic direct payment, which was based on the payment system Epic uses to process transactions on PC, Mac and Android for *Fortnite* and EGS. (Sweeney; PX2450.)

442. That same day, Epic announced the *Fortnite* “Mega Drop”, a permanent price reduction of up to 20% for *Fortnite* in-app purchases on PC, Mac, Xbox, PlayStation, Switch and certain Android storefronts. (Sweeney; PX2787.)

443. On iOS, *Fortnite* users were given the option to choose which payment option to use. Players could continue to make their purchases using Apple’s IAP, in which case they would continue to pay the pre-Mega Drop prices, or they could use Epic direct payment option and pay the new, 20% lower prices. (Sweeney.)

- a. Epic believed this approach of lowering prices would have a positive effect on the *Fortnite* community while also ensuring that any differential pricing would demonstrate in full public view how Apple’s IAP requirement imposes a real cost to consumers relative to other payment methods. (Sweeney.)

- b. During the approximately two weeks Epic direct payment was offered alongside Apple's IAP on iOS, a majority of revenue and transactions for the iOS version of *Fortnite* came from players using Epic direct payment. (Sweeney.)

444. Epic understood that Apple might respond to the introduction of a competing payment solution by removing *Fortnite* from the App Store. But Epic also viewed it as critical to demonstrate through public action that competition for payment solutions could exist on iOS, and that there would be strong demand from consumers for such competing options. (Sweeney.)

N. The Hotfix.

445. The technical manner in which Epic enabled Epic direct payment on August 13, 2020, was via a "hotfix". (Sweeney; Grant.)

446. Hotfixes work by coding an app to check for new content that is available on the developer's server or new instructions on how to configure settings in the app. (Grant.)

447. 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. (Grant.)

448. Across all platforms where *Fortnite* is available, including iOS, Epic has used hotfixes to enable hundreds of new features and content elements and correct configuration issues since *Fortnite* was first added to the App Store. (Grant.)

- a. For example, Epic uses hotfixes to implement its highly popular in-game concerts in *Fortnite*. (Grant.)

449. On August 13, 2020, Epic used a hotfix to activate the Epic direct payment option within the Fortnite iOS app. (Grant.)

O. Epic Direct Payment.

450. Developers selling digital content, such as Epic, require some way to enable consumers to seamlessly and efficiently make purchases in their apps. (Sweeney; Ko.)

451. The online payments industry has grown over the last two decades to provide specialized and innovative solutions for handling payments online. There are a number of third-party payment processors such as Chase Paymentech (“Chase”), Adyen, Worldpay, PayPal, Inc. (“PayPal”), Checkout.com, and Stripe. (Ko.)

452. When free to do so, an app developer like Epic can select the payment processor (or combination of payment processors) that best enhances the user experience and helps facilitate seamless, cost-effective, and efficient payment solutions within their apps. (Ko.)

453. Epic has worked with a number of third-party payment companies to offer its own payment solution for its apps distributed directly on Android devices and via the Epic Games Store on PCs and Macs. (Ko.)

454. In 2019, the average fee Epic paid for processing payments for its own U.S. and international ecommerce outside of iOS was 4.3%. (Ko.)

455. In early 2020, Epic solicited competitive bids from five global payment processors: Adyen, Worldpay, Braintree, Checkout.com and Stripe. These firms submitted responses to over 100 questions covering 14 different categories, including product, engineering, finance, user interface, fraud and coverage. After an extensive review, Epic

selected Adyen for integration in China and Europe, and Braintree for Latin America.
(PX2451; PX2452; Ko.)

456. The Epic direct payment solution includes a variety of features like supporting regional pricing and accepting payments in 29 different currencies, combined with outsourced payment processing from providers like Chase, PayPal, and Adyen.

457. The Epic direct payment option that Epic implemented in the iOS version of *Fortnite* is a safe and secure payment system. (Ko.)

- a. The Payment Card Industry Data Security Standard (PCI-DSS) sets rigorous security requirements to prevent cardholder data loss as well as general requirements for the prevention, detection and response to security incidents for all organizations accepting and/or processing payments. (Ko.)
- b. Epic's eCommerce system has been PCI-DSS compliant since 2017. (Ko.)

458. Epic never stores customers' credit card numbers on its systems.

- a. Epic's customers' payment details are stored with the payment service provider such as PayPal or Chase Payments. (Ko.)

459. Epic's security teams perform internal and external assessments and penetration tests of Epic's infrastructure. (Ko.)

- a. These tests leverage a mixture of weekly vulnerability scans and adversarial penetration tests. (Ko.)
- b. Any issues discovered are remediated with the appropriate teams and verified by Epic's security team. (Ko.)

460. Apple has not identified any security or privacy issues that resulted from the introduction of Epic direct payment into *Fortnite* on iOS. (Cue; Fischer.)

P. *Unreal Engine.*

461. First created in 1998, *Unreal Engine* is a software suite available to third-party developers to create three-dimensional and immersive digital content for use in games and other applications. (Sweeney.)

462. Epic also offers the *Unreal Engine* Marketplace, an e-commerce platform through which developers can create and sell art, animation, textures, and other assets to use with *Unreal Engine* projects. (Sweeney.)

463. Millions of developers use *Unreal Engine*. (Sweeney.)

464. Popular videogames that rely on *Unreal Engine* include *Fortnite*, *PlayerUnknown's Battlegrounds* ("PUBG") and *Rocket League*, among others.

- a. These games are played by hundreds of millions of people around the world. *PUBG* alone has hundreds of millions of users on Android and iOS mobile devices. (Sweeney.)

465. *Unreal Engine* is used far beyond the realm of videogames.

- a. Developers use *Unreal Engine* to make digital content for a wide range of commercial uses, including architecture projects, film and television production, medical training, fashion, and more.
(Sweeney.)

466. *Unreal Engine* is uniquely valuable to developers given the breadth of its cross-platform capabilities. (Sweeney.)

467. In 2010, Epic expanded *Unreal Engine*'s capabilities to support the iOS and Android platforms, allowing developers to offer their *Unreal*-powered applications on players' smartphones and tablet devices.

- a. Epic International distributes for free several iOS apps that developers can use to assist with development using *Unreal Engine*. (See Section IX.L above.)
- b. Developers can use *Unreal Engine* to develop game and non-game apps alike for iOS. Epic may be entitled to a royalty for these apps. (Sweeney.)

468. Since 2010, Epic has continued to develop and expand *Unreal Engine*'s platform offerings. (Sweeney.)

469. Today, developers can use *Unreal Engine* to develop games and other software for Windows PCs, PlayStation 4, PlayStation 5, Xbox One, Xbox Series X, Nintendo Switch, Mac computers, iOS mobile devices and Android OS mobile devices. (Sweeney.)

470. Many game developers rely on engines like *Unreal Engine* to develop commercially successful games that will run across a wide range of platforms, and over many generations and new versions of the game. (Grant.)

- a. An engine that cannot support Apple's platforms, for example, would not be a viable option for any developer that wants offer its software to the more than one billion active iOS and macOS users. (Sweeney; Grant.)

471. Open access to *Unreal Engine* is a core part of Epic's business philosophy. (Sweeney.)

- a. *Unreal Engine* is free to use for non-commercial purposes. Anyone can download *Unreal Engine* and learn to create their own projects. (Sweeney; Grant.)
- b. For developers who use *Unreal Engine* to develop and sell their games or other projects commercially, Epic typically collects a 5% royalty after the developer reaches \$1 million in gross sales. Developers then submit a royalty report and pay any royalties due to Epic on a quarterly basis. (Sweeney.)
- c. Alternatively, customers can negotiate custom or royalty-free licenses with Epic. (Sweeney.)
- d. Examples of such custom economic arrangements include a one-time license fee with no royalty or an initial license fee combined with a reduced royalty rate (*i.e.*, less than 5%) on gross sales. (Sweeney.)

472. This model of open access increases game output and competition among game developers, benefitting Apple and other platform makers by leading to the creation of more and higher quality apps for their platforms. (Sweeney.)

- a. [REDACTED] (PX43; Okamoto Dep. 326:16-327:10.)

473. For this reason, platform owners, including Apple do not charge for *Unreal Engine* to create software development tools for their platforms. Instead, they welcome and encourage the use of *Unreal Engine*.

- a. For example, Apple has invited Epic engineers to travel to Apple's campus to work on integrating new augmented reality functionality called ARKit into *Unreal Engine* for iOS developers to use. (Sweeney; PX855; Pruden Dep. 361:19-20, 362:9-13.)
- b. Epic was chosen to present this technology because Apple believed "it would allow developers using their engine to adopt new ARKit functionality", which Apple could use for marketing new Apple devices "that support ARKit". (Pruden Dep. 364:23-365:6, 365:8 365:10-14, 365:16-17.)

474. In connection with Apple's revocation of Epic's Apple developer account, Apple has threatened to terminate all of Epic's and Epic's affiliates' Apple Developer Program accounts and revoke Epic's access to tools necessary to improve hardware and software performance of Unreal Engine on Mac and iOS hardware. (Sweeney.)

- a. Apple's retaliation would disrupt and impede Epic's ability to continue supporting *Unreal Engine* for Apple devices and for Epic's engineers to continue providing support to developers working on iOS and macOS projects. (Sweeney.)
- b. The loss of *Unreal Engine*'s ability to support these important platforms would cause irreparable harm to Epic's product offerings, as many developers would select a competing engine for their new projects or for the next versions of their games. (Sweeney.)
- c. Third-party developers who rely on Epic's engine and support would be in jeopardy of losing the long-term support of Epic and its

Unreal Engine tools for use in connection with Apple devices.

(Sweeney.)

X. SECURITY JUSTIFICATIONS FOR APPLE’S RESTRAINTS ON APP DISTRIBUTION ARE PRETEXTUAL.

475. iOS was designed based on macOS; it inherited many of the core macOS architectural features and improved on some of them. Apple, and over a hundred million macOS users, consider the macOS system to be secure even while permitting users to download apps from sources other than Apple’s official Mac App Store. (*See* Sections X.A-B below.)

476. The most important security protections for iOS devices are provided by iOS itself. This “on-device” security is independent of the app distribution channel. (*See* Section X.C above.)

477. Apple’s decision to depart from the macOS model by excluding third-party app distribution on iPhones was a commercial policy decision, not one driven by technical security considerations. (*See* X.D above.)

478. Apple’s App Review process is cursory and provides minimal security benefits beyond the on-device security that is already provided by iOS. To the extent that App Review does increase security, it does so through automated mechanisms that Apple can employ for apps distributed by third parties (as it does for macOS) and that are replicable (and potentially could be improved upon) by parties other than Apple. (*See* X.E-H.)

479. In fact “rogue” third-party app stores have historically existed on iOS with no known adverse security ramifications. (*See* Sections X.I-J below.)

A. iOS Was Modeled on macOS and Inherited its Core Architectural Features.

480. macOS and iOS are built using the same OS “kernel”. (Federighi Dep. 23:11-16; Forstall Dep. 64:19-21; Mickens.) The “kernel” is the part of an operating system that implements the most basic activities performed by the OS. Examples of these activities

include (1) allocating hardware resources like storage space to different applications, (2) determining which applications should run on which CPUs at which times, and (3) sending commands to hardware components like wireless radios and visual displays. (Mickens.)

481. Mr. Forstall, an engineer who worked on the development of iOS, testified that the iPhone was “released with an operating system that[] [was] based on macOS X”. (Forstall Dep. 64:19-21; PX2756.)

482. Mr. Forstall pushed for, and ultimately succeeded in, convincing Mr. Jobs and other Apple decisionmakers to use macOS X as the basis for the iPhone operating system. (Forstall Dep. 57:2-5.)

483. Mr. Forstall testified that there were many advantages to using macOS as the base of iOS, including that Apple “built macOS X specifically to be a modern operating system” with “exactly the modern operating system facilities we would want to use in any project”. (Forstall Dep. 58:7-17.)

484. As a result, iOS and macOS share several core architectural features, including a number of macOS security features. (PX2756, at ‘20:50-23:03; Forstall Dep. 20:7-16.)

- a. As Mr. Forstall explained in a presentation to the public during an iPhone Software Roadmap Event in 2008, “macOS X is comprised of four architectural layers” and “to build the iPhone OS, we started by taking the bottom three layers of macOS X and moved them straight across, to form the basis of the iPhone OS.” (PX2756.)

- b. [REDACTED]
[REDACTED]. (Haun Dep. 188:9-12; *see* Section X.B below.)

B. Apple Considers its macOS to be Secure, Even Though it Does Not Monopolize App Distribution on macOS.

485. Apple considers macOS to be secure even while permitting third-party app distribution.

486. Historically, App developers for the Mac have had numerous distribution options.

- a. The first Mac was introduced in 1984. (PX2852.) The Mac App Store was not introduced until 2011. (Federighi.)

487. As the Internet became a more prevalent medium for delivering software, developers could distribute apps to Mac users over the Internet directly or through third-party app stores. That did not change when Apple launched its own App Store for the Mac and is true to this day. (Federighi Dep. 31:5-14.)

488. On macOS, Apple provides users with information and choices to enable them to determine whether to install and run apps from alternative sources, and also provides security scanning and protections to apps that are not distributed through the Mac App Store.

- a. *First*, apps can be downloaded and installed via the Apple-managed Mac App Store, which is in many ways analogous to the iOS App Store. In order to distribute apps in this fashion, a developer must register with Apple's Developer Program, submit their app to the Mac App Store's app review process and agree to the terms and conditions of being listed on the store. (Mickens.)

- b. *Second*, a developer that is registered with Apple’s Developer Program can submit its apps for “notarization” by Apple. As explained below, this involves an automated scan for malicious content conducted by Apple, and certain apps are also manually reviewed. At the end of the notarization process, Apple signs the app (or “notarizes” it) and returns the signed binary to the developer for distribution by the developer itself or through a third party online store. When a user attempts to download such an app, a macOS feature called Gatekeeper will confirm the app has been notarized by Apple. (Mickens.)

- c. *Third*, a developer who chooses not to register with Apple’s Developer Program can distribute unsigned, unnotarized apps through third-party app stores and websites. Should a macOS user attempt to open such an unsigned, unnotarized app, the Gatekeeper technology in macOS will prevent the user from installing or opening the app and display a warning screen. macOS allows users to override this warning and install and open the unsigned, unnotarized app by going to the security section in system settings and confirming that they wish to open the app notwithstanding the lack of notarization. (Mickens.)

489. Apple has successfully instituted a number of security features to help protect the macOS platform against malware—“software which deceives an end user as to its function”—and against viruses. (Friedman Dep. 57:20-58:9.)

490. Six notable security features utilized on macOS include: (1) signatures and certificates; (2) notarizations; (3) Gatekeeper; (4) Sandboxing; (5) XProtect; and (6) Malware Removal Tool (MRT).

491. *First*, signatures are used in apps in order to ensure that an identifiable developer created the application and will vouch for its content.

- a. This enables attribution (verifying that only the person or entity identified as the developer could have produced the signature and therefore the app) and integrity (verifying that the binary has not been modified after the developer signed it). (Mickens; *see also* PX461; Federighi Dep. 36:12-23.)

492. *Second*, Apple's notarization process "is an automated system that scans [developers'] software for malicious content [and] checks for code-signing issues". (PX2533, at '1.)

493. Beginning in macOS 10.15, all apps with an associated Developer ID (excluding apps distributed through the Mac App Store) must be notarized by Apple. (PX2533, at '1-2.)

- a. If Apple's notarization service does not detect any issues with the app, then it returns a ticket for the developer to include with the app. Apple also publishes the ticket online in a location where its Gatekeeper program can locate it (*see below*). When a user downloads the app from a source outside of the Mac App Store, Gatekeeper checks the ticket to confirm that the app has been notarized. (PX2826, at '1; Lee.)

b.

[REDACTED]

c. Even after an app has been notarized, Apple can revoke a ticket for malware—and macOS regularly checks for revocation tickets to quickly block malware. (PX2826, at ‘1.)

494. *Third*, Gatekeeper is a system that Apple introduced to block the installation of suspected malware on the Mac. (Federighi Dep. 31:22-32:11.)

- a. Gatekeeper “inspect[s] a Mac application that arrives on a customer’s Macintosh and determine[s] what level of code signature has been applied to that application, and provide[s] the user with information about the signature level attached to that Mac application”. (Haun Dep. 26:6-19.)
- b. Specifically, Apple’s Gatekeeper software on macOS “checks the Developer ID signature to verify that the software is from an identified developer and that it has not been altered”. (PX2536.)
- c. Gatekeeper also will be able to show if an application or plug-in installer is notarized by Apple, and will “notify [a user] if something they are attempting to install was not signed with a developer certificate and notarized”. (Federighi Dep. 32:5-8; 32:12-17.)
- d. Gatekeeper provides security benefits by ensuring that, by default, macOS users can only install and run apps from the Mac App Store or that have been scanned and notarized by Apple. (PX2536, at ‘1.)

495. *Fourth*, sandboxing places software within a “container”, thereby restricting how it can interact with entities outside the container, such as the OS, the local hardware, and other apps. (Mickens.)

[REDACTED]

[REDACTED]

[REDACTED]

(PX461.) [REDACTED]

[REDACTED]

[REDACTED] (PX461.)

[REDACTED]

[REDACTED]

[REDACTED] (Federighi Dep.

207:24-208:1.)

496. *Fifth*, macOS has another device-level security feature, called XProtect, a “kind of built-in antivirus technology” used “for spotting software that fits very specific signatures that have been seen and identified as malware”. (Federighi Dep. 51:11-13; 51:17-25.)

497. *Sixth*, Malware Removal Tool (MRT) is another macOS tool used for malware removal if any piece of malware has evaded the mechanisms noted above. (Federighi Dep. 53:18-20.)

498. On macOS, all these security mechanisms can be further enhanced through the use of third-party malware detection and protection software from companies like Symantec, McAfee and Avast. (Federighi Dep. 53:9-12.)

499. Apple disagrees that “it’s unsafe to use a Mac”, believing instead that “using a Mac is not insecure”. (Okamoto Dep. 273:1-6, 273:15-20; 273:22-274:4.) Apple does not state, internally or externally, that macOS is less secure than iOS. (Okamoto Dep. 279:7-9.)

500. Apple publicly touts the security of macOS, promising Mac users that they can enjoy “Security. Built right in.” and can “[d]ownload apps safely from the Mac App Store. And the internet”. (PX0741.)

- a. Apple has also claims that it “design[s] Mac hardware and software with advanced technologies that work together to run apps more securely, protect your data, and help keep you safe on the web”. (PX0741.)

501. Ultimately, the “application security” on “macOS consists of multiple overlapping layers” that give its users choices: “a user can [choose to]. . . run only software that is signed and notarized” or, alternatively, “to run only applications downloaded from the Mac App Store”. (Federighi Dep. 53:21-54:8.)

502. The level of security of macOS is a level of security that the market finds satisfactory. (Federighi Dep. 83:12-15; 83:17-18.)

503. [REDACTED] (PX2363.)

C. Apple’s Decision to Forbid Third-Party Distribution Outside the App Store Was a Policy Decision, Rather Than a Technical Requirement.

504. When Apple permitted third-party developers to create apps for iOS, it made a policy decision to restrict third party app distribution to the App Store.

505. In 2007, Apple prepared a number of internal white papers to assess the implications of distributing third-party apps on the iOS platform. (PX875; Forstall Dep. 108:22-24; 109:18-110:4.)

a. These papers, which were “technical document[s] from a technical team . . . building the security infrastructure,” explicitly contemplate the possibility of distribution outside the App Store, and assume that “the technical infrastructure [they were] building w[ould] allow for other distribution mechanisms” beyond the App Store. (Forstall Dep. 129:19-130:1; 130:5-19.)

b. [REDACTED] (PX877; Forstall Dep. 125:12-15; 127:3-8; 129:8-18.)

c. [REDACTED] (PX877; Forstall Dep. 130:22-131:7.)

d. [REDACTED]

[REDACTED]
[REDACTED] (PX877.)

506. Even after the announcement of the launch of the App Store and presentation of the SDKs, Apple was still contemplating whether to allow for third party app distribution outside of the App Store. (PX881 (email chain between S. Forstall and S. Jobs discussing alerts for when users run applications not distributed through the App Store for the first time); Forstall Dep. 178:11-12; 179:2-5; 182:24-183:6; 183:13-20.)

D. Security, Including for the iPhone, is Ensured First and Foremost by the OS and Hardware.

507. Most essential security functions for mobile devices are performed “on-device” by the OS. (Mickens.) This security layer is independent of the app distribution channel.

508. There are a number of security features that iOS provides at the operating system level. (Mickens; Lee.)

- a. These include features such as: (1) sandboxing; (2) address space layout randomization (ASLR); (3) W^X memory; and (4) secure booting. (Mickens.)

509. *First*, in order to enforce sandboxing, the OS only needs to know what kind of sandbox restrictions to apply to an app—which is “totally unrelated to the app review process.” (Mickens.)

- a. Many popular OSs—such as Windows, with its mapped sandbox folders—implement some kind of sandbox directory mechanism. (Mickens.)

510. *Second*,

(PX461.)

- a. Every computer application will have instructions and data loaded into hardware called random access memory (RAM), which will then perform the desired application tasks. (Mickens.)
- b. ASLR makes it more difficult for potential attackers to “inappropriately access the code and data in a process’s RAM.” (Mickens.)
- c. All commodity OSs—like Windows and Linux—support ASLR. (Mickens.)

511. *Third*, “code integrity” protections, like write exclusive-or execute memory (W^X memory), prohibit attackers from “writ[ing] too much memory” (which may allow attackers to get the program to execute code of their choosing) and do not allow new code to be written into a process. (Mickens.)

- a. W^X memory does this by conditionally designating each memory location as either writable or executable, but not both; this leads CPUs to refuse to execute instruction in memory locations marked as writable but non-executable, and to refuse to allow an update to a memory address that has been marked as executable but non-writable. (Mickens.)
- b. Such code integrity protections are also supported by other OSs. (Mickens.)

512. *Fourth*, [REDACTED]

[REDACTED]
[REDACTED]
(PX461; Mickens.)

a. [REDACTED]

[REDACTED] (Mickens.)

513. [REDACTED]

[REDACTED]. (Shoemaker Dep. 484:20-485:17.)

514. These OS-level security measures are all independent of the app review process. (Mickens.)

E. Apple's App Review Is cursory, is opaque and yields poor results.

515. [REDACTED]

[REDACTED] (Schiller.)

516. [REDACTED]

[REDACTED]. (Lee.)

517. [REDACTED]

[REDACTED] (Lee.)

a. The majority of app rejections are for non-security issues. (Lee.)

518. Apple does not recruit reviewers with sophisticated technical backgrounds. (Shoemaker Dep. 35:24-36:3; 38:1-7.)

a. Historically, Apple has only required applicants to have familiarity with, but not expertise in, Apple's products and brand image. (Shoemaker Dep. 38:1-7.)

- b. When the App Store first began, applicants were considered qualified if they “understood how to use a Mac”, “understood how to use an iPhone”, “understood a little about the Apple brand”, “could breathe . . . could think”. (Shoemaker Dep. 35:24-36:3.)
- c. In current job postings, listed qualifications for App Reviewers primarily include nontechnical skills such as teamwork, curiosity, clear communications and resilience. A thorough knowledge of macOS and iOS is noted as “helpful,” but not a requirement. In addition, applicants are preferred, but not required, to have a Bachelor of Sciences or Arts degree or equivalent work experience. (Lee.)

519. From its inception, the “guiding principle in App Review” is that it “review[s] . . . not test[s]” apps. (PX140.)

- a. “Test[ing] implies or outright infers that the individual providing [the] test has done a comprehensive use of the application, exercising most if not all of the functionality of an application, and not only testing all the functionality of the application, but [also] testing certainly much of the application under different conditions with . . . different data and by attempting to induce failure modes . . . and see[ing] how the application fares under a test like that.” (Haun Dep. 239:23-240:11.)
- b. The App Review team does not perform such “comprehensive test[s]”. (Haun Dep. 240:12-13.)

520. When an app is assigned to a reviewer during App Review, the reviewer is provided certain information about the app that Apple tools have collected or that has been provided by the developer.

a. [REDACTED]
[REDACTED] (Haun Dep. 43:21-44:2.)

b. [REDACTED]
[REDACTED]
[REDACTED] (Haun Dep. 44:2-5.)

521. Because of Apple's requirements that all apps on iOS be distributed exclusively through the App Store—and that all apps on the App Store undergo App Review—the volume of apps submitted does not permit robust review.

a. As of April 2016, the human review process typically took approximately 13 minutes per app for new apps and 6 minutes per app for updates to existing apps. (Shoemaker Dep. 56:15-17.)

b. App Reviewers typically review between 50 to 100 apps per day, and productivity is tracked internally. (PX06.)

c. In certain instances, reviewers took less than a minute to review apps.

d. [REDACTED]
[REDACTED]
[REDACTED] (PX103; Shoemaker Dep. 134:8-10.)

522. [REDACTED]
[REDACTED] (Fischer; Kosmyka.)

- a. The ERB is a group of individuals who “set[] policy for the App Store” and make the ultimate decisions as to what is or is not allowed into the App Store. (Kosmynka Dep. 32:18-32:23; *see also* Fischer Dep. 43:24-44:3.)
- b. The ERB also determines “exceptions to policies or [G]uidelines”. (Shoemaker Dep. 113:3-4.)
- c. Phil Schiller, Eddy Cue, Matt Fischer, and Scott Forstall have all been members of the ERB. (Shoemaker Dep. 114:6-8; PX2333; PX146.)
- d. Mr. Schiller and Mr. Cue have been on the ERB since the App Store was first launched (which is when the ERB came into existence). (Cue Dep. 29:5-9; 30:11-30:16.)
- e. Mr. Schiller is considered “the head of the ERB”. (Fischer Dep. 45:2-6; *see also* Shoemaker 48:9-13.)
- f. “[I]n the beginning”, Mr. Schiller, Mr. Cue and Mr. Forstall “had veto power”, meaning that if they instructed others not to approve an app, that app would not be approved. (Shoemaker Dep. 113:18-20; 114:6-8.)
- g. “[C]ompeting apps sometimes faced issues at the ERB because of positions taken by” its leaders. (Shoemaker Dep. 490:21-23.)
- h. Such apps were delayed or rejected for “pretextual” reasons. For example, certain apps that may have competed with Apple’s apps or

features, such as Google Voice, were “rejected on pretextual grounds”. (Shoemaker Dep. 76:6-77:2; 88:8-9.)

- i. ERB meeting notes also make clear that a priority was to prevent entry of “apps that replaced” the App Store. (PX111; Shoemaker Dep. 175:4-176:7.)
- j. In 2011, the ERB asked Mr. Shoemaker “to hide” and “remov[e]” an app called Big Fish Games and offered “no guideline” as the basis for doing so. (PX113.) The app was rejected for being a store within a store. (PX113.)
- k. In 2013, another app from the same developer was “remov[ed]” “immediately” because Mr. Schiller and Mr. Cue were “adamant” about its removal, despite Mr. Shoemaker’s “protest[s]” that there was no clear justification for doing so under the app review guidelines. (PX115.)
- l. The ERB’s decisions are a black box to developers. Even Apple employees tasked with “communicating and enforcing” App Store policies lack visibility into the ERB’s decision-making rationale. (Haun Dep. 232:17-233:3.)

F. Apple Has Historically Lagged Behind Other Platforms in the Use of Automated Tools for App Review.

523. Automated tools for app review are commercially available. (Lee.)

524. Apple has historically lagged behind Google in its use of automated tools for App Review. (PX137; Haun Dep. 140:15-141:12.)

525. Around 2015, Apple recognized that Google used automated tools since the beginning of its app store.

a. Google’s tools included dynamic analysis (as opposed to Apple’s then-static code analysis), automated text analysis (*e.g.*, for “bad words”), automated pornography screening, an automated “test harness” (a program that simulates running the program) and others. (PX137.)

b. Apple did not have these tools at the time. (PX0144; Haun Dep. 289:21-22; 291:16-20; 293:10-16.)

c. [REDACTED] (PX2052; Haun Dep. 140:20-141:12; Kosmyinka Dep. 125:6-127:25.)

526. [REDACTED]

[REDACTED]

[REDACTED] (Lee.)

a. Unable to replicate SourceDNA’s capabilities internally, Apple became interested in acquiring SourceDNA, and completed the acquisition in 2016. (PX2052; Haun Dep. 140:15-141:7; 154:12-17.)

b. SourceDNA made “a tool set [that] very much helped [Apple]” (Haun Dep. 140:15-141:7; 154:12-17), and that Apple uses “to find hidden or obfuscated private APIs”. (Kosmyinka Dep. 129:6-15; *see also* PX465; Federighi Dep. 185:18-186:11.)

G. App Review Does Not Ensure Security or Quality.

527. Apple’s ability to detect malicious apps during the App Review process is limited. (Friedman Dep. 94:9-23.) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Cue Dep. 169:1-4; 169:6-9.)

528. For example, app review has limited ability to detect “Jekyll” apps, or malicious apps that can alter their behavior post App Review. (PX465; Federighi Dep. 177:5-16.)

529. Apple FEAR (Fraud Engineering Algorithms and Risk) team is responsible for detecting and deterring fraud and abuse in the App Store, and tasked with “preventing illicit distribution” on iOS, meaning “distribution outside of the App Store”. (Friedman Dep. 57:24-58:9.) The leader of the FEAR team’s view is that App Review “would not accomplish anything that would deter a sophisticated attacker”. (*E.g.*, Friedman Dep. 94:9-19; PX251.)

- a. The FEAR team further believed that “App Review is bringing a plastic butter knife to a gun fight”, that the process amounts to “a wetware [*i.e.*, a human-led] rate limiting service and nothing more”, and that Apple had not invested sufficient resources to detect and prevent the abuse. (Friedman Dep. 82:22-83:3; PX250; PX251.)
- b. In late 2017, even after Apple had acquired certain automated tools, the FEAR team still estimated that App Review “was more like the pretty lady who greets you with a lei at the Hawaiian airport than

the drug sniffing dog”. (PX252.) FEAR likened App Review to TSA employees, “under pressure to move people through” and “not able to deflect sophisticated attackers”. (Friedman Dep. 97:20-98:9.) FEAR believed App Review is judged by, and therefore is focused on, “‘how my apps can we get through the pipe’ and not ‘what exotic exploits can we detect?’” (PX252.)

530. Numerous malicious apps have been approved by App Review.

(Shoemaker Dep. 214:23-214:25.)

- a. Such apps may “defraud users of large sums of money” (PX65; Fischer Dep. 180:21-181:17; 181:25-182:3) or “manipulate” “ratings and review[s]” to try increase downloads. (Fischer Dep. 203:8-204:14.)
- b. In some cases, fraudulent apps evade Apple’s screening even after multiple rounds of App Review. (Friedman Dep. 121:19-23.)
- c. For example, in 2017, Apple conducted a “case study” of an app fraudulently offering virus scanning. (PX253; Friedman Dep. 115:5-6; 115:15-18.) After being rejected twice, the app was accepted because the reviewers did not know about the prior rejections. (PX253.) When released on the App Store, the app began fraudulently and aggressively offering weekly renewing subscriptions to non-existent “virus scanning” services for \$99.99 through IAP. (PX253.) Eventually the app became one of the “Top

Grossing” apps in the App Store. (PX253; Friedman Dep. 123:8-123:23.)

d. Another user described an experience with a TouchID scam: “[T]he app launched a pop-up asking, ‘Enable TouchID access to photos?’, I tapped ‘Yes’ and then it merely prompted me to place my finger on the home button. As soon as that happened, it darkened the screen’s brightness to zero (so hardly anything could be read) and an in-app notification to purchase premium membership (no description whatsoever about its content) for \$89.99 appeared. As the App Store purchases were Touch ID enabled, this authorized the transaction and I was charged \$89.99”. (PX372; Kosmyinka Dep. 357:16-358:1.)

e. In January 2018, Apple received a slide deck summarizing how one app called “Ringtones Z Premium” and its “sister apps” were “reaping in hundreds of thousands of dollars a month from unwitting customers through fraudulent and misleading practices”. (PX2029, at ‘542; Kosmyinka. Dep. 354:20-355:10.) Users had posted “dozens of complaints” in the app reviews, which Apple found to be “shocking”. (PX2029, at ‘542; Kosmyinka Dep. 354:20-355:10.)

f. [REDACTED]

[REDACTED]

[REDACTED] (PX63.) Developers also raised concerns to Apple regarding fraud. (PX67.) One such developer wrote to Matt Fischer, head of the App Store, and reported that Apple “was seeing more fraudulent activity on the platform,” and potential fraud could be \$MMs”, equivalent to “2% -5% of gross revenues” “on iOS alone”. (PX67.) Other types of fraud include [REDACTED] [REDACTED] (PX2245),

531. Apple has no evidence that App Review screens for security issues better than other methods of app distribution. (Kosmyinka Dep. 29:14-21; 30:13-31:2, 69:8-69:10, 69:18-70:14; Fischer 143:5-144:4.)

532. Apple has not commissioned studies regarding security issues stemming from side-loading apps on Android phones or jailbroken iPhones. (Kosmyinka Dep. 29:14-21, 30:13-31:2; Fischer Dep. 33:22-34:2.)

- a. In fact, iPhones are not significantly more secure than Android phones, even though the Android operating system nominally permits third-party distribution of apps. (Mickens.)

533. Apple also has not commissioned any studies regarding the security of other app stores—including the Google Play Store, the Tencent Store, the Huawei Store, the Baidu Store or the Epic Games Store—compared to Apple’s App Store. (Kosmyinka Dep. 69:8-69:10; 69:18-70:14.)

534. Apple likewise has not commissioned any studies that evaluate whether apps downloaded to devices through Apple’s Enterprise Program—and that do not undergo

App Review—are more or less secure than apps downloaded from the App Store. (Fischer Dep. 143:5-144:4.)

535. As part of content moderation, Apple purports to review apps for fake “copycat” apps, or apps that may purport to be another trademarked app. (Shoemaker Dep. 407:12-17.) This has not succeeded. Apps that are “obvious rip off(s)” of other apps have made it through App Review multiple times.

- a. An app called “Temple Jump” that was “a rip off of a top selling game”, Temple Run, was approved for distribution on the App Store. (PX60; Fischer Dep. 173:18-174:6.)
- b. In January 2016, “a fake Minecraft app”, “passing itself off as a \$6.99 official sequel”, “reached the Top 5 in the US Paid charts with the press picking up on it”. Apple removed the app from the App Store, but three months later had “another fake Minecraft Pocket Edition 2 live on the store”, which at the time was “currently No. 2 in the UK Paid iPad chart”. (PX61, at ‘738-739; Fischer Dep. 178:11-14, 178:21-179:6, 179:15-18, 179:20-21.)
- c. In November of 2016, the CEO of Headspace emailed Apple to complain of “repeated egregious theft of our IP in the Apple App Store” from submissions of paid apps to the App Store “called ‘Headspace’ with imagery, description, branding etc[.] identical to ours”. The CEO complained that “[s]hockingly, Apple [is] approving these apps, and when the users buy the apps they are left with nothing but some scammy chat rooms in the background,” that

this sequence of events has occurred “four separate times” in the span of a month, and that the CEO had “proof that consumers are confused by this because users have left negative comments on our social channels as a result”. (PX364, at ‘261; Kosmyнка Dep. 352:23-353:10).

536. Apple also purports to review apps for “[o]bjectionable content”, which includes “overtly sexual or pornographic material”, as well as “illegal or reckless use of weapons and dangerous objects”. (PX56, at ‘§ 1.1.)

- a. [REDACTED]
[REDACTED]
[REDACTED] (PX131; [REDACTED])
- b. [REDACTED], a “school shooting game”—an app that described itself as providing “the newest high school terrorist attack where criminals have bombarded the compound and are making students hostages”—passed App Review a mere two weeks after the massacre at Stoneman Douglas High School in Parkland, Florida; this app and others like it were not removed until after a 14-year-old app developer alerted Apple to the fact they were listed in the App Store. (PX131, at ‘538-40; Haun Dep. 142:20-23, 143:7-13.)
- c. Apple had not enforced certain controls, such as requiring developers to use an “ask to chat” feature for under-13 accounts. As a result, in 2020, Apple employees estimated that Apple is “the

greatest platform for distributing child porn, etc.”, noting that “there is a lot of this in our ecosystem”. (PX276, at ‘205-206; Friedman Dep. 100:14-15; 346:19-346:24; 347:6-347:11.).

537. [REDACTED] (PX98;

Shoemaker Dep. 69:20-71:20.)

- a. “[O]ne person’s hatred of a product is going to make it so it’s never available in the App Store.” (Shoemaker Dep. 70:17-20.)
- b. As a result, “developers read [the Guidelines] one way”, and spend time and money to build and submit an app, only to have Apple reject it because it “interpret[s] that line [of the Guidelines] differently”. (Shoemaker Dep. 70:17-20; 72:9-12.)
- c. As a result, developers are “complaining about Apple’s criteria being unclear” “every day”. (Shoemaker. Dep. 126:20-23.)
- d. Apple has failed to provide meaningful guidance concerning whether and how developers’ apps and/or features could meet Apple’s approval.

e. [REDACTED]

[REDACTED] (Ong Dep. 63:2-3, 63:5-7.)

f. [REDACTED]

[REDACTED] (Ong Dep. 65:15-17; 65:19-66:4.)

g. [REDACTED]

[REDACTED]

[REDACTED]
[REDACTED] (Ong Dep. 62:15-16; 62:18-63:1; 63:8-64:16;
65:1-14.)

538. In Epic’s experience, updates to *Fortnite* would often be rejected by Apple because a review would take issue with functionality or wording that had been in *Fortnite* for some time. (Grant.)

539. In addition, the App Review team carries a backlog in app submissions for review “100 percent of the time”. (Kosmyнка Dep. 202:2-11.)

- a. Complaints regarding delays persist to the present. (Kosmyнка Dep. 132:11-17.)

540. Epic and other developers have experienced harmful delays in Apple’s app review process. (Sweeney; Grant.)

- a. The requirement that users run the same version of *Fortnite* is critical to enable cross-platform play. That combined with the regular release of new content and updates through new versions or builds make it vitally important that new builds launch on all platforms at the same time. (Grant.)
- b. While on iOS, cross-platform launch required Epic to request that Apple expedite the review of new *Fortnite* builds, as Apple’s review process lagged behind the review process on all other platforms. (Grant.)

- c. [REDACTED]
[REDACTED]

[REDACTED] (PX442;
Pruden Dep. 358:21-359:24.)

- d. On a handful of occasions, Epic also needed to submit expedited propagation requests because new *Fortnite* builds that had already been approved by Apple’s review process were for some unknown reason not made available to users through the App Store in a timely manner. (Grant.)

541. The delay in Apple’s review process was not typically caused by any rigor in the manual review process itself. (Grant.)

- a. Apple’s developer portal would often show that new builds were “waiting for review” for days. (Grant.)
- b. Once in review, however, the actual process would take as little as a few minutes. (Grant.)

H. Even if Apple Ended Its Prohibition on Third-Party Distribution, App Review’s Security Protections Could Be Maintained by Apple or Replicated by Third Parties.

542. Apple can implement security features on iOS without restricting app distribution to the App Store.

- a. [REDACTED]
[REDACTED]
[REDACTED] (Lee.)

543. In addition to the system-level protections already built into iOS, Apple could also implement the same security features it uses on the Mac to further secure iOS, including “all the layers that are currently in macOS”. (Federighi Dep. 80:2-5.)

544. Apple's signature process for macOS applications is already substantially similar to the process used for iOS. (Haun Dep. 25:1-6.)

- a. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Lee.)

545. Apple could also use a notarization system in iOS as it does in macOS. (Haun Dep. 37:5-37:13)

546. In addition, third parties can also perform app review. (Lee)

- 547. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Lee.)

548. Each of the steps that Apple performs can be replicated by a third party. (Lee; Shoemaker Dep. 203:21-204:10.)

549. *First*, [REDACTED]
[REDACTED]. (Kosmyka Dep. 122:10-123:8)

- a. Third parties can manually verify SDK versions or write automated scripts to perform this step. (Lee.)
- b. For example, a third party can examine an app's manifest file, which contains information about the SDK used for development. (Lee.)

- c. A third party can then cross-reference this information with Apple's requirements for a minimum SDK version, which Apple publishes on its website. (Lee.)

550. *Second*, Apple uses manual review and automated tools to screen apps for usage of private APIs. (Haun Dep. 191:23-25; (Kosmynka Dep. 129:6-15.)

- a. To screen for usage of private APIs, Apple uses both static and dynamic analyzers (PX137; Haun Dep. 210:12-17; Kosmynka Dep. 125:6-127:25; 250:14-16.)
- b. A static analyzer is a program that flags violations of simply syntactic rules in binary code, meaning that they compare the content of app binaries to a set of syntactic rules or strings. (Lee.)
- c. A dynamic analyzer is a program that executes a program and monitors the execution to detect vulnerabilities, such as unauthorized use of Apple's private APIs. (Lee.)
- d. Third party static analyzers have been created and are publicly available. (Lee.)
- e. 

(Lee.)
- f. Moreover, they have been used and developed by academics to identify insecure apps that have evaded detection during App Review. (Lee.)

g. [REDACTED]

(Kosmyinka Dep. 125:6-126:22; Lee.)

h. If a reviewer has a list of APIs that it is trying to screen for, it is simple to set up a process to automatically screen for the use of those APIs. (Rubin.)

i. [REDACTED] (Lee.) By subtracting public APIs that the public has been authorized to use from this list of APIs thus generated, a third party could arrive at a list of private APIs that apps should not be calling upon. (Rubin.)

j. [REDACTED] (PX144; Haun Dep. 289:21-22; 290:11-291:7.) [REDACTED] (Lee.)

k. To the extent that there may remain some number of private APIs that are unknown outside of Apple and hence not in active use by any developer, third parties need not screen for them because unknown APIs pose no security risks. (Rubin.)

551. *Third*, Apple screens for malware using both human and automated tools.

a. [REDACTED]
[REDACTED]
[REDACTED] (Haun Dep.
202:11-203:18.)

b. [REDACTED]
[REDACTED]
(Shoemaker Dep. 452:21-25.)

c. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Lee.)

552. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Lee.)

a. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX2006, at '616; Lee.)

b. [REDACTED]
[REDACTED]

[REDACTED]

(PX2006, at '616.)

c. [REDACTED]

[REDACTED]

[REDACTED] (PX2905, at '296.)

d. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX2006, at '616.)

e. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Lee.)

f. [REDACTED]

[REDACTED]. (Lee; Haun Dep. 181:6-10.)

553. [REDACTED]

[REDACTED] (Haun Dep. 44:10-12.)

a. Third parties have existing tools that provide similar technology and third parties are also able to build their own private proxies. (Lee.)

554. *Sixth*, at least in 2010, Apple performed a bandwidth test for any apps that involved streaming video or audio, or involved photos. (PX101, at '874-878; Shoemaker Dep. 110:8-24.)

- a. Third parties can perform this test using built-in iOS functions.
(Lee.)

555. Third parties can also screen for non-security properties, such as content moderation and quality assurance.

- a. Content moderation and quality assurance testing are common and regularly performed by a variety of third-parties using numerous techniques. (Lee.)

I. Apple Already Permits Direct Downloading of Unreviewed Third-Party Apps Through the Enterprise Program.

556. Apple already allows some controlled direct downloading of third-party apps onto the iPhone through the Enterprise Program. (Federighi Dep. 236:5-237:11; Friedman Dep. 286:7-17.)

557. When a developer “enrolls in the enterprise developer program, they are in position to generate certificates and . . . profiles, and they can develop an app, sign it and distribute it with that profile and that certificate. Someone can then download it from a location of their choosing, install it and agree to trust that profile, and the app will then run”. (Friedman Dep. 286:3-14.)

- a. The Vice President of the App Store, Matt Fischer, testified that he is not “aware of any studies within Apple that have looked at any security issues created on an iOS device[] as a result of the download of an enterprise app”. (Fischer Dep. 143:19-23.)
- b. Mr. Fischer also testified that he is not “aware of any instance . . . [where] any enterprise app downloaded on to an iPhone

has created a security issue beyond a single iPhone”. (Fischer Dep. 143:24-144:4; 144:6-7.)

J. Apple Has Rejected ‘Store Within a Store’ Apps for Anti-competitive Reasons, Not Because of Security Concerns.

558. Despite Apple’s policies, there are several apps on iOS that do offer (or have in the past offered) access to other apps, and thus constitute “stores within a store”. Regardless of the reason Apple allows these apps on the store, these apps have not caused any security issues. (Kosmyinka Dep. 84:18-24.)

559. Tribe is an app store that was available through the App Store for a three-year period: 2015-2018. (PX301; Kosmyinka Dep. 77:16-21; 78:3-6.)

- a. Tribe is described as a “live multiplayer games platform”. (PX301.)
- b. After being available for three years through the App Store, in 2018, Apple informed Tribe that it would be “hidden” because it violated Guideline § 3.2.2 by being a store within a store. (PX301.)
- c. When an app is “hidden”, it is deleted from the App Store and not available for download. (PX301.)
- d. The founder of Tribe, Cyril Paglino, complained that Apple’s explanation for removal was “vague” and that “Apple just changed its guidelines about applications that have onboarded mini games inside”. (PX301; Kosmyinka Dep. 77:16-21; 78:3-6.)
- e. There was no mention of security in either the message conveyed to Ms. Paglino or the Apple employee’s description of the reasons for the app’s removal. (PX301.)

- f. Apple has not identified any security issue posed by Tribe during the time it was available on the App Store. (Kosmynka Dep. 84:18-24; 92:17-20.)

560. At present, Apple knowingly has at least one store-within-a-store on iOS:

Roblox.

- a. Roblox is an app where users “can play different types of games within the Roblox app”. (Fischer Dep. 56:12-16.)
- b. Roblox is extremely popular. (PX2302, at ‘496 [REDACTED]
[REDACTED]
[REDACTED]
- c. Apple has “earned commissions from in-app purchases” on Roblox. (Fischer Dep. 60:11-17.)
- d. In December 2014, Roblox was escalated to the ERB for the same “store within a store” issue. It was approved. (PX305; Kosmynka Dep. 94:15-20.)
- e. Roblox was approved even though the ERB recognized that “[t]he app is streaming games” that “don’t come into review”. (PX305.)
- f. Roblox remains on the store today. (See PX2666 [REDACTED]
[REDACTED]
- g. Apple is unaware of security issues introduced onto iOS as a result of Roblox. (Kosmynka Dep. 92:17-20.)

561. In 2011, Apple rejected an app called “The Web Store” because it “did not want apps that replaced [its] store with web apps”. (PX111; Shoemaker Dep. 175:4-176:7.)

562. That same year, and then again in 2013, Apple rejected apps offering game subscriptions developed by Big Fish, noting the Big Fish apps were “seen as a game store within an app”. (PX115; Shoemaker Dep. 186:1-15.)

563. In fact, Apple has not conducted any studies of whether third-party app stores increase the security risks to iOS users. (Kosmynka Dep. 92:17-20.)

564. Apple has acknowledged that rejections on this basis may be “anti-competitive”.

- a. [REDACTED]
- b. [REDACTED]
- c. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- d. Ultimately, the ERB rejected this app on a number of grounds, including that it was considered a “[s]tore within a store”. (PX2126, at ‘741.)

XI. SECURITY JUSTIFICATIONS FOR APPLE'S REQUIREMENT FOR IN-APP PURCHASE ARE PRETEXTUAL.

565. There were no widespread or significant security issues regarding payment with the App Store prior to the introductions of IAP or the requirement that apps selling subscriptions use IAP rather than alternate payment solutions, nor evidence that IAP is far superior to third-party payment alternatives with respect to security.

566. As IAP post-dated the App Store, “[t]here was a period of time starting with the launch of the App Store” where Apple did not require iOS apps to use IAP. (Fischer Dep. 201:14-16; Forstall Dep. 278:17-21; PX898.)

567. Apple has conducted no “study which looked at the relative safety and security of the App Store in 2008,” in the period of little over a year when IAP was not required in the App Store. (Fischer Dep. 201:23-202:5.)

568. Similarly, Apple has not conducted “any studies that have compared Apple payment services to any third party service”. (Fischer Dep. 113:24-114:1, 114:3-4; 201:23-202:5; 113:4-6; 113:8-9 (not “familiar with any studies that indicate that any Apple payment methods are more secure than Stripe”); 113:11-13, 113:15-16 (same for PayPal).)

569. Apple also has not conducted “any security study. . . which looks at whether or not any of the major credit cards have security issues with regard to payment processing”. (Fischer Dep. 110:9-13; 110:15-16.)

570. Apple’s iOS also already uses its “most secure methodology for authenticating” users that is “separate from IAP”. For example, if a banking application wanted to authenticate a user using Touch I.D. or Face I.D., a “piece of code running in the operating system . . . will present the appropriate authentication method to the user”. (Haun Dep. 200:17-201:18.)

571. [REDACTED]

572. Apple itself utilizes third-party payment processing to clear transactions performed through IAP. (Cue Dep. 171:8-20.)

573. There is no contemporaneous evidence in this case showing that Apple requires developers to use IAP due to security reasons.

A. Apple Has Not Identified Security Vulnerabilities Created by Third-Party Direct Payment Mechanisms that Are Used on iOS Devices.

574. App Store leaders acknowledge “that there are third party companies which also have . . . safe, secure ways to purchase goods within apps”, including Stripe, PayPal, Amazon Pay, Braintree, Square, and Epic’s payment processing system. (Fischer Dep. 101:18-25; 102:8-103:6; Gray Dep. 75:12-19.)

575. Payment systems that accept, transmit or store cardholder data are governed by strict industry security standards, including the Payment Card Industry Data Security Standard (“PCI DSS”). PCI DSS requires a variety of protective measures, including firewall installation and maintenance, encrypted transmission of cardholder data, use of anti-virus and regular security testing. (Lee.)

576. Secure third-party mobile payment systems already exist on iOS. IAP is not required for the sale of physical goods not delivered or consumed in the app: “if a consumer is selling a good, [a] hard good, for example, or a good that isn’t delivered in the app”, then “they have their own payment mechanism” and Apple is “not involved in that transaction from a monetary point of view”. (Cue Dep. 166:6-13; Evans.)

577. In addition, Apple already permits non-IAP payment methods for “Multiplatform Services”, “Enterprise Services”, “Person-to-Person Services”, “app[s] that enable[] people to purchase physical goods or services that will be consumed outside of the app” and “Free Stand-Alone Apps”. (PX2558 (Guidelines) § 3.1.3.)

578. The use of payment processing solutions other than IAP has not led to any “physical hardware vulnerability . . . [on] an iPhone”, nor could such vulnerabilities be introduced through the use of a third party payment platform. (Cue Dep. 169:19-22, 169:24-170:2, 171:23-172:1; 172:3-4.)

579. Apple has conducted no studies indicating that any of the alternative payment processing methods used for the sale of goods and services or in person to person transactions on iOS were less safe and secure than IAP. (Fischer Dep. 118:8-12; 118:14-15; 118:22-24; 119:1-9.)

580. Apple has not identified any security vulnerabilities associated with the introduction by Epic of Epic direct payment into the Fortnite iOS app. (Cue Dep. 164:15-19; 164:21; Friedman Dep. 127:6-9; Haun Dep. 174:1-12; Rubin.)

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I. OVERVIEW OF EPIC'S CLAIMS

1. The key question before this Court is whether Apple, the company that developed and licenses the operating system—iOS—powering a billion iPhones, violates the antitrust laws when it uses its control of iOS to determine how apps are distributed and in-app payments are processed. Epic's claims urge this Court to find that Apple's requirements that all iOS apps be distributed through the Apple App Store and all in-app purchases of digital content go through Apple's In-App Purchase ("IAP") violate antitrust law. Apple urges the Court to find otherwise. The Court rejects Apple's arguments as unsupported by law or the factual record.

2. Apple's core argument, to which it returns repeatedly, is that neither the law nor facts supports defining markets downstream from a single brand—here, Apple's iOS. This is factually incorrect and misstates the law. In *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 481-82 (1992), the Supreme Court recognized that, while cases of such single-brand product markets may not be common, they do indeed occur. The Court finds they are present here.

3. Apple is a uniquely powerful company and it exerts unique control over iOS devices, their users, and the developers that develop the apps running on them—control that it does not exert over its Mac computers, their users, or the developers developing apps for them. Apple is the largest company in the world by market capitalization and has unparalleled reach and strength. Epic has proffered significant, credible evidence that Apple has controlled iOS in myriad ways that support this Court's conclusion that this is the unusual case in which a single-brand product defines the metes and bounds of market definition.

4. Once product markets have been defined, the remainder of the facts are largely not in dispute: Apple does not deny that it has exclusive control over the distribution of apps on the iOS platform, that it exercises unilateral discretion to reject apps for distribution, nor

that it requires all apps to use its payment solution for all in-app purchases of digital content. Apple does not deny that its restrictions are implemented through contractual requirements, unilateral rules, and technical means.

5. As a result of this conduct, consumers and developers have suffered—and unless Apple is enjoined will continue to suffer—higher prices, increased costs, and reduced innovation and output. Accordingly, as set forth below, the Court enjoins Apple from continuing conduct that violates the antitrust laws.

II. SECTION 2 OF THE SHERMAN ACT: APPLE’S MONOPOLY MAINTENANCE OF THE IOS APP DISTRIBUTION MARKET (COUNT 1).

6. 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.

7. Epic alleges that Apple has engaged in unlawful monopoly maintenance of iOS app distribution. In sum, Epic alleges that Apple constructed the iOS ecosystem, using a combination of technical and contractual means, to restrict distribution of iOS apps, foreclosing competition, harming the competitive process, and harming consumers. The Court agrees.

8. As explained below, at several different points early in the history of the iPhone, Apple made business decisions to construct iOS and design the iOS platform in ways that restricted access to third parties to further an exclusionary goal of total control over iOS app distribution.

9. When the iPhone was initially launched in 2007, it included only a small group of apps written by Apple. (Findings of Fact ¶ 83.) Third parties had neither software tools nor access necessary to write apps for iOS and have them distributed on the iPhone. (Findings of

Fact ¶ 94.) In 2008, that changed: Apple made available a software development kit (“SDK”) for third parties to write apps that could run on iOS, and it also launched the App Store. (*Id.*)

10. Although Apple had other options, and debated them internally as a policy matter, Apple chose to make the App Store the exclusive means of distribution of apps on iOS. (Findings of Fact ¶¶ 86-88.) This policy decision is the core of the anti-competitive structure that Apple has created.

11. With the opening of the iOS platform to third-party developers, app developers began writing useful, fun and innovative apps for the iOS platform, and consumers were able to download them onto their devices. (Findings of Fact ¶ 98.) Apple could have followed the access model of personal computers (including its own macOS) and allowed open access to the iOS ecosystem directly from app developers’ websites and Internet-based app stores. (Findings of Fact ¶ 488.) Instead, Apple made the choice to block such app downloads through web browsers and limit iOS device owners to apps purchased through Apple via its wholly controlled App Store. (Findings of Fact ¶¶ 218-19.) Apple could also have allowed competing app stores on iOS to give consumers a choice of where to get their apps and to give developers a choice on how to reach consumers. Instead, as noted, Apple made the App Store the exclusive means for consumers to obtain, and for developers to distribute, the apps that made the iPhone useful and fun. (*Id.*)

12. When Apple launched the App Store, Apple’s CEO Steve Jobs announced that the store’s commission was designed only to cover its costs. (PX880, at ‘075.) Mr. Jobs was asked at the time whether the exclusive nature of the App Store would raise any antitrust concerns, and he assured the public—including, importantly, prospective app developers—that the App Store was not intended as a profit center for Apple but instead as a means to facilitate

third-party apps that would make the iPhone more attractive to consumers. (*Id.*, at ‘081.)

Indeed, Mr. Jobs went so far as to assure developers that “we are basically giving all the money to the developers here”. (*Id.*) As it turns out, that representation was not true.

13. As intended, the App Store succeeded in attracting developers to write apps for iOS. Those apps made the iPhone more fun and useful, and increased its appeal for consumers, a fact that was touted by Apple itself, which in early 2009 coined the phrase “There’s an app for that” in a series of commercials for its iPhone. As more consumers purchased iPhones, writing iOS apps became a more and more attractive proposition for developers. (Findings of Fact ¶ 98.)

14. Indeed, distributing apps on iOS soon became a virtual necessity for any developer seeking to maintain a successful business. Not only did Apple amass an extraordinary number of consumers who used its iOS devices, but those consumers cannot and do not readily switch to use devices that run Android, which is the only real competing mobile operating system. (Findings of Fact § II.B.) Only a tiny sliver of consumers use both iOS and Android smartphones at the same time. (Findings of Fact ¶ 70(a).) The consumers who use iOS face material switching costs in leaving the iOS ecosystem that Apple has constructed. (Findings of Fact § II.B.) As a result, there is a very large set of consumers—north of a billion—that are substantially locked in to iOS mobile devices, and app developers have no choice but to continue writing iOS apps and devoting resources to promoting those apps to iOS users. Otherwise, developers would be unable to reach approximately one billion potential customers, who form the most lucrative part of the available smartphone customer base. (Findings of Fact ¶¶ 45, 81(a).)

15. Because the App Store is the exclusive means for developers to reach iOS users, Apple has absolute control over the content of apps and over the terms of trade between developers and users. Apple uses that control to dictate or prohibit various features of apps, and it extracts a non-negotiable “commission” from the sale of apps and in-app purchases of digital content. Among its various restrictions, Apple does not permit any competing means for developers to distribute apps to users, and Apple requires all in-app purchases to flow through its IAP. Apple even prohibits app developers from informing iOS users that Apple’s monopoly is costing them more for each app they purchase. (Findings of Fact ¶ 246.)

16. The fact that Apple created a product that users liked and wanted is not a violation of the antitrust laws. But when Apple carefully constructed and enforced contractual and technical restrictions to create and maintain a monopoly in app distribution, a series of anti-competitive effects have followed: Apple causes prices to increase, raises costs for consumers and developers, reduces innovation, and lowers output. (Findings of Fact §§ V, VIII.)

17. Apple has argued that its practices were necessary to get paid and keep the iOS platform safe for iOS users. According to Apple, should this Court require changes to the App Store model, the repercussions would be serious and dangerous. But the evidence disproves this passionate rhetoric. Apple’s arguments regarding payment and security are what the antitrust law refers to as Apple’s “procompetitive justifications”. The Court finds they are pretextual.

18. Addressing first the need to be paid, taking the late Mr. Jobs at his word, that need was never part of Apple’s business case for the App Store; as Mr. Jobs had put it, “we don’t intend to make money off the App Store . . . we are basically giving all the money to the developers here and if that 30% of it pays for running the store, well that will be great”. (PX880,

at ‘081.) The evidence shows that Apple now makes ██████ in profits on the App Store every year (Findings of Fact § IV.C)—money it had never “intend[ed] to make” and that it cannot now claim it must make in order to recoup its investments.

19. The evidence is also clear that Apple enjoys multiple types of payments related to iOS—the App Store commissions it charges through the exclusive use of its payment processing system is only one of them. (Findings of Fact § II.F.) As an aside, the evidence leaves no doubt that Apple’s investments in app distribution were long ago paid off, and it makes more than enough annually to support its ongoing costs. (Forstall Dep. 175:7-25.) Apple’s sales of iPhones bring in more than ██████ dollars a year (*see* PX606)—and as Apple acknowledged when launching the App Store, that success is due in no small part to the effort and ingenuity of app developers. Apple has also brought in ██████ of dollars from fees it charges developers (Fischer), and over a billion dollars from selling advertising in the search query bar of the App Store itself (Findings of Fact ¶ 123(e)).

20. That Apple’s security justifications are a pretext is supported by a simple review of personal computer operating systems: Microsoft has developed methods of keeping users safe on the Windows OS platform. More importantly, Apple itself provides an open economy for apps on its macOS personal computers, yet Apple keeps its macOS customers safe (and gets paid for its investment in macOS). If compelled to cease its anti-competitive actions in regards to iOS app distribution, Apple will continue profiting from the value the App Store brings to its ecosystem and to its bottom line through its extraordinary sales of expensive phones, and will continue to keep consumers safe, just as it does for macOS users.

21. Below, the Court sets forth the legal standard for monopoly maintenance and the facts supporting the Court’s determination that Apple has engaged in such conduct here.

22. 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”. *FTC v. Qualcomm Inc.*, 969 F.3d 974, 989-90 (9th Cir. 2020) (internal quotation marks omitted).

23. Defining the relevant markets is a “threshold step in any antitrust case.” *Id.* at 992. “The relevant market is the field in which meaningful competition is said to exist.” *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1202 (9th Cir. 1997); *see also Ohio v. Am. Express Co.*, 138 S. Ct. 2274, 2285 (2018) (the relevant market is “the area of effective competition”).

24. There are two components of a market for purposes of antitrust analysis: the products in the market and its geographic scope. The Court will begin with the product market and then turn to the geographic market.

25. There is a relevant market for iOS app distribution, and Apple possesses monopoly power in that market (Section II.A); Apple has willfully maintained its monopoly power in that market (Section II.B); and Epic, as well as other developers, app distributors and consumers, have all been injured by Apple’s conduct (Section II.C). Finally, the Court explains why Apple’s affirmative defenses are unavailing. (Section II.D.)

A. Apple possesses monopoly power in the iOS App Distribution Market.

26. Apps provide functionality to an electronic device. A native app is an app written for a particular operating system and installed onto a device. (Fischer; Grant.)

27. As discussed in the Findings of Fact, an iOS device is only capable of running iOS apps. Apps written for other software platforms such as Android simply do not work on iOS. (Findings of Fact ¶ 8.)

28. The first step in determining the relevant market in which to assess the effects of Apple’s conduct is to take account of a key choice that consumers make in deciding which smartphone to buy, and that developers make in writing their apps, which is a choice in the market for smartphone operating systems. In the language of antitrust law, this is the “foremarket” or “primary market”. The next step is to define the scope of the downstream market for app distribution on iOS devices, which is an “aftermarket” or “derivative market”. The iOS app distribution market is said to “derive” from the operating system market because without the operating system (in this case, iOS), there would be no app distribution on iOS.

29. In this Section, the Court first defines the relevant antitrust foremarket for smartphone operating systems, the “Smartphone Operating System Market” (Section II.A.i), and demonstrates that Apple has substantial market power in that market (Section II.A.ii). Next, the Court defines the relevant aftermarket for app distribution on iOS, the “iOS App Distribution Market” (Section II.A.iii), explains why this market is a valid single-brand market (Section II.A.iv), and rejects Apple’s proposed digital games transaction market (Section II.A.v). Finally, the Court shows that Apple has substantial monopoly power in the iOS App Distribution Market. (Section II.A.vi).

i. There is a relevant market for smartphone operating systems.

30. The starting point for the analysis of market definition for Epic’s Section 2 claims is the conduct alleged by Epic. Specifically, Epic alleges that Apple uses its control of the iOS operating system to monopolize the distribution of apps on that platform. The Court therefore begins its analysis with the iOS operating system, which Apple bundles with its iPhone. Apple distributes the iOS operating system in the Smartphone Operating System Market, which is the relevant antitrust foremarket in which consumers purchase smartphones that have a pre-installed operating system. (Findings of Fact § III.A.)

a. *The first relevant product market is “Smartphone Operating Systems”.*

31. To define the product market, the Court must determine which products or services are in “the area of effective competition”. *Am. Express*, 138 S. Ct. at 2285; *Thurman Indus., Inc. v. Pay ’N Pak Stores, Inc.*, 875 F.2d 1369, 1374 (9th Cir. 1989) (“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.”). The relevant product market “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). “Economic substitutes have a ‘reasonable interchangeability of use’ or sufficient ‘cross-elasticity of demand’ with the relevant product.” *Hicks v. PGA Tour, Inc.*, 897 F.3d 1109, 1120 (9th Cir. 2018) (quoting *Newcal*, 513 F.3d at 1045); *see also Brown Shoe v. United States*, 370 U.S. 294, 325 (1962); *United States v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956). A key aspect of all of these cases is the Court’s focus on the defendant’s product—what other products compete with that product and may therefore constrain the defendant’s market power; it is the availability of such competitive products that defines the metes and bounds of how the seller’s power to raise price or control output is determined.

32. Many markets are referred to as single-sided markets. In single-sided markets, sellers sell products or services to one group of buyers. For instance, grocery stores sell groceries to consumers. Some markets, however, are referred to as two-sided markets. 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”. *Am. Express*, 138 S. Ct. at 2280. In the now classic example, credit card companies sell credit card services to both merchants and

cardholders, standing between the two to process transactions between the merchant and the cardholder. *See id.* at 2279-80.

33. In defining the relevant market for a “two-sided platform”, the Court must undertake additional considerations. A two-sided platform typically experiences “indirect network effects”, which means that the value of the platform to one side depends heavily on the number of users on the other side. Although “it is not always necessary to consider both sides of a two-sided platform”, in the situation where indirect network effects are “more pronounced”, “courts must include both sides of the platform . . . when defining the . . . market”. *Id.* at 2286.

34. Here, there is no dispute that smartphone operating systems are two-sided platforms with significant indirect network effects. (Evans; Schmalensee.) That is, a smartphone operating system is significantly more valuable to users if there are many developers developing apps for the operating system; in turn, the operating system is significantly more valuable to developers if there are many users to use their apps. Therefore, in assessing whether there is a valid antitrust market for smart operating systems, the analysis must consider both sides of the platform—the consumer-facing side and the developer-facing side.

35. The Court has considered whether potential substitutes for smartphones (and therefore smartphone operating systems) such as feature phones, personal computers, and gaming consoles are adequate substitutes for either consumers or developers. The evidence demonstrates they are not.

36. Consumers do not view other electronic devices as substitutes for smartphones because smartphones have a unique configuration of features, including multi-functionality, portability, the ability to access to the Internet, and cellular connectivity. (Findings of Fact § III.C.)

37. Feature phones are reminiscent of early generation cell phones, typically with buttons. They allow consumers to make phone calls and take pictures, but lack many other qualities of smartphones, including a convenient way to access the Internet. Consumers therefore do not consider feature phones to be reasonable substitutes for smartphones. (Findings of Fact ¶ 140.)

38. Personal computers, including desktop computers and laptops, are not nearly as portable as smartphones and typically rely on a WiFi connection for Internet access. Consumers therefore do not consider personal computers, including both desktop computers and laptops, to be reasonable substitutes for smartphones. (Findings of Fact ¶ 141.)

39. Because Apple has attempted to make this case about a so-called digital game transactions market, it has spent significant time on efforts to persuade the Court that dedicated home gaming consoles should be included within the group of products substitutable for mobile general computing smartphones. It would be an inappropriate narrowing of Epic's claims to construct an artificial market that would calculate Apple's share and Apple's power to be far lower than they are in reality.

40. The factual record demonstrates that consoles are not substitutable for smartphones. Dedicated gaming consoles, such as Microsoft's Xbox or Sony's PlayStation, are single-purpose devices—*i.e.*, their purpose is to play games—and do not include general computing features like smartphones. Further, most gaming consoles are not as portable as smartphones; they often require access to electrical outlets; they must access WiFi to support online play; and they lack typical smartphone functions, such as a camera and a GPS. (Findings of Fact ¶ 142.)

41. Thus, from a consumer perspective, none of these devices is a substitute for smartphones, and none of their operating systems is a substitute for smartphone operating systems. *See Cmty. Publishers, Inc. v. Donrey Corp.*, 892 F. Supp. 1146, 1155 (W.D. Ark. 1995) (excluding television and radio news from product market because, among other reasons, these devices are “not portable and convenient like newspapers”), *aff’d sub nom. Cmty. Publishers, Inc. v. DR Partners*, 139 F.3d 1180 (8th Cir. 1998).

42. Likewise, developers do not view other electronic devices as substitutes for smartphones. Because of the different use cases for smartphones, as opposed to other mobile devices, there are many apps that cannot effectively be used on those other devices. Just by way of example, apps such as ride-share apps that depend on portability, cellular connectivity, and GPS positioning cannot effectively be used on non-portable devices. (Findings of Fact § III.D.) Similarly, many games are available only or primarily on smartphones and not on other types of devices. (*Id.*) To take another example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

43. For those apps that can be used effectively on multiple devices, devices other than smartphones are still not a substitute for smartphones. Developers typically try to reach as many consumers as possible, and to engage with them in as many circumstances as possible, which generally requires that they develop apps for as many platforms as possible. As a result, they are unlikely to abandon or substitute away from smartphones, which would cause them to lose the substantial percentage of users who do not access apps on other platforms (and

even for those users who do access apps on multiple platforms, to lose a substantial percentage of those users' time on the app). (Evans; Athey; Schmalensee.)

44. Smartphones are critical platforms for developers. There are 3.4 billion smartphones connected to cellular networks. (Findings of Fact ¶ 416.) And smartphones are often the only device available to consumers when they are away from home. (Haun Dep. 170:23-171:10.) If developers did not make smartphone apps, then they would not be able to reach consumers who are on the go or who lack alternative devices. (Evans.)

45. Epic's experience is consistent with this dynamic. Epic launched *Fortnite* for smartphones with the express purpose of reaching new users and giving its existing users new opportunities to play. (Sweeney.) Epic's effort paid off: as of August 13, 2020, roughly 64% of the *Fortnite* players who ever played *Fortnite* on an iOS device—more than 70 million users—only ever played *Fortnite* on iOS devices, and on no other devices. (Findings of Fact § 386(f).) After Apple removed *Fortnite* from the App Store, mobile *Fortnite* users shifted only a small fraction of their playtime to *Fortnite* on other devices. (Evans.)

46. Empirical economic analysis also establishes that the Smartphone Operating System Market is properly defined. An antitrust product market may be defined as a product or group of products such that “a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (‘hypothetical monopolist’) likely would impose at least a small but significant and non-transitory increase in price (‘SSNIP’) on at least one product in the market.” U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines § 4.1.1 (2010); *see also Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke’s Health Sys., Ltd.*, 778 F.3d 775, 784 (9th Cir. 2015) (stating that a SSNIP is a “common method” for defining the relevant market); *Theme Promotions, Inc. v.*

News America Marketing FSI, 546 F.3d 991, 1002 (9th Cir. 2008) (“Determining the relevant market can involve a complicated economic analysis, including . . . ‘small but significant nontransitory increase in price’ (‘SSNIP’) analysis.”). A SSNIP is typically considered to be five to ten percent of the price paid by consumers for the relevant product or service. U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines § 4.1.2 (2010).

47. Epic’s principal economic expert, Dr. David Evans, presented economic evidence that a hypothetical monopolist of smartphone operating systems would be able to increase the price of smartphone operating systems *to both users and developers* by at least 10% and still increase its profits. (Evans.) This is strong evidence in favor of Epic’s market definition. *See Saint Alphonsus*, 778 F.3d at 784-85 (affirming district court’s determination of the relevant market based on SSNIP test). Apple’s economic experts, meanwhile, did not attempt a SSNIP test concerning Epic’s proposed Smartphone Operating System Market (or concerning their proposed alternative market).

48. Instead of performing a SSNIP test, Apple asserts that “the viability of the SSNIP test in the context of two-sided transaction platforms is unsettled”. (Joint Submission Regarding Trial Elements, Legal Framework and Remedies (“Legal Framework”) (ECF No. 276) at 12 (citing *United States v. Sabre Corp.*, 452 F. Supp. 3d 97, 138 (D. Del. 2020).) The sole case Apple cites—*Sabre*—is distinguishable. There, the court acknowledged that a SSNIP is, in fact, a “common method” for defining the relevant product; however, based on the specific facts that indicated the test before it was based on faulty assumptions, it rejected it. *See Sabre*, 452 F. Supp. at 142.

49. Apple also argues that the Smartphone Operating System Market is not a cognizable market because operating systems are bundled with smartphones themselves, and

neither major operating system (iOS or Android) is sold or licensed at a positive price. (*See, e.g., Schmalensee.*) This argument looks at the market only from the consumer side; it is clear that developers make decisions to write apps or otherwise devote resources to a particular operating system (or, more typically, to both operating systems). (Findings of Fact § III.D.) Even from the consumer side, a choice between operating systems is often the first decision a consumer makes before deciding which device running that operating system to buy. (Evans.) A simple thought experiment proves the point—what would happen if Apple, as owner of iOS, were to attempt to buy the Android operating system from its owner, Google? That would lead to a near-total monopoly on smartphone operating systems that would never pass antitrust scrutiny, showing that the smartphone operating systems themselves form a relevant market.

b. The relevant geographic market is global, excluding China.

50. As noted, in addition to determining which products fall within the relevant market, the Court must also determine the geographic scope of the market. *See Hicks*, 897 F.3d at 1120 (“The relevant market must include both a geographic market and a product 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. “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) (internal quotation marks and alterations omitted).

51. The Smartphone Operating System Market is global excluding China. The major original equipment manufacturers (“OEMs”), including Apple and Samsung, market and sell their devices to consumers in virtually all countries where there is sufficient demand for smartphones.

52. China, however, is not part of the Smartphone Operating System Market. (Findings of Fact § III.B.) Due to government regulations, Android OEMs distribute different versions of their devices, with different sets of pre-installed apps, inside and outside of China. Different versions of the Android operating system, known as “forks”, proliferate inside China. Government regulations, as well as other factors unique to China, also have resulted in the broader digital economy in China being dominated by domestic firms. Most consumers outside China would not consider buying a Chinese smartphone, along with its operating system, because they would not be able to use many relevant apps. (Evans.) Likewise, most developers would not be able to substitute to Chinese smartphones, and their operating systems, for writing apps because they would not be able to reach most consumers outside of China. (Evans.) As a result, China represents a separate geographic market for smartphone operating systems.

53. Apple contends that the relevant antitrust markets in this case should be limited to the United States. There is no legal or economic basis for this position. As described above, the major OEMs distribute their smartphones, with the same iOS or Google Android operating systems, to consumers around the world, meaning consumers make their purchasing decisions from among globally available options. And most developers, including Epic, distribute their apps to consumers around the world. (Evans; Sweeney.) Moreover, with respect to the aftermarkets described in more detail below, the Apple conduct at issue applies to consumers and developers globally. (Findings of Fact ¶ 168.)

54. Apple also contends that the market should be confined to the United States because the U.S. antitrust laws are primarily concerned with U.S. consumer welfare. But that is irrelevant for market definition purposes. *See Morgan, Strand, Wheeler & Biggs*, 924 F.2d at 1490 (focusing on “area of effective competition where buyers can turn for alternate

sources of supply”). The fact that Apple has raised a defense to Epic’s claims based on the Foreign Trade Antitrust Improvements Act, 15 U.S.C. § 6a, does not impact the market definition inquiry, which is a question about the area of effective competition, not the reach of U.S. antitrust laws. Courts regularly recognize global markets in antitrust cases. *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). Moreover, the U.S. antitrust laws are also concerned with U.S. businesses, such as Epic, that are harmed by anti-competitive conduct, including harm that such U.S. businesses suffer relating to their transactions with foreign consumers. *See* 15 U.S.C. § 6a (Sherman Act generally applies to conduct affecting “export trade”).

55. For the foregoing reasons, there is a valid antitrust foremarket for smartphone operating systems, which is a two-sided market that provides a platform for users and developers alike. The market is global, excluding China.

ii. Apple has substantial market power in the Smartphone Operating System Market.

56. “Market power is the ability to raise prices above those that would be charged in a competitive market”. *Nat’l Collegiate Athletic Ass’n v. Bd. of Regents of Univ. of Okla.*, 468 U.S. 85, 109 n.38 (1984); *Jefferson Parish Hosp. Dist No. 2 v. Hyde*, 466 U.S. 2, 21 n.46 (1984), *abrogated on other grounds by Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 27 (2006) (“As an economic matter, market power exists whenever prices can be raised above the levels that would be charged in a competitive market.”).

57. Within the Smartphone Operating System Market, Apple is one of just two meaningful competitors and possesses substantial market power over consumers and developers

alike. The only alternative to Apple's iOS is Google's Android OS; together, they account for nearly 100% of worldwide mobile operating systems. (Findings of Fact ¶ 177.)

58. A duopoly is a market defined by two primary participants. There is a strong presumption in the economics of industrial organization that where, as here, a market is a duopoly, both participants have substantial market power. (Evans.) The evidence in this case is consistent with this presumption.

59. Apple's iOS operating system accounts for ██████████ of all app usage on smartphones. (Evans) Apple's iPhone likewise commands a significant share of all smartphone sales; in 2019, for example, iPhone sales accounted for roughly 40% of global smartphone revenue (excluding China). (Findings of Fact ¶ 180(a).) In the same year, Apple earned ██████████ in operating profits from the sale of iPhones worldwide. (Findings of Fact ¶ 46.) These data, together, show the significance of iOS to both users and developers in this two-sided market.

60. Apple's market power in the Smartphone Operating System Market is fortified by the market's substantial barriers to entry. Barriers to entry refer to costs that new competitors must face as they enter a market. (Evans.) In this case, new entrants must overcome the high costs of developing their own operating system, creating compatible hardware platforms, and recruiting phone manufacturers to adopt their operating system. Further, the indirect network effects enjoyed by iOS and Android pose an additional high barrier to entry: consumers are unlikely to adopt a new smartphone operating system if there are few apps available for use, and developers are unlikely to write apps for a new smartphone operating system if there are few consumers available to reach. This "chicken and egg" problem is known as the applications barrier to entry. *See Microsoft*, 253 F.3d at 55. As a result, there has not been

a successful new entrant to the Smartphone Operating System Market since 2008. Well-funded entrants like Microsoft have tried and failed, and any prospective new entrant would be (at best) years away from challenging the position of either Apple or Google. (Findings of Fact ¶ 151.)

61. As a practical matter, Google’s Android operating system does not act as a meaningful competitive constraint or a check on Apple’s market power because there is limited switching and high switching costs for consumers between Android and iOS. (Findings of Fact § II.B.) “Switching costs” refer to the expenses and obstacles consumers incur when moving from one operating system to another, including the cost of purchasing a new smartphone, replacing their old apps, losing certain functionalities, losing certain data, and learning a new operating system, among other costs. Further, as detailed by Dr. Evans and Dr. Athey, consumers face significant “mixing-and-matching” costs when they use devices from more than one platform. (Evans; Athey.) Users incur mixing-and-matching costs when their devices do not operate and synchronize well across platforms, such as when a user begins drafting a document on his or her laptop but then cannot easily access that document on his or her smartphone, or when a user cannot use his or her phone to set parental controls for his or her children’s devices because they are not on the same operating system.

62. Apple is well aware of these costs and, in fact, views increasing consumer switching costs and consumer mixing-and-matching costs as an important feature of its business model. (Findings of Fact § II.B.) For example, Eddy Cue, an Apple executive, acknowledged that “[t]he more people use our stores the more likely they are to buy additional Apple products and upgrade to the latest versions. Who’s going to buy a Samsung phone if they have apps, movies, etc already purchased? They now need to spend hundreds more to get to where they are today”. (PX404.) He added “[g]etting customers using our stores (iTunes, App and iBook store)

is one of the best things we can do is get people hooked to the ecosystem”. (PX404.) The term “ecosystem” is used by Apple to describe the set of devices and features that work to lock consumers into iOS devices. Apple knows that once consumers choose iOS, they tend not to switch to Android, even in the face of higher prices.

63. Developers also recognize this fact. As noted above, rather than miss out on either operating system’s substantial user base, most developers incur the additional costs of writing the same apps for both Android and iOS. (Findings of Fact § III.D.) The evidence demonstrates that it is not economically viable for developers to abandon a smartphone operating system when confronted with higher prices or restrictive platform policies. (Shoemaker Dep. 79:24-80:10.)

64. iOS presents a particularly important marketing channel for developers. Not only are there more than one billion active iPhones (Findings of Fact ¶ 45), but developers have found that “users spent more money on the iOS application than they did on the Android application” (Okamoto Dep. 320:4-10, 14-22). In Epic’s own experience, iOS users spend approximately double what Android users spend in *Fortnite*. (Sweeney.) This further enhances Apple’s already substantial market power in the Smartphone Operating System Market.

65. This evidence is more than enough to prove Apple’s substantial market power in the foremarket. *See Bristol Tech., Inc. v. Microsoft Corp.*, 42 F. Supp. 2d 153, 169 (D. Conn. 1998) (noting that market characteristics of less than 50% market share and high barriers to entry due to network effects could support a finding of *monopoly* power); *N.M. Oncology & Hematology Consultants, Ltd. v. Presbyterian Healthcare Servs.*, 418 F. Supp. 3d 826, 840 (N.D. Tex. 2014) (similar).

iii. There is an aftermarket for app distribution on iOS.

66. There is an aftermarket to the Smartphone Operating System Market for the distribution of compatible apps for the iOS operating system: the iOS App Distribution Market. In theory, this market could include both two-sided platforms (such as the App Store and third-party app stores) as well as one-sided transactions (such as downloading apps directly from developers' websites). Both structures are ways for users and developers to connect, and from both users' and developers' perspectives, a transaction on the App Store, a transaction on a third-party app store, and a direct download from a developer's website would all be substitutes. In practice, however, Apple has foreclosed all participants in the iOS App Distribution Market other than its own App Store.

67. As noted, app stores developed for other operating systems—principally, Android—are not substitutes for app stores that carry iOS apps. The evidence is uncontradicted that apps are written for, and only work on, a specific operating system. iOS apps do not run on Android devices and vice versa. The evidence shows that the Apple App Store does not distribute Android apps, nor do the Android stores distribute iOS apps. Moreover, the iOS App Store is itself an iOS app that can run only on the iOS operating system, and other app stores cannot run on iOS. (Findings of Fact ¶¶ 182-84.)

68. The evidence shows that users and developers do not consider distribution of apps on other platforms to be an adequate substitute for distribution of apps on iOS. To begin with, Epic's experts have shown that a hypothetical monopolist of the iOS App Distribution Market could profitably raise distribution prices by a SSNIP on iOS app users, on iOS app developers or even on both sides of the market.

69. *First*, as to iOS app users, Epic expert Professor Peter Rossi conducted a consumer survey designed to assess how consumer spending patterns on iOS would change in

response to a 5% increase to the price of in-app purchases or subscriptions. (Findings of Fact ¶ 163.) Based on this survey data, Dr. Evans determined that 74% of consumers would not have changed their spending behavior at all, while just 1.4% of consumers would have switched to a non-iOS device.¹ (Findings of Fact ¶ 164.) These results demonstrate that consumers have “inelastic demand” for iOS app distribution, meaning that they are not very responsive to an increase in price. (Evans.)

70. Dr. Evans then determined whether, holding app supply constant, such a 5% increase in consumer prices would be profitable for Apple. To do that, Dr. Evans first determined how much the App Store commission would need to increase in order to cause a 5% increase in consumer prices—and he found that to be a [REDACTED] increase in the commission. (Evans.) He arrived at that percentage increase by starting with Apple’s “effective” commission rate across all transaction types, which he calculated using transaction data provided by Apple, as reported in U.S. dollars. (Evans.) The effective commission rate for 2019 was [REDACTED] (Evans.) Dr. Evans then conservatively assumed that if the App Store increased its commission, developers would bear half of the increase, and consumers would bear the other half. (Evans.) Under this assumption, a consumer price increase of 5% would require an increase in the App Store’s effective commission of [REDACTED], which is far more than the typical increase for a SSNIP test. (Findings of Fact ¶¶ 160-62.)

71. Dr. Evans then concluded that, taking into account the inelastic demand reflected in Professor Rossi’s survey, such a significant increase in price still would not cause

¹ Dr. Evans and Mr. Rossi report slightly different numbers because Dr. Evans based his analyses on only the survey respondents who (1) completed the survey and had positive at-issue spending, and (2) provided valid answers to the survey questions relevant to his analysis. (Evans.) For respondents who would have switched devices, Dr. Evans reports the spending-weighted shares of respondents. (Evans.)

consumers to switch away from iOS or reduce their iOS purchases enough to make the price increase unprofitable. To the contrary, Apple could have increased its profits by nearly [REDACTED] in 2019 by increasing the effective commission rate to developers by [REDACTED], with a resulting increase in price to consumers of 5%. (Evans.) In other words, a hypothetical monopolist of iOS App Distribution—or, in this case, an actual monopolist—could profitably impose a SSNIP on consumers.²

72. *Second*, Dr. Evans also considered the developer side of the market, assessing whether developers would substitute away from iOS—*i.e.*, by ceasing to develop for the platform—in the face of a SSNIP of [REDACTED]. For developers, the question is whether it would be profitable to continue distributing on iOS paying higher fees or to cease distributing on iOS and recapture revenues from iOS app users switching to other distribution channels. (Evans.)

73. To answer this question, Dr. Evans analyzed spending patterns by *Fortnite* users before and after Apple de-listed *Fortnite* from the App Store. *Fortnite* is a conservative test case because *Fortnite* is already available on multiple platforms; not all iOS developers could expect to recapture iOS revenue at the rate Epic can. (Evans.) Dr. Evans’s analysis of *Fortnite* showed that *at most 50%* of *Fortnite*’s iOS revenue was replaced by *Fortnite* users shifting their spending to other platforms. (Evans.) He also calculated Epic’s overall average EBITDA margin for 2018 and 2019 to be 22.5%. (Evans.) Using these inputs, Dr. Evans then concluded that Epic would find it more profitable to pay a [REDACTED] increase in the effective commission rate—[REDACTED]—for the iOS version of *Fortnite* rather than to stop

² The SSNIP test assumes that the pre-SSNIP price is at a competitive level. While the parties disagree whether the existing commission rate is competitive, Apple asserts that it is, so Dr. Evans’s decision to use it for his SSNIP test was conservative. If the competitive level is less than the existing commission rate, a monopolist’s ability to impose a SSNIP over the iOS App Distribution Market would be even clearer.

distributing *Fortnite* in the App Store altogether, even if Epic did not pass through any of the increased commission to consumers. (Evans.) Further, he concluded that most iOS developers, who do not have the same opportunities as Epic to shift their iOS revenue to other platforms, would find it even more unprofitable to cease distributing their apps through the App Store in the face of a SSNIP. (Evans.)

74. *Third*, these analyses show that a hypothetical monopolist of iOS app distribution could raise the commission without responses by either side of the market—consumers or developers—being sufficient to make that increase unprofitable. Given the switching costs that face consumers and consumers’ demonstrably inelastic demand, a SSNIP in the commission would not result in a material decline in iOS app users, meaning that the iOS platform would not become less attractive to developers and demand by developers would not decline from indirect network effects. Accordingly, the SSNIP in the commission would not cause a decline in the supply of apps, so the iOS platform would not become less attractive to consumers and demand by consumers would not decline as a result of indirect network effects. In sum, a hypothetical (or actual) monopolist of iOS app distribution could profitably impose a SSNIP on both sides of the market simultaneously. *See Saint Alphonsus*, 778 F.3d at 784-85.

75. Apple has argued that if there is a market for the distribution of apps, it must include the distribution of web apps and streaming apps through Internet browsers. The evidence does not support this position. A web app is one available from a website and is utilized on a device (such as an iOS device) though a web browser. (Cue Dep. 171:21-24.) Native apps are “faster”, “use less memory”, and “can take advantage of native graphics libraries in a way that is either not available or would have to be shoehorned in a web app or a different kind of application”. (Forstall Dep. 81:17-24.) These limitations, among others, make web apps

less attractive to both consumers and developers. (Findings of Fact § III.K.) Epic, for example, does not make or distribute a web app version of *Fortnite* because the performance would be materially worse than that of a native application. (Grant.)

76. Because web iOS apps are not functionally interchangeable with native iOS apps, they are properly excluded from the relevant aftermarket for app distribution on iOS. See *United States v. Grinnell Corp.*, 384 U.S. 563, 574 (1966) (property-protection services that differed in their “utility, efficiency, reliability, responsiveness, and continuity” were not sufficiently interchangeable with central station property-protection services and thus properly excluded from the relevant product market); *Microsoft*, 253 F.3d at 52 (explaining that “non-PC based competitors” such as “portal websites that host server[-]based software applications” were properly excluded from the relevant product market of Intel-compatible PC operating systems because they “fall far short of performing all of the functions of a PC”); *id.* (excluding Apple’s Macintosh operating system, macOS, from the relevant product market because it was “less appealing to consumers” due in part to the fact that it “supports fewer applications”); *Fed. Trade Comm’n v. Sysco Corp.*, 113 F. Supp. 3d 1, 25-29 (D.D.C. 2015) (finding other modes of foodservice distribution “not functionally interchangeable” with the relevant product market of broadline foodservice distribution in part due to the “inferior . . . quality” and lack of “comparable value-added services” of those other distribution channels); *Fed. Trade Comm’n v. CCC Holdings Inc.*, 605 F. Supp. 2d 26, 41-43 (D.D.C. 2009) (finding the “peculiar characteristics” of certain total loss valuation software, such as “especially accurate, up-to-date valuations, speed, reliance and defensibility, and ability to interface with estimating products”, to support conclusion that other less accurate and less up-to-date total loss valuation methods were properly excluded from the relevant product market); see also *Datel Holdings Ltd. v. Microsoft*

Corp., 712 F. Supp. 2d 974, 997 (N.D. Cal. 2010) (concluding at the pleading stage that “appropriate differentiations” such as “distinct core functionality” were sufficient to demonstrate that there was no “reasonable interchangeability between the Xbox 360 and the Play[S]tation 3 on the one hand, and the Wii, Play[S]tation 2 and personal computers on the other hand”).

77. For similar reasons, cloud gaming and streaming services are also not substitutes for native iOS apps. Cloud gaming or app streaming occurs when an app runs on a remote server that the user accesses. The server that hosts the app sends a live video or audio stream to the device on which the user then views the stream. Due in part to these limitations, cloud gaming services are “not very successful”. (Federighi Dep. 165:10-15.) Epic has made *Fortnite* for PC available through streaming services such as Nvidia’s GeForce Now, but it recognizes that cloud streaming offers a materially worse experience than running a game on a native app, and that this would particularly be the case on iOS where Apple forces users to access the streaming service through an Internet browser. (Grant.) Not only is the streamed version of *Fortnite* for PC subject to the technological limitations noted above, but there is also the additional cost to users in the form a subscription to the applicable streaming service. (Grant.) Streaming apps also cannot be used “off line” while native apps can be used without a live WiFi or cellular data connection. (Findings of Fact ¶ 198.) For the foregoing reasons, the distribution of streaming apps should be excluded from the iOS App Distribution Market. *See Grinnell*, 384 U.S. at 574; *Sysco*, 113 F. Supp. 3d at 25-29; *CCC Holdings*, 605 F. Supp. 2d at 41-43; *see also Microsoft*, 253 F.3d at 52 (accepting district court’s finding that macOS was “less appealing to consumers because it costs considerably more” and thus properly excluded from the relevant product market).

78. The geographic scope of the iOS App Distribution Market is global, excluding China, for reasons similar to those discussed above with respect to the foremarket at issue. (Evans.) The App Store distributes apps in more than 175 regions, but government regulations make China different. (Findings of Fact ¶ 168.) While Apple claims that only distribution of iOS apps to U.S. consumers should be in the geographic market, that argument fails. Apple bases its position on the fact that the App Store has country-specific storefronts, which restrict where consumers can purchase apps. But this condition is the result of the very Apple policies that are at issue in this case. In the absence of Apple’s policies, U.S. consumers would be free to shift their purchasing activity to non-U.S. app stores or direct distribution from developers in the face of a price increase in the United States. This is consistent with a global market. (Cragg.) Apple’s argument that the geographic market should be limited to U.S. consumers on the theory that the U.S. antitrust laws focus on U.S. consumers is without merit for the reasons stated above regarding the geographic scope of the foremarket.

79. Developers typically release apps on a global basis. Epic, for example, has distributed the mobile versions of its apps—for both Android and iOS—in more than 150 countries around the world. (Findings of Fact ¶ 350.) Epic distribution for *Fortnite*, its other apps (for instance, *Houseparty*), and *Unreal Engine*, is generally worldwide. (Findings of Fact ¶ 350(a).)

iv. The iOS App Distribution Market is a valid single-brand market.

80. In its landmark *Kodak* decision, the U.S. Supreme Court recognized that “in some instances one brand of a product can constitute a separate market”. *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.”). In such instances, the market is known as a “single-brand market”. Determining whether a single-brand market is proper

requires “a factual inquiry into the ‘commercial realities’ faced by consumers”. *Kodak*, 504 U.S. 482 (quoting *Grinnell*, 384 U.S. at 572).

81. Under the Ninth Circuit’s seminal decision in *Newcal*, courts in the Ninth Circuit typically consider four aspects of the alleged market to determine if it is a properly defined single-brand aftermarket. *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.*

82. The iOS App Distribution Market satisfies all four aspects for a valid single-brand market.

83. *First*, the iOS App Distribution Market is “wholly derivative from and dependent on” the Smartphone Operating System Market. *See Newcal*, 513 F.3d at 1049. Without iOS, there would be no market for app distribution on iOS.

84. *Second*, the “illegal restraints of trade and illegal monopolization relate only to the aftermarket, not to the initial market.” *Id.* Epic is not challenging Apple’s practices with respect to the sale of smartphone operating systems and the devices in which they are bundled. Rather, the restraints at issue apply only to the aftermarket—specifically, Apple’s technical and contractual restrictions on the distribution of iOS apps.

85. *Third*, 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”. *Id.* at 1050. Consumers do not contractually agree to obtain apps only through the App Store when they purchase an iPhone. (Findings of Fact § 211.) Instead, consumers’ limited access is enforced through technical restrictions (such as preventing consumers from downloading apps directly from websites) on the device and contractual restrictions on the developers (such as requiring distribution through Apple’s App Store).

86. Apple forces developers to forego other distribution channels—such as a non-Apple app store on iOS, or direct downloads onto the iOS platform—as a condition of access to iOS. Apple’s total control over iOS gives it “special access to its consumers” that enables it to ensure that consumers have no other choice. *Newcal*, 513 F.3d at 1050.

87. *Fourth*, “[c]ompetition in the initial market . . . does not necessarily suffice to discipline [Apple’s] anticompetitive practices in the aftermarket.” *Id.* As discussed above, Apple possesses substantial market power in the Smartphones Operating Systems Market. This is due in large part to the significant switching and “mixing-and-matching” costs faced by consumers when they try to change operating systems, and which are an express part of Apple’s business model of locking consumers into the iOS ecosystem. (Findings of Fact § II.B.)

88. Additionally, consumers face significant information costs that prevent them from considering Apple’s anti-competitive practices in the iOS App Distribution Market when making their decision in the foremarket. Information costs refer to costs incurred by consumers in obtaining complete information relevant to their decision-making. Most consumers are not aware of Apple’s restrictions in the iOS App Distribution Market or their

corresponding effect on app distribution costs. Moreover, 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. This is 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. (Evans.) The “lifecycle costs” of a smartphone refers to all costs incurred with respect to a device over its expected lifespan, including the purchase price of the device and all apps that the consumer downloads onto the device, among other costs. (Evans); *Kodak*, 504 U.S. at 473.

89. Apple intentionally increases information costs. It expressly prevents developers from informing consumers of the availability of alternative purchase options and rejects apps from the App Store for disclosing the fact of Apple’s 30% commission. (Findings of Fact ¶ 246.) Apple does not internally estimate the average consumer’s lifetime spend on apps and, therefore, does not provide that information to consumers when they are choosing a smartphone operating system. (Findings of Fact 173(b).)

90. Nevertheless, Apple argues that “[a]n antitrust plaintiff cannot succeed on a *Kodak*-type theory when the defendant has not changed its policy after locking-in some of its customers”. (Legal Framework (ECF No. 276) at 15 (quoting *PSI Repair Servs., Inc. v. Honeywell, Inc.*, 104 F.3d 811, 820 (6th Cir. 1997)).) But that is not what either *Kodak* or *Newcal* require. Although a post-lock-in change in policy can give rise to a valid single-brand market, whether the policy was put in place before or after consumers made their selection in the foremarket is not determinative. Instead, Epic only must show that “market imperfections . . . prevent consumers from realizing that their choice in the initial market will impact their freedom

to shop in the aftermarket”. *Newcal*, 513 F.3d at 1050; *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*). As set forth above, that requirement is satisfied here.

91. In any event, Apple *has* changed its stated policy with respect to the commissions it charges for app distribution. As noted above, in 2008, when the App Store was launched, Apple’s founder, Steve Jobs, stated 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”. (PX880, at ‘075.) Even as late as 2011, Phil Schiller, the executive currently in charge of the App Store, suggested internally 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?” (PX417, at ‘494.) The App Store was not supposed to be the juggernaut profit center it has become, and many developers likely made their initial investments in iOS apps with that understanding. Today, however, the App Store has developed ever more ways to monetize app distribution—extending even to search-based auctions within the App Store that have brought in over a billion dollars. (Findings of Fact ¶ 123(e).) The evidence at trial demonstrates that the App Store long ago earned back its initial investment, is highly profitable, and makes Apple ██████████ of dollars a year beyond any measure of operating costs. (Findings of Fact § II.F.) All these facts constitute a change in Apple’s stated

policy that has occurred after many developers and users alike have become “locked in” to the iOS ecosystem.

92. Moreover, contrary to its claims, Apple has repeatedly increased prices after developers and consumers were locked in, including by requiring use of Apple’s IAP to process payments for in-app digital content (2009); requiring IAP for subscriptions (2011); and charging developers for search ads (2016). (Findings of Fact ¶¶ 23, 123.)

v. The relevant market is not digital game transactions.

93. Apple has centered its defense on an alternative antitrust market defined in terms of “digital game transactions” on what Apple refers to as gaming transaction platforms. This theory misapplies longstanding antitrust principles and does not fit the facts of the case.

94. To construct its “digital game transactions” market, Apple starts with a clear legal error: looking at the business Epic purportedly is in rather than the conduct at issue in Epic’s claims. Apple argues that Epic is a developer of gaming apps, and that it is therefore proper to start by assessing a market relating to transactions in gaming apps, on the theory that they are the product at the center of the case. This is simply not the legal standard, as noted below.

95. Setting aside the legal error underlying this argument, it simply does not square with the evidence. Epic is not just a developer of gaming apps. Aside from developing products like *Fortnite* (which is in fact not simply a game but also a forum for social activities like concerts and movies), Epic also develops the social networking app *Houseparty*. Additionally, Epic develops one of the most prominent three-dimensional environment building tools (*Unreal Engine*), and numerous “middleware” tools and assets used by third parties for a wide range of software products. Epic is a third-party PC app publisher, and a distributor of third-party apps through its own PC app store. Finally, Epic would offer its app store to compete

with Apple's App Store if Apple's restrictions were lifted. (Findings of Fact § IX.) Apple's attempt to define a market on the premise that Epic's interest and claims are limited to gaming apps is not just legal error but factually incorrect.

96. Apple is also wrong on the law regarding how markets are defined. As stated above, a basic principle of antitrust law is that relevant product markets are defined as a tool to understand the nature of the competition that could constrain the defendant's allegedly unlawful conduct. Since the earliest cases, *e.g.*, *Brown Shoe*, 370 U.S. at 325-26, the Supreme Court has instructed courts to anchor this analysis to the potential economic substitutes for the *defendant's product* that is the subject of the allegedly anticompetitive conduct. Looking at the *plaintiff's characteristics* is not part of the analysis. *See, e.g.*, *Newcal*, 513 F.3d at 1045 ("The consumers do not define the boundaries of the market; the products or producers do."); *Lockheed Martin Corp. v. Boeing Co.*, 314 F. Supp. 2d 1198, 1228 (M.D. Fla. 2004) ("Determining which products make up the market is the first step. Purchasers are relevant at this initial stage only insofar as their demands govern cross-elasticity, which determines whether and which substitutes are relevant products."); *Soap Opera Now, Inc. v. Network Publ'g Corp.*, 737 F. Supp. 1338, 1345 (S.D.N.Y. 1990) ("Although it is proper to identify the ultimate consumer of the product in order to make a determination as to whether two products are reasonable substitutes for one another[,] . . . a definition of the market itself which consists of consumers or potential consumers may, as here, obfuscate the issues of monopoly power and reasonable interchangeability.").

97. The ultimate question is what products constrain the ability of the alleged monopolist to raise price or reduce output with regard to the market it is alleged to have monopolized. *See Newcal*, 513 F.3d at 1045 ("the market must encompass the product at issue

as well as all economic substitutes for the product” and “include the group or groups of sellers or producers who have actual or potential ability to deprive each other of significant levels of business” (internal quotation marks omitted)); (Evans.). Here, for this Section 2 claim alleging conduct that affects the distribution of all iOS apps, that market is iOS app distribution. Apps on other platforms would only enter the analysis to the extent consumers and developers could reasonably turn to them in the face of worsening terms (a price increase or a decrease in quality) and here, as noted above, they cannot.

98. In one respect, Apple’s focus on the identity of the plaintiff leads it to a proposed market that is too narrow. The challenged conduct is not specific to Epic or to game apps. Apple’s restrictions on alternative iOS distribution channels apply to all app developers, no matter the type of app they develop, and to all potential app distributors, no matter the type of apps they would distribute. Likewise, as discussed below, Apple’s restrictions on payment processing apply to all in-app transactions for digital content, not just digital game transactions. (Evans; Cragg.)

99. While Apple argues that the competitive conditions facing the distribution of gaming apps are different from the competitive conditions facing other apps, that is both irrelevant and imprecise. It is irrelevant because, as noted, the Apple conduct at issue extends to a wide variety of apps, and neither Epic’s claims nor Epic’s business is limited to gaming apps. It is imprecise because the logical conclusion of Apple’s position would be to fragment the market even further. The substitution possibilities facing iOS players of an immersive multi-player game like *Fortnite* that is available on several platforms are different from the substitution possibilities facing iOS players of games that depend on GPS positioning like *Pokémon Go* (which are available only on mobile devices) or of simple and casual games like *Words With*

Friends (which are better suited for mobile device play and typically not available on devices like gaming consoles). If Apple's market definition analysis were correct, it would suggest an even narrower market for immersive multi-platform games, but even Apple recognizes that is not a tenable position.

100. In another respect, Apple's proposed market is far too broad. Apple contends that its "digital game transactions" market extends outside iOS to all other platforms on which game transactions can occur. But it has not shown that iOS users could or would substitute their gameplay or game transactions to other platforms in sufficient numbers to make a SSNIP on iOS game distribution unprofitable. Instead, all that Apple has shown is that it is *possible* for consumers to play games on platforms other than iOS and for developers to develop games for those platforms. This point is not in dispute. What Apple's economic experts do not show is whether the existence of these other platforms constrains Apple's conduct, because they have not tested whether consumers or developers would shift their purchasing activity to these platforms in response to a SSNIP. (Evans; Cragg.) Nor do they contend with the fact that most iOS games are not even available on many other platforms, such that substitution would be impossible. (Cragg.)

101. Epic's experts have explained the myriad ways the evidence upon which Apple's experts rely is unreliable. For example, both Dr. Evans and Dr. Michael Cragg demonstrate how Dr. Lorin Hitt's analysis purporting to show a degree of substitution in *Fortnite* between iOS and Nintendo Switch, a game console, in fact shows that the platforms are complementary. (Evans; Cragg.) That is, consumers tend to play *Fortnite* on both iOS and Switch, rather than play on one platform to the exclusion of the other. [REDACTED]

[REDACTED]

[REDACTED]

102. As noted above, a valid market definition considers the potential economic substitutes for the defendant’s product that is the subject of the allegedly anticompetitive conduct, not the plaintiff’s product. To accept Apple’s theory of market definition based on the plaintiff’s business would lead to odd results—two cases involving the same conduct by the same defendant and the same set of facts nevertheless could result in different product markets and different results depending on the identity of the plaintiff. (Evans.) For instance, Dr. Hitt agreed that if the same allegations were made by Match Group, the market definition would be different. (Hitt.). To take another example, it is unclear how Apple would attempt to define the market in the related class actions or if a government enforcer brought suit. Dr. Schmalensee, Apple’s lead economist, admitted that if a large group of app developers that make different types of apps brought this lawsuit, he would have to reconsider his opinions on market definition because there might be no alternative but to consider all apps in the relevant market. (Schmalensee.) Dr. Schmalensee also conceded that if the Department of Justice challenged the same conduct by Apple at issue in this case, he would also have to consider whether the relevant market would encompass the broader app market. (Schmalensee.) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

vi. Apple has monopoly power in the iOS App Distribution Market.

103. Monopoly power is “the power to control prices or exclude competition.” *Grinnell*, 384 U.S. at 571 (internal quotation marks omitted). “More precisely, a firm is a

monopolist if it can profitably raise prices substantially above the competitive level,” *Microsoft*, 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. v. Aerostar Int’l, Inc.*, 423 F.3d 374, 380 (3d Cir. 2005) (quotation marks omitted). “Monopoly power under § 2 requires, of course, something greater than market power under § 1.” *Kodak*, 504 U.S. at 481.

104. Epic submitted substantial evidence demonstrating Apple’s monopoly power in the iOS App Distribution Market. [REDACTED]

[REDACTED]

[REDACTED]

105. It is uncontested that if the market is iOS app distribution, Apple possesses essentially a 100% share. There are more than one billion iPhones around the world, and the only effective way for owners of those devices to obtain apps is through Apple itself. Apple preloads the App Store onto the home screen of all iOS devices (Fischer), and through both technical and contractual restrictions, Apple prevents all alternative distribution channels. (Findings of Fact § IV.A.) Apple’s Developer Enterprise Program, which permits distribution outside the App Store to employees of large organizations, is not a meaningful alternative to the App Store because it does not permit developers to reach customers. (Findings of Fact ¶ 218(c).) And “jailbroken” devices, that is, devices on which the user has bypassed various restrictions on installing apps that Apple has programmed into iOS, are not meaningful alternatives due to the associated risks for developers and users alike. (Evans.) Therefore, as a practical matter, Apple’s App Store represents the exclusive channel for consumers to download and developers to distribute native iOS apps.

106. Besides Apple’s nearly 100% market share in the iOS App Distribution Market, there are numerous indicia that Apple possesses monopoly power.

107. First, the App Store enjoys extraordinarily high profit margins. *See Bailey v. Allgas, Inc.*, 284 F.3d 1237, 1252 (11th Cir. 2002) (explaining that “the consistent extraction of supracompetitive profits may be an indication of anticompetitive market power”).

[REDACTED]

108. [REDACTED]

[REDACTED]

[REDACTED]

109. *Second*, Apple’s standard commission rate of 30% of the price of an app is supra-competitive. *See Microsoft*, 253 F.3d at 51 (“Where evidence indicates that a firm has in fact profitably [raised prices substantially above the competitive level], the existence of monopoly power is clear.”). Apple recognized this early on. In 2011, when the App Store’s annual profits were just over \$1 billion dollars annually, Phil Schiller told his fellow executives he doubted that the 30% commission rate “will last unchanged forever”, noting that in the face of a competitive challenge Apple would “want to adjust” its pricing model. (PX417, at ‘494.) Apple set the commission rate without regard for the App Store’s anticipated operating costs or the costs of providing developer software development tools. (Findings of Fac ¶ 115.)

110. Even today, Apple does not consider its costs when discussing changes to its commission structure, nor does it bother to track relative pricing of apps on other platforms such as Android. (Findings of Fact § II.F.) In other words, Apple is unconstrained by costs or competitive pressures in setting the commission rate it charges developers. Instead, it is free to price discriminate—that is, charge different developers different prices—without adversely affecting its bottom line. For instance, Apple charges a 30% commission to apps selling digital content, yet charges nothing to app selling physical goods.

111. Further, after this litigation began and regulatory and legislative scrutiny of its conduct increased, Apple announced the App Store Small Business Program, under which Apple charges certain qualifying developers a 15% commission; Apple produced no evidence

suggesting this pricing move was in response to or affected by declining costs or increased competitive pressures. And Apple expects “that the App Store will remain profitable notwithstanding the implementation of the Small Business Program”. (Cue Dep. 134:4-6, 134:8.)

112. *Third*, Apple’s treatment of developers is consistent with the exercise of monopoly power. Apple’s distribution agreements are contracts of adhesion that developers small and large—including multi-billion dollar companies like Epic, Microsoft, and Facebook—must accept without an opportunity to negotiate terms. Additionally, developers are at the mercy of the App Store’s App Review process when it comes to distributing their apps to consumers, as Apple has significant discretion in deciding which apps are approved, delayed or rejected during review. (Findings of Fact § X.E.) Finally, Apple has used the App Store “as a weapon against competitors” (PX99, at 5; Shoemaker Dep. 75:12-16), rejecting or delaying apps that compete with its own products on “pretextual grounds” (Shoemaker Dep. 88:2-8).

B. Apple willfully maintains its monopoly power.

113. The Court has found that Epic’s market definitions are proper, and that Apple has monopoly power in the iOS App Distribution Market. The next step of the analysis is to consider whether Apple has engaged in anti-competitive conduct to maintain its monopoly.

114. Unilateral conduct, that is, conduct by one firm as opposed to a combination of firms, is evaluated under the “rule of reason.” *Qualcomm*, 969 F.3d at 991. “Regardless of whether the alleged antitrust violation involves concerted anticompetitive conduct under § 1 or independent anticompetitive conduct under § 2, the three-part burden-shifting test under the rule of reason is essentially the same. . . . The similarity of the burden-shifting tests under §§ 1 and 2 means that courts often review claims under each section simultaneously.” *Id.*; *accord Microsoft*, 253 F.3d at 59 (“[I]t is clear . . . that the analysis under section 2 is similar to that under section 1 regardless whether the rule of reason label is applied.” (quoting *Mid-Texas*

Commc'ns Sys., Inc. v. Am. Tel. & Tel. Co., 615 F.2d 1372, 1389 n.13 (5th Cir. 1980)); *see also Standard Oil Co. v. United States*, 221 U.S. 1, 61-62 (1911) (“[W]hen the [second] section [of the Sherman Act] is thus harmonized with . . . the [first], it becomes obvious that the criteria to be resorted to in any given case for the purpose of ascertaining whether violations of the section have been committed is the rule of reason guided by the established law”).

115. Apple argues that the rule of reason is inapplicable to its conduct in this case and that a “more specific” rule should apply, such as the duty to deal doctrine. (Legal Framework (ECF No. 276) at 58.) The law in this Circuit is clear, however, that Section 2 claims use “essentially the same” three-part burden-shifting test under the rule of reason as Section 1 claims. *See Qualcomm*, 969 F.3d at 991.³

116. One of the bases on which Apple argues for a different analytical framework is to urge the Court to view this case as a so-called “refusal to deal” case. (*See* Legal Framework (ECF No. 276) at 57.)

117. In a refusal to deal case, a plaintiff seeks to establish liability because of a firm’s refusal to engage in a transaction with the plaintiff. For example, in the paradigmatic refusal to deal case, *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985), a ski resort operator refused to participate with the plaintiff in selling a joint lift ticket package that covered its mountains and the plaintiff’s mountain. But the refusal to deal case law that Apple invokes applies only to *unconditional* refusals to deal, such as the ski resort operator’s flat refusal to sell a joint ticket. Such unconditional refusals to deal give rise to liability only in very narrow cases. *Verizon Commc’ns Inc. v. L. Offs. of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004); *Qualcomm*, 969 F.3d at 994.

³ The Court discusses Section 1 in greater detail below. (*See* § V below.)

118. If a defendant engages in a *conditional* refusal to deal, however, the “refusal to deal” framework does not apply. *Kodak*, 504 U.S. at 463 & n.8; *Lorain J. Co. v. United States*, 342 U.S. 143, 155 (1951); *Microsoft*, 253 F.3d at 70-73; *United States v. Dentsply Int’l, Inc.*, 399 F.3d 181, 188-90 (3d Cir. 2005). In a conditional refusal to deal case, courts will examine the specific conditions that the defendant imposes and the effects that those conditions have on competition.

119. Here, the unconditional refusal to deal framework does not apply. Apple willingly dealt with Epic for years, and Apple willingly deals with countless other app developers. Epic’s claims center on conditions that Apple places on its willingness to deal. In particular, Apple conditions developers’ access to the iOS platform on developers’ agreement to abide by Apple’s rules, such as the rule prohibiting apps that act as storefronts and thus could compete with Apple on app distribution, the rule prohibiting apps that stream games, and (as discussed further below) the rule requiring Apple’s IAP system to be used for in-app purchases of digital content. In essence, like countless other monopolists, Apple conditions its willingness to deal on developers’ agreement to preserve Apple’s exclusivity in certain markets. These allegations do not invoke the unique circumstances applicable to unconditional refusal to deal cases like *Aspen Skiing*. See *Kodak*, 504 U.S. at 463 n.8 (holding that defendant’s willingness to deal with third parties only on condition that they do not deal with its competitors is not analyzed as a “unilateral refusal to deal”).

120. Therefore, the Court analyzes Apple’s conduct under the rule of reason.

121. Under the rule of reason, the plaintiff has the initial burden to “demonstrat[e the] anticompetitive effect” of the monopolist’s conduct. *Qualcomm*, 969 F.3d at 991 (internal quotation marks omitted). If the plaintiff meets this burden, “then the

monopolist may proffer a procompetitive justification for its conduct. If the monopolist asserts a procompetitive justification . . . then the burden shifts back to the plaintiff to rebut that claim. If the plaintiff cannot rebut the monopolist’s procompetitive justification, then the plaintiff must demonstrate that the anticompetitive harm of the conduct outweighs the procompetitive benefit.” *Id.* (internal quotation marks and citations omitted).

122. The Court concludes that Apple has engaged in conduct with significant anti-competitive effects (*see* § I.B.i below); Apple’s pro-competitive justifications are pretextual (*see* § I.B.ii below); and the anti-competitive effects of Apple’s conduct outweigh its procompetitive justifications (*see* § I.B.iii below).

i. Apple has engaged in conduct with significant anti-competitive effects.

123. “[T]he possession of monopoly power will not be found unlawful [under Section 2] unless it is accompanied by an element of anticompetitive *conduct*.” *Verizon Commc’ns v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004); *Qualcomm*, 969 F.3d at 990; *see also Grinnell*, 384 U.S. at 570-71 (requiring “the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident” for a Section 2 monopolization claim). The plaintiff must show “anticompetitive abuse or leverage of monopoly power, or a predatory or exclusionary means of attempting to monopolize the relevant market.” *Qualcomm*, 969 F.3d at 990.

124. As discussed above, Apple uses its near total control over the iOS App Distribution Market to entrench the App Store as the only distribution option and block all potential competitors.

125. The App Store is the only permitted channel for developers to deliver their iOS apps to the consumer. (Findings of Fact § IV.A.) Apple preinstalls the App Store on the

home screen of every iPhone. (Findings of Fact ¶ 226.) Apple does not pre-install, or otherwise allow, any other competing app stores on iOS devices. (Findings of Fact ¶ 227.)

126. Apple's contracts with developers prohibit the distribution of competing app stores as well as apps that have similar functions (*i.e.*, game streaming services). (Findings of Fact ¶¶ 219, 222.) As part of its App Review process, Apple rejects and refuses to distribute apps that do not comply with these prohibitions. (Findings of Fact ¶¶ 558, 561, 562.) Further, Apple's "FEAR team" has been tasked with preventing "illicit" distribution. (Findings of Fact ¶ 529.) Apple removes competing app stores from the iOS platform. (Findings of Fact ¶ 559.)

127. Apple also has designed technical restrictions into iOS that prevent the distribution of apps and app stores outside of the App Store. To install or run on iOS, all third-party apps must be validated and signed using an Apple-issued certificate, and Apple controls the way in which third-party developers obtain their code signing certificates. (Findings of Fact .)

128. Epic alleges that the foregoing conduct has significant anti-competitive effects. The Court agrees.

129. Anti-competitive effects are those that "harm the competitive *process* and thereby harm consumers. In contrast, harm to one or more *competitors* will not suffice." *Qualcomm*, 969 F.3d at 990 (internal quotation marks and citation omitted) (emphasis in original).

130. A plaintiff can prove anticompetitive effects directly and/or indirectly. *Am. Express*, 138 S. Ct. at 2284. "Direct evidence of anticompetitive effects would be proof of actual detrimental effects on competition, such as reduced output, increased prices, or decreased quality in the relevant market." *Id.* (quotation marks, alterations and citations omitted).

“Indirect evidence would be proof of market power plus some evidence that the challenged restraint harms competition.” *Id.* (citations omitted).

131. Courts consider the combined anti-competitive effects of a defendant’s conduct. *City of Anaheim v. S. Cal. Edison Co.*, 955 F.2d 1373, 1376 (9th Cir. 1992) (“[I]t would not be proper to focus on specific individual acts of an accused monopolist while refusing to consider their overall combined effect.”). In a two-sided market, courts must take into consideration the effects of the defendant’s conduct on both sides of the market. *Am. Express*, 138 S. Ct. at 2287.

132. There is strong evidence in the record that the technical and contractual restrictions that Apple imposes to prevent all competing app distribution on iOS devices have harmed the competitive process. On operating systems that do not have such restrictions—Windows, macOS, and Android in China—there is vigorous competition among multiple app distribution channels, including both two-sided app stores and single-sided direct distribution of apps from developer websites. If Apple did not totally foreclose competition on iOS, app distributors would similarly compete on iOS—as shown by these other operating systems and by various efforts to achieve competing distribution on iOS over the years, such as through streaming games and “jailbreaking”. (Evans.)

133. In the absence of competition for app distribution on iOS, Apple has behaved like a “sleepy monopolist” with respect to that aspect of its business. (Evans.) While Apple touts the innovation it has displayed over the years in various other areas, it has been slow to adapt or improve the App Store; it has invested little in the App Store; and it has provided limited distribution services and largely kept prices constant (or, in some cases, raised them)

while earning more and more in profit. (Evans.) As a result, both consumers and developers in the iOS App Distribution Market have suffered anti-competitive effects.

134. Specifically, there is substantial evidence in the record of anti-competitive effects on consumers in the iOS App Distribution Market, including: (1) fewer app stores with fewer innovative features and less choice (Findings of Fact ¶¶ 247, 249, 259-61); (2) higher prices due to developers passing on Apple’s supra-competitive commission to consumers (Findings of Fact § V.B); (3) fewer apps and less innovative apps (Findings of Fact ¶ 258); and (4) increased consumer switching and “mixing-and-matching costs” from a lack of “middleware” (Athey; Findings of Fact § V.E).

135. There also is substantial evidence of anti-competitive effects on developers, including: (1) reduced output and less innovation due to Apple’s supra-competitive commission (Findings of Fact ¶ 258); (2) inferior store features as compared to potential alternatives (Findings of Fact ¶¶ 248-251, 259-62); (3) higher costs due to slow app review and arbitrary decisions and errors (Findings of Fact ¶¶ 538-40); (4) lack of exposure for apps created by smaller developers (Findings of Fact ¶ 262); (5) poor customer service (Findings of Fact ¶¶ 318-21); and (6) the suppression of tools that would make it easier for developers to persuade consumers to switch to a competing platform, such as a multi-platform app store (Athey; Findings of Fact § V.E); and (7) Apple preferencing its own apps over competing third-party apps (Findings of Fact § V.D).

136. The Court finds that this evidence, discussed in more detail in the Findings of Fact, is strong evidence of substantial anti-competitive effects.

ii. Apple’s procompetitive justifications are pretextual.

137. “[I]f a plaintiff successfully establishes a *prima facie* case under § 2 by demonstrating anticompetitive effect[s], then the monopolist may proffer a ‘procompetitive

justification' for its conduct.” *Qualcomm*, 969 F.3d at 991 (quoting *Microsoft*, 253 F.3d at 59).

A procompetitive justification is “a nonpretextual claim that [the defendant’s] conduct is indeed a form of competition on the merits because it involves, for example, greater efficiency or enhanced consumer appeal.” *Id.*

138. Apple justifies its prohibition on alternative app distribution channels on iOS by pointing to the supposed security benefits of funneling all apps through the App Review process. This is a pretext.

139. As an initial matter, most security features for the iPhone are located at the operating system level. For example, Apple requires sandboxing on iOS, which creates restrictions for how an app can interact with the operating system, the device, and other apps. Apple could continue to enforce such security mechanisms even if apps were distributed outside of the App Store. (Mickens.) Other essential security functions performed at the operating system level include (1) address space layout randomization (“ASLR”); (2) W^X memory; and (3) secure booting. (Mickens.) These features are separate from App Review. (Mickens.) Thus, restricting app distribution is not necessary to achieve these security measures.

140. Apple considers macOS to be a secure platform, even though, as noted above, Apple does not prevent third-party distribution of apps on macOS like it does on iOS. (Findings of Fact § X.B.)

141. With respect to the App Review process specifically, the process is not an effective method of detecting security issues or preventing the distribution of malicious software. Legions of bad apps make their way into the App Store. They always have and always will. Many are described above in the Findings of Fact. (Findings of Fact § X.G.) Apple’s App Review has no “secret sauce”. Instead, the manual portion of the App Review relies on a cursory

review by human reviewers with no special qualifications. The automated portion of the App Review relies on automated tools, most of which are publicly available and well understood by the security community. (Findings of Fact § IX.F.) Apple could continue to utilize these tools even if it allowed distribution outside the App Store, as it does today through the notarization process on macOS. And if it chooses not to, the evidence shows that third parties could replicate (and potentially improve upon) both the human and automated features of Apple’s process. (Lee.)

142. Apple permits limited exceptions to its no “store within a store” policy and is not aware of any security issues introduced through these stores. (*See, e.g.*, PX305; PX30.) For example, the app *Roblox* allows consumers access to multiple user-generated games within the *Roblox* world, none of which are reviewed by Apple. (Findings of Fact ¶ 560.) Between 2015 and 2018, another app store, *Tribe*, was available on iOS. (Findings of Fact ¶ 559.) Although Apple ultimately removed *Tribe* from iOS, that decision was not the result of any security issues with *Tribe*. (Findings of Fact ¶ 559.) In fact, Apple has not conducted any studies of whether third-party app stores increase the security risks to iOS users. (Findings of Fact ¶ 563.)

143. To the contrary, security could be a vector on which alternative app stores compete if they were allowed on iOS. Apple is not the only company capable of protecting users. Indeed, alternative app stores could very well achieve better security results on iOS than Apple alone. (Lee.) The evidence shows that due to the tremendous number of apps the App Store must ingest each week, reviewers spend little time reviewing each app; at the very least, a more highly-curated store could have reviewers spend more time on examining the ins and outs of a given app. (Findings of Fact ¶ 521.)

144. For the foregoing reasons, the Court concludes that Apple’s procompetitive justification is pretextual. Although the Court could conclude its analysis here and find in Epic’s favor, the Court will move on to the next step of the analysis assuming, for the sake of argument, that Apple’s procompetitive justification is not pretextual.

iii. The anti-competitive effects of Apple’s conduct outweigh its procompetitive justifications.

145. There is one more step of the rule of reason analysis. “If the plaintiff cannot rebut the monopolist’s procompetitive justification, ‘then the plaintiff must demonstrate that the anticompetitive harm of the conduct outweighs the procompetitive benefit.’” *Qualcomm*, 969 F.3d at 991 (quoting *Microsoft*, 253 F.3d at 59). If “the monopolist’s conduct on balance harms competition”, it is “condemned as exclusionary for purposes of § 2”. *Microsoft*, 253 F.3d at 59.

146. Apple argues that this is not the law. Instead, Apple claims that balancing is inapplicable in a Section 2 case and that Epic’s only option is to show that the procompetitive justifications for Apple’s conduct are entirely pretextual. (Legal Framework (ECF No. 276) at 66.) Apple is wrong. The Ninth Circuit—and many other courts—have held that it is appropriate to balance procompetitive benefits against anti-competitive harms under Section 2. *See Qualcomm*, 969 F.3d at 991 (quoted above); *Microsoft*, 253 F.3d at 59 (quoted above); *New York ex rel. Schneiderman v. Actavis PLC*, 787 F.3d 638, 658 (2d Cir. 2015) (“[The plaintiff] has shown that whatever procompetitive benefits exist are outweighed by the anticompetitive harms.”); *Viamedia, Inc. v. Comcast Corp.*, 951 F.3d 429, 480 (7th Cir. 2020) (“The trier of fact must first evaluate the evidence and determine whether Comcast’s procompetitive justifications outweigh the anticompetitive harms from its conduct.”). The cases upon which Apple relies do not stand for a contrary proposition. *See Behrend v. Comcast Corp.*, No. CIV.A. 03-6604, 2012

WL 1231794, at *19 n.31 (E.D. Pa. Apr. 12, 2012) (acknowledging the balancing test but concluding that plaintiffs had waived their ability to rely on it); *Morris Commc'ns Corp. v. PGA Tour, Inc.*, 364 F.3d 1288, 1295 (11th Cir. 2004) (failing to address whether the balancing test applied); *ACT, Inc. v. Sylvan Learning Sys., Inc.*, 296 F.3d 657, 670 (8th Cir. 2002) (same). This Court follows the Ninth Circuit's caselaw and will, therefore, apply the balancing test.

147. When balancing Apple's procompetitive justifications, the Court also considers whether Apple's conduct achieves those benefits "in an unnecessarily restrictive way". *See Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 894 (9th Cir. 2008) ("Anticompetitive conduct is behavior that tends to impair the opportunities of rivals and either does not further competition on the merits or does so in an unnecessarily restrictive way."). Apple argues that there is no "less restrictive alternative" requirement in Section 2 cases. (Legal Framework (ECF No. 276) at 65 (citing *Image Tech. Serv. v. Eastman Kodak Co.*, 903 F.2d 612, 620 (9th Cir. 1990).) Focusing on whether or not there is a separate "less restrictive alternative" step in Section 2 cases elevates form over substance. Regardless of how the analysis is labeled, it makes no sense to credit Apple in the balancing step for the full scope of its procompetitive justifications when Apple has alternatives. Otherwise, trivial business justifications providing marginal benefit easily obtainable without harming competition could be argued to cleanse anti-competitive conduct harming millions or, in this case, billions of consumers, simply because they do not rise to the level of absolute pretext. Therefore, the Court will weigh Apple's procompetitive justifications in light of Apple's alternatives.

148. Apple does have less restrictive alternatives to achieve its alleged procompetitive benefit of security. Apple's experience with macOS, where it does not restrict app distribution exclusively to the App Store, confirms that less restrictive alternatives exist.

Apple believes that macOS is secure. For example, Craig Federighi, Apple’s Senior Vice President of Software Engineering, has testified that “the level of security of MacOS is a level of security that the market finds satisfactory”. (Federighi Dep. 83:12-15, 83:17-18.) Apple prominently advertises on its website that Mac users enjoy “Security. Built right in.” and can “[d]ownload apps safely from the Mac App Store. And the internet.” (PX741.) iOS and macOS are built using the same OS kernel, and iOS includes many of the security functions that are part of macOS, and improves on some, including sandboxing. (Findings of Fact § X.A.) Other macOS security features, including signing and certification, Gatekeeper, Xprotect and MRT, can be implemented on iPhones today. (Findings of Fact ¶¶ 489-97.) In fact, Mr. Federighi testified that Apple could “implement all the layers that are currently in macOS” security model on iOS if it chose to do so. (Federighi Dep. 80:2-5.).

149. The incremental security benefits of subjecting all iOS apps to Apple’s App Review are minimal. Epic’s computer science experts have demonstrated that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

But the record is replete with evidence that App Review regularly fails in this function too, and all manner of bad and malicious apps make it through App Review and into the App Store for consumers to download. (Findings of Fact § X.G.) Further, the automated portions of Apple’s App Review could be retained as part of notarization, as on macOS. Finally, the limited security benefits provided by App Review could easily be replicated by third-parties (Apple itself acquired a third party to perform some of these functions). Apple’s App Reviewers do not have any special

qualifications; and Apple's automated tools, such as static and dynamic analyzers, are well-understood and frequently used by security professionals outside of Apple. (Findings of Fact § X.H.)

150. 38. Therefore, the Court gives Apple little credit in the balancing for its procompetitive security justifications.

151. To the extent that there is any residual procompetitive benefit to Apple's conduct that cannot be captured by less restrictive alternatives, the anti-competitive effects of Apple's conduct clearly outweigh those benefits. Epic has detailed at great length the many harms caused by Apple's complete foreclosure of the iOS App Distribution Market. For example, Apple's conduct results in higher prices for consumers; it reduces output and innovation by forcing developers to pay supra-competitive commissions and subjecting developers to the arbitrary and error-prone App Review process. (Findings of Fact § V.B, V.C.) This in turn reduces consumers' choice of apps and app features. To take another example, Apple preferences its own apps over third-party developers' apps in numerous ways, including by using App Review to block competitor apps and by programming the App Store search function to prioritize Apple apps. (Findings of Fact § V.D.) Again, both developers and consumers are harmed because Apples practices make it harder for developers deliver their apps to consumers. The list goes on. By contrast, Apple has offered nothing but the unsupported, entirely theoretical concern that opening up iOS to third-party distribution may result in marginally more bad apps than already exist on the App Store (*see* § II.B.ii above).

C. Apple's conduct caused antitrust injury to Epic.

152. The third and final element of Epic's Section 2 claim requires that Epic prove that Apple's anti-competitive conduct caused Epic injury. The Court concludes that it did.

153. “Causal antitrust injury is a substantive element of an antitrust claim.” *Somers v. Apple, Inc.*, 729 F.3d 953, 963 (9th Cir. 2013). “The four requirements for antitrust injury are ‘(1) unlawful conduct, (2) causing an injury to the plaintiff, (3) that flows from that which makes the conduct unlawful, and (4) that is of the type the antitrust laws were intended to prevent.’” *Feitelson v. Google Inc.*, 80 F. Supp. 3d 1019, 1027 (N.D. Cal. 2015) (quoting *Am. Ad Mgmt., Inc. v. Gen. Tel. Co. of Cal.*, 190 F. 3d 1051, 1055 (9th Cir. 1999)).

154. Epic has been injured as a would-be competing app distributor on iOS. Epic currently distributes apps on PCs and Macs through a curated app store called the Epic Games Store (“EGS”). (Sweeney; Allison.) If EGS were permitted on iOS, Epic would compete with Apple in the iOS App Distribution Market. (Sweeney.) This would allow Epic to earn revenue from the distribution of third-party apps as well as to grow the EGS userbase to make it a more desirable storefront for consumers and developers alike. (Sweeney.) Due to Apple’s restrictions, however, Epic has been denied these benefits and has suffered antitrust injury. *See Am. Ad Mgmt., Inc. v. Gen. Telephone Co.*, 190 F.3d 1051, 1057 (9th Cir. 1999) (recognizing “potential entrants” as market participants that can suffer antitrust injury).

155. In addition, Epic has been injured as an app developer. Up until August 13, 2020, Epic distributed *Fortnite* and certain other apps to iOS user through Apple’s App Store. (Sweeney.) Epic still distributes other game and non-game apps, such as *Houseparty*, through the App Store. Absent Apple’s rules, Epic would distribute its apps through many different means, including from its website like it does on PCs, Macs, and Android, through EGS like it does on PCs and Macs, and through third-party iOS app stores. (Sweeney.) By distributing its apps exclusively through the App Store, Epic has paid supra-

competitive commissions and received worse service than it would receive in a competitive market. (Findings of Fact § V.C.)

D. Epic should not be denied relief based on Apple’s meritless affirmative defenses.

156. The analysis is not quite yet over. A defendant is permitted to plead affirmative defenses, which if proved shield the defendant from liability, even if the plaintiff has proved each element of its claim.

157. Apple has alleged a kitchen sink of affirmative defenses—27 in total. It has offered little to the Court by way of individualized explanation. (Apple’s Answer (ECF No. 66) at pp. 36-41.) None justifies denying Epic relief.⁴

i. Unclean hands is not an affirmative defense to an antitrust action (Affirmative Defense 12).

158. Apple has alleged that Epic’s “claims for injunctive relief are barred, in whole or in part, by the doctrine of unclean hands”. (Apple’s Answer (ECF No. 66) at p. 40.)

159. “‘Unclean hands’ has not been recognized as a defense to an antitrust action for many years”. *Memorex Corp. v. Int’l Bus. Mach. Corp.*, 555 F.2d 1379, 1381 (9th Cir. 1977); *see Broadcom Corp. v. Qualcomm Inc.*, 2009 WL 650576, at *11 (S.D. Cal. Mar. 11, 2009) (“The defense of unclean hands does not apply to antitrust claims.”); *see also McMullen v. Hoffman*, 174 U.S. 639, 654 (1899); *Cont’l Wall Paper Co. v. Louis Voight & Sons Co.*, 212 U.S. 227, 262 (1909); *Perma Life Mufflers, Inc. v. Int’l Parts. Corp.*, 392 U.S. 134, 139 (1968);

⁴ [Note to Court: In the interest of brevity, Epic has responded to only the affirmative defenses that it believes Apple is likely to present at trial. If at trial Apple presents additional affirmative defenses, or casts any affirmative defenses differently than addressed herein, Epic respectfully requests an opportunity to brief those defenses.]

Kaiser Steel Corp. v. Mullins, 455 U.S. 72, 77 (1982). Thus, the Court denies Apple’s unclean hands defense as a matter of law.

160. Even if the doctrine of unclean hands could bar antitrust claims (which it cannot), Apple has not established the defense here on the facts.

161. To prevail on a defense of unclean hands, a defendant must prove by clear and convincing evidence that (1) “the plaintiff’s conduct is inequitable”, and (2) “the conduct relates to the subject matter of [the plaintiff’s] claims”. *Fuddruckers, Inc. v. Doc’s B.R. Others, Inc.*, 826 F.2d 837, 847 (9th Cir. 1987); see *TrafficSchool.com, Inc. v. Edriver, Inc.*, 653 F.3d 820, 833 (9th Cir. 2011).

162. “[D]etermining whether the doctrine of unclean hands precludes relief requires balancing the alleged wrongdoing of the plaintiff against that of the defendant, and ‘weigh[ing] the substance of the right asserted by [the] plaintiff against the transgression which, it is contended, serves to foreclose that right.’” *Northbay Wellness Grp., Inc. v. Bayries*, 789 F.3d 956, 960 (9th Cir. 2015).

163. Here, while it is true that Epic implemented direct payment without disclosing to Apple that it was doing so, Epic did so only because Epic knew that Apple would use its monopoly power to reject Version 13.40 of *Fortnite* if Apple knew that Version 13.40 contained a payment processing interface that could provide users with more than one option for processing in-app payments. (Findings of Fact ¶ 444.) The Court has found that Apple’s conduct is unlawful, and Epic’s efforts to gather facts to support its claims and challenge that unlawful conduct does not rise to the level of unclean hands.

- ii. Epic’s claims are not barred by the FTAIA or international comity (Affirmative Defenses 6 and 7).

164. Apple has alleged two affirmative defenses based on the geographic scope of Epic’s claims. Both defenses fail.

a. The FTAIA does not bar Epic’s claims.

165. Apple has alleged that Epic’s “claims are barred, in whole or in part, by the Foreign Trade Antitrust Improvements Act, 15 U.S.C. § 6a, insofar as Plaintiff makes claims concerning transactions or alleged conduct involving trade or commerce with foreign nations outside U.S. jurisdiction”. (Apple’s Answer (ECF No. 66) at p. 37.)

166. Apple’s conduct does “involve trade or commerce [with] . . . foreign nations” to the extent that the scope of that conduct is worldwide. Apple requires developers to sign its primary developer agreement—the Apple Developer Program License Agreement (the “DPLA”)—worldwide; Apple applies the rules for its app review process, called the App Store Review Guidelines (the “Guidelines”), worldwide; and Apple blocks direct downloading of apps and app stores worldwide. (Findings of Fact ¶ 168.)

167. But Apple is incorrect that the Foreign Trade Antitrust Improvements Act (“FTAIA”) bars Epic’s claims in whole or in part.

168. The FTAIA provides in full:

“Sections 1 to 7 of [the Sherman Act] shall not apply to conduct involving trade or commerce (other than import trade or import commerce) foreign nations unless—

(1) such conduct has a direct, substantial, and reasonably foreseeable effect—

(A) on trade or commerce which is not trade or commerce with foreign nations, or on import trade or import commerce with foreign nations; or

(B) on export trade or export commerce with foreign nations, of a person engaged in such trade or commerce in the United States; and

(2) such effect gives rise to a claim under the provisions of sections 1 to 7 of [the Sherman Act], other than this section.

If sections 1 to 7 of [the Sherman Act] apply to such conduct only because of the operation of paragraph (1)(B), then sections 1 to 7 of this title shall apply to such conduct only for injury to export business in the United States.” 15 U.S.C. § 6a.

169. The statute establishes a general proposition that the Sherman Act does not apply to conduct involving foreign trade but provides two broad exceptions that, when boiled down, demonstrate that the Sherman Act generally applies *except* to conduct that “adversely affect[s] *only* foreign markets”. *F. Hoffmann-La Roche Ltd. v. Empagran S.A.*, 542 U.S. 155, 161 (2004) (emphasis added); *see also id.* at 158 (explaining that the FTAIA “excludes from the Sherman Act’s reach much anticompetitive conduct that causes *only* foreign injury” (emphasis added)).

170. The FTAIA does not bar Epic’s claims for two independent reasons. *First*, Apple’s conduct falls within the exception contained in paragraphs (1)(A) and (2). *Second*, Apple’s conduct falls within the exception contained in paragraphs (1)(B) and (2).

171. **Paragraphs (1)(A) and (2):** Paragraph (1)(A) removes the general bar on conduct involving foreign trade where the “conduct has a direct, substantial, and reasonably foreseeable effect” on “trade or commerce which is not trade or commerce with foreign nations, or on import trade or import commerce with foreign nations”. 15 U.S.C. § 6a(1)(A).

172. A direct effect “follows as an immediate consequence of the defendant’s activity”, “without deviation or interruption”. *United States v. LSL Biotechnologies*, 379 F.3d 672, 680 (9th Cir. 2004). An effect is substantial if it “involves a sufficient volume of U.S. commerce” and is not “a mere ‘spillover effect’”. *Sun Microsystems Inc. v. Hynix*

Semiconductor Inc., 534 F. Supp. 2d 1101, 1110 (N.D. Cal. 2007). An effect is reasonably foreseeable if it would “have been evident to a reasonable person making practical business judgments”. *Animal Sci. Prods., Inc. v. China Minmetals Corp.*, 654 F.3d 462, 471 (3d Cir. 2011).

173. Here, as a result of Apple’s restrictions, Epic cannot offer its distribution services on iOS to other developers, whether foreign or domestic; distribute its apps on alternative app stores created by app distributors, whether foreign or domestic; or engage the services of in-app payment processors, whether foreign or domestic.⁵ The effect of this conduct is direct, as Apple’s conduct expressly prohibits alternative app stores and non-IAP payment methods. (Findings of Fact ¶ 222.) The effect is also substantial, given the size of the app economy, the relevant markets, and Epic’s userbase. (Findings of Fact ¶¶ 124, 352.) Finally, the effect is reasonably foreseeable, as Apple intends to foreclose alternative app stores and non-IAP payment methods, both domestic and foreign. (Findings of Fact Sections V.A, VI.D.)

174. Paragraph (2) requires that the “effect gives rise to a claim under the provisions of sections 1 to 7 of [the Sherman Act]”. 15 U.S.C. § 6a. To show that an “effect ‘gives rise’ to the plaintiff’s injury”, courts apply a “proximate causation standard”, which means that causation must be sufficiently direct. *United States v. Hui Hsiung*, 778 F.3d 738, 758-59 (9th Cir. 2015) (quoting *In re Dynamic Random Access Memory (DRAM) Antitrust Litig.*, 546 F.3d 981, 987 (9th Cir. 2008)).

175. Under paragraph (2), the effect “gives rise to a claim under the provisions of sections 1 to 7 of [the Sherman Act]” because Epic’s claims arise in part from the fact that it

⁵ The Court discusses Apple’s payment processing restrictions in more detail below (*see* Sections IV, V, VII), but references those restrictions here in the interest of not repeating the FTAIA analysis.

cannot distribute its apps on alternative app stores or use non-IAP payment methods, whether foreign or domestic. (*See* Sections II.C, IV.B.iii.)

176. Because paragraphs (1)(A) and (2) of the FTAIA are satisfied, the statute does not bar Epic’s claims.

177. **Paragraphs (1)(B) and (2):** Even if Epic could not satisfy paragraphs (1)(A) and (2) (which it can), the FTAIA still would not bar Epic’s claim if Epic could satisfy Paragraphs (1)(B) and (2). Epic can satisfy these paragraphs as well.

178. Under paragraph (1)(B), Apple’s conduct “has a direct, substantial, and reasonably foreseeable effect . . . on export trade or export commerce with foreign nations, of a person engaged in such trade or commerce in the United States”. 15 U.S.C. § 6a(1)(B).

179. Epic exports apps worldwide on iOS and sells in-app content to foreign consumers, and, absent Apple’s anti-competitive conduct, would provide app distribution and in-app payment processing services worldwide on iOS. Therefore, Epic is engaged in export commerce. *See TI Inv. Servs., LLC v. Microsoft Corp.*, 23 F. Supp. 3d 451, 469 (D.N.J. 2014) (holding that U.S. defendant’s sales of VoIP services to consumers in India constitute export commerce under the FTAIA).

180. Apple prevents Epic from exporting Epic’s apps and selling in-app content to foreign consumers through the channels of Epic’s choice, and prevents Epic from providing any app distribution and in-app payment processing services worldwide on iOS. (Findings of Fact Sections V.A, VI.D.) The effect of Apple’s conduct on export trade or commerce is direct, as Apple’s conduct expressly forecloses alternative app stores and non-IAP payment methods. (Findings of Fact Sections V.A, VI.D.) The effect is substantial, given the size of the app economy, the relevant markets, and Epic’s userbase. (Findings of Fact ¶¶ 124, 352.) Finally, the

effect is reasonably foreseeable, Apple intends to foreclose alternative app stores and non-IAP payment methods. (Findings of Fact Sections V.A, VI.D.)

181. Under paragraph (2), the effect “gives rise to a claim under the provisions of sections 1 to 7 of [the Sherman Act]” because Epic’s claim arises in part from the fact that Epic cannot export its apps or sell in-app content to foreign consumers through the channels of its choice, or provide any app distribution and in-app payment processing services worldwide on iOS. (*See* Sections II.C, IV.B.iii.)

182. Because paragraphs (1)(B) and (2) of the FTAIA are satisfied, the statute does not bar Epic’s claims.

b. The doctrine of international comity does not bar Epic’s claims.

183. International comity refers to the respect owed by one sovereign to another. Apple has alleged that Epic’s “claims are barred, in whole or in part, by the doctrine of international comity, insofar as Plaintiff seeks injunctive relief affecting transactions and conduct occurring outside U.S. jurisdiction”. (Apple’s Answer (ECF No. 66) at p. 37.) Apple is wrong.

184. The Sherman Act may reach overseas to protect against domestic antitrust injury. “No one denies that America’s antitrust laws, when applied to foreign conduct, can interfere with a foreign nation’s ability independently to regulate its own commercial affairs. But our courts have long held that application of our antitrust laws to foreign anticompetitive conduct is nonetheless reasonable, and hence consistent with principles of prescriptive comity, insofar as they reflect a legislative effort to redress *domestic* antitrust injury that foreign anticompetitive conduct has caused.” *Hoffmann-La Roche*, 542 U.S. at 165.

185. Courts in the Ninth Circuit consider a variety of factors when deciding how much deference to give foreign interests. “The elements to be weighed include the degree of conflict with foreign law or policy, the nationality or allegiance of the parties and the locations

or principal places of businesses or corporations, the extent to which enforcement by either state can be expected to achieve compliance, the relative significance of effects on the United States as compared with those elsewhere, the extent to which there is explicit purpose to harm or affect American commerce, the foreseeability of such effect, and the relative importance to the violations charged of conduct within the United States as compared with conduct abroad.”

Timberlane Lumber Co. v. Bank of Am., N.T. & S.A., 549 F.2d 597, 614 (9th Cir. 1976),
superseded by FTAIA on other grounds.

186. The United States’ interests in this action are significant. Epic and Apple are both incorporated and headquartered in the United States (Findings of Fact ¶¶ 40, 341), and the DPLA is governed by “the laws of the United States and the State of California” (PX2453 § 14.10).

187. By contrast, Apple has not pointed to any conflict between Epic’s requested injunction and any foreign interests, much less provided evidence on the relative importance of such interests. Apple has not proved this defense.

iii. Epic has not failed to join an indispensable party (Affirmative Defense 11).

188. Apple has alleged that Epic “has failed to join all parties necessary for a just adjudication of their purported claims”. (Apple’s Answer (ECF No. 66) at p. 38.) Although it is not clear which parties Apple alleges are necessary, the Court understands that Apple alleges that Epic’s corporate affiliates are necessary parties. This is incorrect.

189. Federal Rule of Civil Procedure 19 “establishes two broad categories of required parties”. *Ward v. Apple Inc.*, 791 F.3d 1041, 1048 (9th Cir. 2015). *First*, “a party is ‘required’ if, ‘in that person’s absence, the court cannot accord complete relief among existing parties’”. *Id.* (quoting Fed. R. Civ. P. 19(a)(1)(A)). *Second*, a “party is required if: that person

claims an interest relating to the subject of the action and is so situated that disposing of the action in the person's absence may: (i) as a practical matter impair or impede the person's ability to protect the interest; or (ii) leave an existing party subject to a substantial risk of incurring double, multiple, or otherwise inconsistent obligations because of the interest". *Id.* (quoting Fed. R. Civ. P. 19(a)(1)(B)).

190. The party asserting the absence of a necessary party bears the burden of persuasion. *Makah Indian Tribe v. Verity*, 910 F.2d 555, 558 (9th Cir. 1990). Apple has not met its burden.

191. Epic's affiliates are not necessary parties under the first category. Epic's requested injunction restrains *Apple*, which is a party. The fact that Epic's affiliates may be benefited by the injunction does not make them necessary parties. As explained below, the Court can grant injunctive relief that affects persons beyond the parties. (*See* ¶¶ 479-81 below.)

192. Further, Epic's affiliates are not necessary parties under the second category. Apple cannot be concerned that Epic's affiliates' absence will "as a practical matter impair or impede [their] ability to protect the[ir] interest". Fed. R. Civ. P. 19(a)(1)(B)(i). Nor will Apple be "subject to a substantial risk of incurring double, multiple, or otherwise inconsistent obligations" based on Epic's affiliates' absence. Fed. R. Civ. P. 19(a)(1)(B)(ii). Epic is not seeking any monetary damages in this case, and the injunctive relief it is seeking is the same as it would be if all of its affiliates were also plaintiffs here.

iv. Epic has not waived, and is not estopped from asserting, any claims (Affirmative Defenses 18 and 19).

193. Apple alleges that "claims are barred, in whole or in part, by the doctrine of waiver [and estoppel], including because Plaintiff renewed the term of the License Agreement on June 30, 2020—the same day that its CEO Tim Sweeney contacted Apple to request a 'side

letter’ exempting Plaintiff from certain obligations under the License Agreement. Apple denied the request, and Plaintiff continued to enjoy the benefits of the License Agreement. Thus, the doctrine of waiver bars Plaintiff’s claims, in whole or in part.” (Apple’s Answer (ECF No. 66) at pp. 39-40.) Neither defense applies here.

a. Waiver

194. “[W]aiver’ means the intentional relinquishment or abandonment of a known right. Waiver requires an existing right, the waiving party’s knowledge of that right, and the party’s actual intention to relinquish the right.” *Lynch v. Cal. Coastal Comm’n*, 3 Cal. 5th 470, 475 (2017) (citations and quotation marks omitted). “Waiver always rests upon intent. The intention may be express, based on the waiving party’s words, or implied, based on conduct that is so inconsistent with an intent to enforce the right as to induce a reasonable belief that such right has been relinquished.” *Id.* (citations and quotation marks omitted).

195. Epic did not waive its claims. On June 30, 2020, Epic asked Apple to permit alternative app stores and non-IAP payment methods on iOS. (PX2457.) On July 10, 2020, Apple rejected Epic’s requests. (PX2459.) On July 17, 2020, Epic responded that “Epic is in a state of substantial disagreement with Apple’s policy and practices, and we will continue to pursue this”. (PX2458.) Epic entered into a renewal of the DPLA on June 30, 2020—before Apple rejected Epic’s requests and only because Apple required it. (Sweeney.) Apple’s argument that Epic intended to waive its claims against Apple is without evidentiary support.

b. Equitable estoppel.

196. “Equitable estoppel precludes a party from claiming the benefits of a contract while simultaneously attempting to avoid the burdens that contract imposes.” *Comer v. Micor, Inc.*, 436 F.3d 1098, 1101 (9th Cir. 2006) (quotation marks omitted); *accord Kramer v. Toyota Motor Corp.*, 705 F.3d 1122, 1128 (9th Cir. 2013).

197. To establish an equitable estoppel defense, Apple must prove that “(1) [Epic] was aware of the true facts; (2) [Epic] intended its representation to be acted on or acted such that [Apple] had a right to believe it so intended; (3) [Apple was] ignorant of the true facts; and (4) [Apple] relied on [Epic’s] representation to [its] detriment.” *Acri v. Int’l Ass’n of Machinists & Aerospace Workers*, 781 F.2d 1393, 1398 (9th Cir. 1986); accord *Strong v. Cty. of Santa Cruz*, 15 Cal. 3d. 720, 725 (1975). Equitable estoppel applies “where the conduct of one side has induced the other to take such a position that it would be injured if the first should be permitted to repudiate its acts.” *Old Republic Ins. Co. v. FSR Brokerage, Inc.*, 80 Cal. App. 4th 666, 678 (2000).

198. Apple’s argument that Epic should be equitably estopped from asserting its claims against Apple fails for similar reasons as waiver. Epic did not “intend[] its representation to be acted on” and Apple was not “ignorant of the true facts”, *Acri*, 781 F.2d at 1398, because Epic made no representation that it would not pursue its claims. Instead, Epic wrote the opposite: “Epic is in a state of substantial disagreement with Apple’s policy and practices, and we will continue to pursue this”. (PX2458.) Further, Apple has not pointed to any evidence that it “relied on” the exchange in the summer of 2020 “to [its] detriment”. *Acri*, 781 F.2d at 1398.

- v. Epic did not ratify, agree to, acquiesce in, or consent to Apple’s conduct (Affirmative Defense 8).

199. Apple alleges that Epic’s “claims are barred, in whole or in part, because of Plaintiff’s ratification, agreement, acquiescence, authorization, or consent to Apple’s alleged conduct, including by renewing the term of the License Agreement on June 30, 2020—the same day that its CEO Tim Sweeney contacted Apple to request a ‘side letter’ exempting Plaintiff from certain obligations under the License Agreement. Apple denied the request, and Plaintiff

continued to enjoy the benefits of the License Agreement, thereby ratifying, agreeing to, acquiescing, authorizing, and/or consenting to Apple’s alleged conduct.” (Apple’s Answer (ECF No. 66) at pp. 39-40.)

200. It is unclear which doctrine Apple seeks to apply here. Regardless, the Court rejects this affirmative defense because Epic did not ratify, agree to, acquiesce in, or consent to Apple’s conduct. On June 30, 2020, Epic entered into a renewal of the DPLA because Apple required it. (Sweeney; Grant.) There is no evidence that Epic intended to ratify, agree to, acquiesce in, or consent to Apple’s conduct by this renewal. Nor is there any evidence that Apple understood Epic to have ratified, agreed to, acquiesced in, or consented to Apple’s conduct by this renewal. To the contrary, Epic explained within weeks that “Epic is in a state of substantial disagreement with Apple’s policy and practices, and we will continue to pursue this”. (PX2458.)

201. The Court rejects these affirmative defenses.

vi. The *Noerr-Pennington* doctrine does not apply here (Affirmative Defense 14).

202. Apple has alleged that Epic’s “claims are barred, in whole or in part, insofar as they challenge the exercise of rights protected by the First Amendment of the United States Constitution, by Article I, Section 3 of the California Constitution, and by the *Noerr-Pennington* doctrine”. (Apple’s Answer (ECF No. 66) at pp. 40-41.)

203. The *Noerr-Pennington* doctrine allows private citizens to exercise their First Amendment rights to petition the government without fear of antitrust liability. See *Eastern R.R. Presidents Conference v. Noerr Motor Freight, Inc.*, 365 U.S. 127 (1961); *United Mine Workers of Am. v. Pennington*, 381 U.S. 657 (1965).

204. As discussed in more detail below (*see* Section XIII.D below), Apple seeks a declaration that the Developer Agreement and DPLA are lawful contracts, that Apple’s terminations of the Developer Agreement and DPLA with Epic were lawful, and that Apple has the contractual right to terminate the Developer Agreements and DPLAs with Epic’s affiliates. (Legal Framework, App’x A (ECF No. 276-1) at 8-9; *see also* Apple’s Answer (ECF No. 66) at p. 65.) Apple argues that this request for a declaration is protected by the *Noerr-Pennington* doctrine.

205. The *Noerr-Pennington* doctrine does not apply here because Epic does not argue that Apple’s request for this declaration violates the antitrust laws. Instead, Epic argues that Apple’s termination or threatened termination of these contracts (*i.e.*, Apple’s retaliation against Epic for implementing Epic direct payment) violates the antitrust laws. That Apple has sought a declaration does not immunize Apple’s underlying conduct from liability.

vii. Epic’s claims are not barred by the statute of limitations nor the equitable doctrine of laches (Affirmative Defenses 9 and 17).

206. Apple alleges that Epic’s “claims are barred in whole or in part by the statute of limitations applicable to its respective claims”, or “by the doctrine of laches”. (Apple’s Answer (ECF No. 66) at pp. 38-39.) The Court concludes otherwise.

a. Epic’s claims are not barred by any statutes of limitations.

207. Epic’s claims are not barred by any statutes of limitations.

208. Statutes of limitations refer to the time period during which a claim must be brought. “Unlike damages claims under section 4 [of the Clayton Act], which are subject to section 4B’s four-year statute of limitations, there is no statute of limitations for injunctive relief claims under section 16.” *Oliver v. SD-3C LLC*, 751 F.3d 1081, 1085 (9th Cir. 2014).

209. Therefore, Epic’s Section 2 claim is not barred by any statute of limitations because no such statute applies to them. *See id.*

b. *Epic’s claims are not barred by laches.*

210. “Laches is an equitable defense that prevents a plaintiff, who with full knowledge of the facts, acquiesces in a transaction and sleeps upon his rights.” *Danjaq LLC v. Sony Corp.*, 263 F.3d 942, 950-51 (9th Cir. 2001). A defendant must prove that (1) the plaintiff delayed in initiating the lawsuit; (2) the delay was unreasonable; and (3) the delay resulted in prejudice. *Id.*

211. “Claims for injunctive relief . . . [under the Clayton Act] are subject to the equitable defense of laches.” *Id.* “[I]n computing the laches period”, section 4B’s four-year statute of limitation is used as a “guideline”. *Id.*

212. Epic did not unreasonably delay pursuing its claims—there is simply no basis for an assertion of laches. Nearly all of the actions involving Epic in this case have occurred within the last four years. *Fortnite* launched on iOS in April 2018; EGS launched in December 2018; Epic entered into a renewal of the DPLA in June 2020; Epic launched Epic direct payment on iOS in August 2020; and Apple removed *Fortnite* from the App Store in August 2020. (Findings of Fact Section IX.M.) Because Epic was “injured within the four-year limitations period”, “laches does not bar [its] federal antitrust claim”. *Oliver*, 751 F.3d at 1087.

213. Further, even if Epic had unreasonably delayed (which it did not), Apple suffered no prejudice. In fact, Apple has been engaged in continuous litigation over the App Store since at least 2011, when a putative class of consumer plaintiffs filed suit in a related action. (*Pepper v. Apple Inc.*, Case No. 4:11-cv-06714-YGR-TSH (N.D. Cal.), ECF No. 1.) Any alleged delay by Epic in suing over related conduct could not have prejudiced Apple.

* * *

214. For the foregoing reasons, the Court does not sustain any of Apple’s affirmative defenses, and finds Apple liable for unlawfully maintaining its monopoly in the iOS App Distribution Market.

III. SECTION 2 OF THE SHERMAN ACT: APPLE’S DENIAL OF AN ESSENTIAL FACILITY IN THE IOS APP DISTRIBUTION MARKET (COUNT 2).

215. Epic alleges that Apple is a monopolist in an essential facility—the iOS operating system. According to Epic, access to iOS is necessary for app distributors to distribute apps on iOS, and Apple denies access to all distributors, thereby foreclosing competition in the iOS App Distribution Market. The Court agrees with Epic. This claim, a so-called “essential facility” claim, is an independent basis for Apple’s liability under Section 2.

216. The Ninth Circuit has consistently recognized essential facility claims under Section 2 of the Sherman Act. *Aerotec Int’l, Inc. v. Honeywell Int’l, Inc.*, 836 F.3d 1171, 1185 (9th Cir. 2016); *MetroNet Servs. Corp. v. Qwest Corp.*, 383 F.3d 1124, 1128-29 (9th Cir. 2004); *City of Anaheim v. S. Cal. Edison Co.*, 955 F.2d 1373, 1379 (9th Cir. 1992).

217. The legal elements of an essential facility claim under governing Ninth Circuit precedent are undisputed. (Legal Framework (ECF No. 276) at 68.) To establish such a claim, a plaintiff must show that (1) the defendant is “a monopolist in control of an essential facility”; (2) the plaintiff “is unable reasonably or practically to duplicate the facility”; (3) the defendant “has refused to provide [the plaintiff] access to the facility”; and (4) “it is feasible for [the defendant] to provide such access”. *Aerotec*, 836 F.3d at 1185; *Metronet*, 383 F.3d at 1128-29; *Alaska Airlines, Inc. v. United Airlines, Inc.*, 948 F.2d 536, 542-46 (9th Cir. 1991). Epic has met its burden on each of these elements.

218. Epic has proved that (1) Apple is a monopolist in control of the iOS platform, which is an essential facility in the iOS App Distribution Market (Section II.A); (2) it is

not possible for Epic reasonably or practicably to duplicate the iOS platform (Section II.B); (3) Apple has refused to give Epic access to the iOS platform in Epic’s capacity as a potential app distributor (Section II.C); and (4) Apple could feasibly provide Epic with access to the iOS platform for the purpose of distributing apps (Section II.D).

219. Epic, as a potential competitor of Apple with respect to the essential facility at issue here, has standing to bring this essential facility claim against Apple (Section II.E).

A. Apple is a monopolist in control of an essential facility—the iOS platform.

220. “Essential facility” is a term of art under the antitrust laws. “[W]hat makes a facility essential is not the nature of the facility itself, but the effect upon competition that withholding the facility might have.” *City of Anaheim*, 955 F.2d at 1380.

221. “A facility that is controlled by a single firm will be considered ‘essential’ only if control of the facility carries with it the power to *eliminate* competition in the downstream market.” *Alaska Airlines*, 948 F.2d at 544; *see also Aerotec*, 836 F.3d at 1184 (an essential facility is “critical[] to competition”).

222. Here, Apple plainly exercises complete control over the iOS platform. *See MCI Commc’ns Corp. v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1133 (7th Cir. 1983) (affirming jury verdict on essential facilities claim where defendant “had complete control” over the necessary facilities). Apple develops iOS. (PX2573 at 1.) Apple installs iOS on only Apple devices, and does not license iOS to other original equipment manufacturers. (PX2573 at 1.) Apple establishes the terms and conditions upon which consumers and developers interact with iOS. (Findings of Fact Section II.)

223. Apple then uses its control over the iOS platform to eliminate competition in the downstream iOS App Distribution Market. Apple technologically blocks consumers from

downloading native apps through any channel except the App Store. (Findings of Fact ¶ 185.) App distributors cannot compete by making apps available to consumers through a website. (Findings of Fact ¶¶ 185-97.) Apple also conditions all app developers' access to iOS on the developers' agreement to distribute their apps solely through the App Store. (Findings of Fact Section IV.A) Thus, developers with access to iOS are contractually prohibited from competing with Apple as app distributors.

224. Apple has intentionally created an ecosystem that rendered the iOS platform an essential facility: it has locked in consumers as well as developers, and it has eliminated all competitive options for downstream iOS App Distribution Market. Because app distributors cannot compete in the iOS App Distribution Market without access to iOS, iOS is an essential facility. *See Sumotext Corp. v. Zoove, Inc.*, Case No. 16-cv-01370-BLF, 2020 WL 127671, at *10 (N.D. Cal. Jan. 10, 2020) (denying summary judgment and allowing essential facilities claim to proceed to trial where access to the facility was essential to compete in the market).

225. Apple has argued that its ownership of intellectual property, such as Apple's patents, copyrights, or trademarks related to iOS prevent this Court from finding that iOS is an essential facility. This argument is without merit.

226. Intellectual property rights provide their owner with the right to exclude others; nothing more. *See Siemens Med. Sol. U.S., Inc. v. St.-Gobain Ceramics & Plastics, Inc.*, 647 F.3d 1373, 1375 (Fed. Cir. 2011) ("As we have long recognized, however, each patent grants only a right to exclude."). It is now axiomatic, however, that "a patent does not necessarily confer market power upon the patentee". *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 46 (2006). Where there is no market power, conduct related to patents raises no

antitrust concerns. Where a firm does have market power, however, the fact that it also has intellectual property rights does not give it free rein to misuse that power to harm competition. As this Court found at the preliminary injunction stage, “intellectual property rights do not confer a privilege to violate the antitrust laws”. *Epic Games, Inc. v. Apple Inc.*, No. 4:20-CV-05640-YGR, 2020 WL 5993222, at *10 (N.D. Cal. Oct. 9, 2020) (internal quotation marks omitted). Indeed, the law is full of examples where courts condemn the misuse of market power over products or technologies that are protected by intellectual property rights. *See, e.g., Microsoft*, 253 F.3d at 63 (rejecting as “border[ing] upon the frivolous” Microsoft’s argument that it had “an absolute and unfettered right to use its intellectual property as it wishes”); *New York ex rel. Schneiderman v. Actavis PLC*, 787 F.3d 638, 660 (2d Cir. 2015) (affirming order granting preliminary injunction in antitrust case and rejecting defendant’s argument that its patent gave it an “absolute and unfettered right to use its intellectual property as it wishes” (internal quotation marks omitted)). Apple’s intellectual property gave Apple the right to prevent all third parties from writing apps for use on iOS. Apple chose not to exercise that right, but instead to make its intellectual property widely available to developers, resulting in the emergence of an aftermarket in which Apple has monopoly power. Apple cannot escape the ramifications of its decision to open iOS and the market realities that decision created.

227. In sum, there is no legal principle that exempts iOS from the essential facility doctrine so long as all of the other elements have been met. *See Bellsouth Advert. & Publ’g Corp. v. Donnelley Info. Publ’g, Inc.*, 719 F. Supp. 1551, 1566 (S.D. Fla. 1988), *rev’d on other grounds*, 999 F.2d 1436 (11th Cir. 1993) (“Although the doctrine of essential facilities has been applied predominantly to tangible assets, there is no reason why it could not apply, as in

this case, to information wrongfully withheld” because the “effect in both situations is the same: a party is prevented from sharing in something essential to compete”).

228. Therefore, the Court concludes that Apple is a monopolist in control of an essential facility.

B. Epic is unable to reasonably or practically duplicate the iOS platform.

229. The second element of an essential facility claim relates to the plaintiff’s ability to duplicate the facility. “A facility is ‘essential’ only if it is ‘*otherwise unavailable* and cannot be reasonably or practically replicated.’” *MetroNet Servs.*, 383 F.3d at 1129-30.

230. Epic cannot possibly duplicate the iOS platform. If Epic did go to the enormous lengths necessary to develop a competing smartphone operating system, by definition, it would give rise to an entirely different platform. Thus, doing so would not permit competition in the iOS App Distribution Market because, as noted, apps developed for one operating system do not work on other operating systems. Apple is the sole gatekeeper for the iOS platform and without its permission, Epic cannot compete in the iOS App Distribution Market.

C. Apple has refused to provide Epic—as an app distributor—access to the iOS platform.

231. The third element requires that a plaintiff show that the defendant denied access to the alleged essential facility. *MetroNet Servs.*, 383 F.3d at 1129; *Aerotec*, 836 F.3d at 1185.

232. Here, Apple denies potential app distributors like Epic access to iOS outright. As explained above, Apple technologically blocks app distributors from making apps or app stores available on websites for download by consumers. (Findings of Fact ¶¶ 218-19.) Apple’s “FEAR team” has been tasked with preventing “illicit” distribution. (Findings of Fact

¶ 529.) When Epic requested that Apple permit Epic to distribute a mobile version of EGS that would distribute iOS apps to consumers, Apple refused. (Findings of Fact Section IX.M.)

233. Apple, of course, has provided Epic access to the iOS platform in Epic’s capacity as an app developer. But that is not the focus of Epic’s essential facility claim. As noted, Apple conditions access to the App Store, and thus to iOS users, on the requirement that developers not compete with Apple in the downstream iOS App Distribution Market. (PX2453 (DPLA) §§ 3.2(g), 3.3.2, 7.6; PX2790 (Guidelines) § 3.2.2(i).) Apple vigorously enforces these agreements and removes apps from iOS that operate as app stores. (Finding of Fact ¶¶ 259; 558-64.) The fact that Epic is able to access the iOS platform as a developer, then, does not change the fact that Epic is not permitted to access the iOS platform as a competing app distributor.

234. Accordingly, Apple denies Epic access to the iOS platform.

D. It is feasible for Apple to provide access to the iOS platform.

235. For denial of access to give rise to liability, it must be technically and practicably feasible for the monopolist to give competitors access to its essential facility. *MCI*, 708 F.2d at 1133; *see also Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 992-93 (D.C. Cir. 1977).

236. The Court finds that it is both technically and practically feasible for Apple to allow access. iOS already has the capability to permit third parties to make apps available to users directly, rather than the App Store. Apple’s Developer Enterprise Program permits employers to distribute apps directly to their employee, without going through the App Store or Apple’s App Review. (Findings of Fact Section X.I.)

237. Again here, macOS is instructive. Apple allows app distributors to distribute apps to consumers outside of the Mac App Store on macOS. (Findings of Fact ¶ 247(b).) Scott Forstall, the architect of iOS, testified that iOS was based on macOS (Forstall 57:2-5, 64:19-21), and that while “the technical infrastructure . . . will allow for other

distribution mechanisms”, it is not Apple’s “policy . . . to allow that”. (Forstall Dep. 129:8-130:19.) There is no evidence that it would be infeasible to change that policy now.

238. Finally, contrary to Apple’s previous assertion (*see* Legal Framework (ECF No. 276) at 81), there is no requirement that, to prove feasibility, a plaintiff must prove that the defendant provided access to others in the ordinary course of business. The Ninth Circuit has never adopted such a requirement. *See, e.g., City of Anaheim*, 955 F.2d at 1380 (discussing feasibility requirement without mentioning the monopolist’s “ordinary course of business”). Moreover, the out of circuit case on which Apple relies, *Laurel Sand & Gravel, Inc. v. CSX Transp., Inc.*, 924 F.2d 539 (4th Cir. 1991), did not establish such a rule but instead looked to the defendant’s prior practices as support for finding that the defendant “ha[d] articulated a number of legitimate business reasons for refusing” access. *Id.* at 545.

239. In any event, as described above, Apple does provide third parties access to the iOS platform through the Developer Enterprise Program in the ordinary course—albeit on the condition that they agree not to compete with Apple by distributing apps to consumers. (PX2620 § 3.2.)⁶

E. Epic has standing, as a potential competitor, to bring its essential facility claim.

240. Finally, the Court addresses Epic’s standing to bring an essential facility claim. Standing essentially asks the question of whether this plaintiff is the right type of plaintiff to bring the claim. The Court finds that Epic has standing.

⁶ Courts have noted that the fourth element of an essential facility claim “basically raises the familiar question of whether there is a legitimate business justification for the refusal to provide the facility”. *City of Anaheim*, 955 F.2d at 1380. As explained above, Apple has no legitimate business justification for its refusal to provide Epic and other app distributors access to the iOS platform. (*See* Section I.B.ii above.)

241. Both current and potential competitors have standing to bring an essential facility claim. Apple itself acknowledged this principle in a related case. *See Pistacchio v. Apple Inc.*, Case No. 4:20-cv-07034-YGR (N.D. Cal.), ECF No. 37 at 18 (“Only actual or potential competitors of the defendant may claim access to an essential facility.” (internal quotation marks omitted)).

242. Potential competitor standing furthers the purpose of the essential facility doctrine, which is to prevent the monopolist from “extend[ing] monopoly power from one stage of production to another, and from one market into another”. *City of Anaheim*, 955 F.2d at 1379 (internal quotation marks omitted). Where, as here, the monopolist has foreclosed all competition in the downstream market, *only* potential competitors can further this purpose.

243. Accordingly, the courts of appeals regularly explain the doctrine in terms of both actual and potential competitors. *See, e.g., Ferguson v. Greater Pocatello Chamber of Com., Inc.*, 848 F.2d 976, 983 (9th Cir. 1988); *MCI*, 708 F.2d at 1147 n.100.

244. Here, Epic is a potential competitor of Apple in the iOS App Distribution Market. Epic has an app store—EGS—on both PCs and Macs, and would bring EGS to iOS but for Apple’s refusal of access to iOS. (Findings of Fact ¶ 407.) Therefore, Epic has standing as a potential competitor to bring its essential facility claim. *See Ferguson*, 848 F.2d at 983; *MCI*, 708 F.2d at 1147 n.100.

245. For the foregoing reasons, the Court holds that Apple has denied access to an essential facility in violation of Section 2.⁷

⁷ To the extent that Apple asserts as affirmative defenses to Count 2 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 2 (denial of essential facility in the iOS App Distribution Market) for the same reasons. (*See* Section I.D above.)

IV. SECTION 2 OF THE SHERMAN ACT: APPLE’S MONOPOLY MAINTENANCE OF THE IOS IN-APP PAYMENT SOLUTIONS MARKET (COUNT 4).

246. After the App Store launched in 2008, certain developers followed a business model that would come to dominate the App Store. They made their apps available for free or for a modest fee, and then charged users for additional content available in their apps (“in-app purchases”). (Findings of Fact ¶ 112.) To manage these payments, developers were free to design their own user interface, select a payment processor, establish their own payment solution, and own all aspects of that interaction with their customer. (Findings of Fact ¶ 112.)

247. In 2009, Apple eliminated this flexibility and mandated that all developers offering in-app purchases of digital content use Apple’s own payment processing system, known as In-App Purchase (“IAP”). (Findings of Fact ¶ 113.) The IAP mandate usurped developers’ direct relationships with their customers and diverted all payments by consumers through Apple, which extracts a 30% commission, before passing on the remainder to the developer. (Findings of Fact ¶ 113.) Developers—who had previously handled transactions in a variety of ways and for a fraction of the 30% that Apple now charged (Findings of Fact ¶ 112)—had two choices: accept Apple’s terms, or change their business model (either by ceasing to offer in-app purchases or by getting off iOS).

248. Apple’s enforcement of IAP is contractual. The evidence at trial demonstrated that it is not technically necessary. (Findings of Fact Section VII.) Indeed, the fact that the App Store was launched and opened to third parties before IAP was introduced demonstrates that developers had a way of completing in-app purchases before IAP existed. (Findings of Fact ¶ 112.) Moreover, to this day, apps that sell physical goods and services, such as clothing or ride shares, continue to manage payments outside the IAP system, using payment solutions of their choice.

249. The IAP requirement is an express provision of the DPLA, which specifies that, subject to exceptions not relevant here, no app may “provide, unlock or enable additional features or functionality” other than through IAP. (PX2453 § 3.3.3.) The result of this prohibition is that developers are prohibited from using competing payment solutions for in-app purchases of digital content. To police this requirement, the “App Store Review Guidelines” make clear that apps will be rejected if they contain a competing payment solution for such purchases. (PX2558 § 3.1.1.)

250. Epic alleges that by the foregoing actions, Apple has monopolized a separate aftermarket on the iOS platform—the iOS In-App Payment Solutions Market. The Court agrees.

251. The elements for a Section 2 claim are discussed above: monopoly power in a relevant market; willful maintenance of that monopoly; and injury to the plaintiff. (*See* Section II above.) Epic has established each of these elements for its claim that Apple unlawfully maintains its monopoly in the iOS In-App Payment Solutions Market. (*See* Sections IV.A-C below.)

A. Apple possesses monopoly power in the iOS In-App Payment Solutions Market.

252. Epic has established that there is an aftermarket for solutions for accepting and processing payments for the purchase of digital content (the “iOS In-App Payment Solutions Market”) (Section IV.A.i below), and that Apple has monopoly power in this market (Section IV.A.ii below).

- i. There is an aftermarket for solutions for accepting and processing payments for the purchase of digital content within iOS apps.

253. The legal standard for market definition is discussed above; it considers potential substitutes for the products at issue and the geographic scope of competition. (*See* ¶ 31 above.)

254. The Court finds that the iOS In-App Payment Solutions Market is a properly defined market.

255. As noted, many developers monetize their apps by offering in-app purchases, and many consumers desire the additional content available for purchase within apps. Therefore, both consumers and developers demand seamless and convenient solutions for accepting and processing payments for digital content in apps. (Findings of Fact ¶¶ 275-79.)

256. The evidence at trial demonstrated that the possibility of purchasing digital content outside of an app is not a substitute for in-app purchasing. In-app purchases are more convenient. Leaving the app to make a purchase generally takes additional time and requires additional steps, and so users prefer not to leave the app. Convenience is particularly important for in-app purchases, many of which are small or time-sensitive. An extended delay may cause the consumer to second-guess and no longer make the purchase, costing the developer sales. (Findings of Fact ¶¶ 278-79.) As a result, in-app payment processing solutions are the only effective alternative for in-app purchases.

257. While it is true that Apple does not impose its IAP requirement on all app developers—and indeed requires developers that sell physical goods and services on iOS to use payment solutions other than IAP—that does not defeat Epic’s proposed market for payment solutions relating to digital content purchased within an app. That is because Apple targets developers who offer in-app purchases of digital content and is able to raise the price on those

customers above a competitive level without causing sufficient substitution to make that price increase unprofitable. Developers of other apps, such as those that sell physical goods and services, are not a source of customers whose substitution would constrain the price increase. As the Department of Justice and Federal Trade Commission have explained in their Horizontal Merger Guidelines, “[i]f a hypothetical monopolist could profitably target a subset of customers for price increases”, then relevant markets can be “defined around those targeted customers, to whom a hypothetical monopolist would profitably and separately impose at least a SSNIP”. U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines § 4.1.4 (2010).

258. The “targeted customers” here are developers who offer digital content for in-app purchase; for such developers, other forms of earning revenue from their apps are not sufficient substitutes to discipline a price increase. As noted, directing customers to make purchases outside the app would be a qualitatively different experience that would substantially decrease the volume of purchases. In any event, Apple expressly forbids app developers from informing customers that making purchases of digital content outside the app is even an option. (PX2558 § 3.1.1.) Likewise, ceasing to offer in-app purchases and moving to an advertising-based model would entail material changes to the app experience. To use *Fortnite* as an example, putting advertisements inside the game would fundamentally alter gameplay, dilute the immersive nature of the app and force changes on the game’s aesthetic. (Sweeney; Weissinger.) Very few developers would find it an appropriate substitute to make such radical changes to their business model in response to a SSNIP on the price of payment solutions for in-app purchases. Changing their business model to the sale of physical goods and services would of course be an even larger tectonic shift in their business, unlikely to occur in sufficient numbers to make a SSNIP unprofitable. Indeed, the fact that many developers utilize IAP today, even though under

Apple's current guidelines an advertising-based business model could save them Apple's 30% commission, demonstrates that for the developers Apple targets, a wholesale shift of their business model is not a viable option.

259. Epic presented empirical economic evidence to establish the contours of the iOS In-App Payment Solutions Market. Here again, and unlike Apple, Epic's expert economist, Dr. Evans, performed a SSNIP test. Dr. Evans considered a situation in which Apple did not impose its payment processing restrictions, and developers could choose between IAP and their own payment processing solutions. He assumed a 5% average fee for non-IAP payment processing solutions chosen by developers. He then considered what would happen if developers accounting for just 20% of in-app transactions would choose to use their own payment processing solutions, with those accounting for the remaining 80% of in-app transactions using IAP at Apple's [REDACTED] effective commission rate. That would decrease the average commission rate in the market to [REDACTED]. By eliminating that choice for developers, the hypothetical monopolist would maintain its [REDACTED] average commission, which is [REDACTED] higher—well above a SSNIP. The evidence showed that it is likely that developers accounting for far more than 20% of in-app digital content transactions would choose an alternative payment solution. After all, only the top [REDACTED] revenue-generating app developers would need to change payment solutions to hit [REDACTED] of transactions. (Evans.) If even more developers would switch in the absence of the IAP requirement, then a hypothetical monopolist of online payment solutions for iOS digital content apps would be able to increase the commission rate by even more than [REDACTED]. (Evans.) If just [REDACTED] of developers would otherwise switch, the effective price increase from the IAP requirement would rise to [REDACTED].

260. Apple contests Epic’s proposed market definition by arguing that IAP is more than just a “payment processor”, meaning that it is inappropriate to lump IAP into a mere “payment processing” market. (*See, e.g.,* Schmalensee.) Apple argues that IAP provides a host of other services besides just payment processing. (Schmalensee.) The Court finds that Apple is elevating nomenclature over substance. Epic has shown that, absent the IAP requirement that Apple imposes, app developers would create or select alternative payment solutions, including but not limited to core payment processing functionality (which developers may very well outsource, as indeed Apple does for IAP). These solutions would compete on price, fraud and security controls, parental controls, ease of integration, speed, flexibility in payment credential (*e.g.,* credit card, debit card, carrier billing, proprietary services like AliPay, cryptocurrency), and so on. (Findings of Fact Section VI.B.) To the extent that Apple contends that IAP can perform more functions or perform them better, that is a basis on which Apple can and should compete in a competitive market, rather than a basis to deny the existence of a relevant market.

261. Apple has demonstrated monopoly power in the iOS In-App Payment Solutions Market based in part on its demonstrated ability to raise the prices it charges developers. Apple’s ability to profitably raise prices shows that the iOS In-App Payment Solutions Market is properly defined. *See U.S. Anchor Mfg., Inc. v. Rule Indus., Inc.*, 7 F.3d 986, 999 (11th Cir. 1993) (finding that “the ability to discriminate against a distinct group of customers by charging higher prices for otherwise similar products demonstrates the existence of market power with respect to that group”); *State of Ill. ex rel. Hartigan v. Panhandle E. Pipe Line Co.*, 730 F. Supp. 826, 900 (C.D. Ill. 1990), *aff’d*, 935 F.2d 1469 (7th Cir. 1991) (defining market “by reference to the capabilities of different types of end-users [of oil and gas]” to resist the exercise of monopoly power, leading to price discrimination).

262. The evidence at trial demonstrates that Apple's IAP commission far exceeds the levels charged by other payment solutions, including even payment solutions employed by iOS apps that sell physical goods and services, which average 5% or even less. Moreover, Apple has in fact raised prices to developers: first, with the 2009 imposition of a 30% commission on in-app purchases, and again with the 2011 imposition of that commission on subscriptions (that previously had not been subject to a commission). (Findings of Fact Section II.F.) As discussed above, these prices have allowed Apple to generate a persistently high margin over a sustained period of time, further demonstrating its market power. (*See* ¶¶ 107-08 above.)

263. It is significant to the Court that Apple's own executives are unaware of price increases in IAP causing any switching at all. At their depositions, Eddy Cue (one of Apple's highest executives, present from the earliest days of the App Store and in charge of it for a number of years) and Matt Fischer (the head of the App Store) were unaware of any instances or studies showing that the increased cost of in-app purchases resulted in consumers switching from iOS to Android. (Findings of Fact ¶ 174.)

264. Finally, the iOS In-App Payment Solutions Market is a proper aftermarket of the Smartphone Operating System Market for the same reasons that the iOS App Distribution Market is a proper aftermarket. Without iOS, there would be no market for in-app payment processing solutions on iOS. And the restraints at issue apply only to the aftermarket, not the initial market for smartphone operating systems. Consumers do not contractually agree to obtain payment processing for in-app digital purchases only through IAP when they purchase an iPhone, and competition in the foremarket does not discipline Apple's anti-competitive practices in the aftermarket. (*See* Section II.A above.)

265. Like the Smartphone Operating System and iOS App Distribution Markets, the iOS In-App Payment Solutions Market is worldwide except for China. When permitted to obtain their own payment processing services, developers, including Apple, generally contract with payment processors to provide service in many countries, which suggests that competition is worldwide. (Findings of Fact ¶¶ 450-43, 572.) Moreover, IAP processes payments worldwide, and Apple’s IAP requirements in the DPLA and Guidelines apply worldwide. (Findings of Fact ¶ 27.) China, however, is different because restrictions imposed by the Chinese government limit both payment processors’ and developers’ abilities to operate in China and have created an insular market. (Findings of Fact ¶ 283.)

266. For the foregoing reasons, the Court concludes that the iOS In-App Payment Solutions Market is a properly defined aftermarket. It is worldwide, excluding China.

ii. Apple has monopoly power in the iOS In-App Payment Solutions Market.

267. The legal standard for monopoly power is discussed above. It is the ability to raise prices above those that would be charged in a competitive market. (*See* ¶ 103 above.)

268. Many pieces of evidence establish that Apple has monopoly power in the iOS In-App Payment Solutions Market.

269. *First*, Apple has a 100% market share, and imposes impenetrable barriers to entry by contractually prohibiting all alternative payment solutions for digital content. (Findings of Fact ¶ 27.) “Monopoly power may be inferred from a firm’s possession of a dominant share of a relevant market that is protected by entry barriers.” *Microsoft*, 253 F.3d at 51.

270. *Second*, Apple charges supra-competitive prices in the iOS In-App Payment Solutions Market. Apple’s commission is 30%, while the competitive level is about

3%-5%. (Findings of Fact ¶ 297(a).) A firm’s ability to “profitably raise prices substantially above the competitive level” is also evidence of monopoly power. *Microsoft*, 253 F.3d at 51.

271. As noted above, even Apple’s Phil Schiller did not believe “that 70/30 will last that unchanged forever” because “someday we will see enough challenge from another platform or web based solutions to want to adjust our model”. (Findings of Fact ¶ 239; PX417.) It is difficult to imagine a clearer admission of supra-competitive pricing.

272. Relatedly, Apple enjoys the freedom to price without any connection to costs. (Findings of Fact ¶ 238.) This, too, is evidence of monopoly power. *See, e.g., In re IBM Peripheral EDP Devices Antitrust Litig.*, 481 F. Supp. 965, 977 (N.D. Cal. 1979) (recognizing that a firm’s ability to “disregard cost” and “choose among a range of price options in order to achieve its profit goals” is indicative of monopoly power).

273. Apple’s assertion that its IAP commission is not supra-competitive because comparable commissions are charged by game console makers is unpersuasive. There are a number of reasons why this argument is without merit. To begin with, the Court has not been asked to—and does not—address the competitive situation relating to payment solutions used by developers of apps for gaming consoles and thus expresses no opinion, one way or the other, on whether those commissions are an appropriate benchmark for iOS commissions.

274. Importantly, Apple’s attempt to analogize itself to console makers wrongly conflates two radically different business models. As noted above, Apple launched the App Store not in order to make money from the distribution of apps (or from providing payment processing solutions for in-app purchases), but to maximize its sales of iPhones, which are the core of Apple’s business model and its main source of revenue and profits to this day. Gaming consoles, by contrast, follow the exact opposite business model: gaming consoles are sold at

approximately their manufacturing costs, as means to maximize the sale of apps, which is the core of the game console makers' business model and where they make most of their profits—specifically, through fees from developers. (Findings of Fact ¶ 243.) [REDACTED]

[REDACTED] (PX2444.) Unlike iOS devices, which have many uses that can and do draw a wide range of consumers, gaming consoles are primarily a single-purpose device with a much narrower user base. It is therefore important for console manufacturers to be able to assure developers that there will be a sufficient number of users who buy the console for it to be worthwhile for the developers to undertake the considerable expenses associated with developing most console games (which are far more expensive to develop than typical iOS apps). (Findings of Fact ¶ 243.) To induce developers to make these investments to develop games, which often take months or even years to complete, one way that console manufacturers try to assure developers that there will be sufficient users is to sell the hardware at subsidized prices. (Findings of Fact ¶ 243.) By contrast, Apple's commission is not subsidizing other costs because, as noted, it is untethered to Apple's costs. Further, Apple makes significant profits on the sales of hardware. In 2019, the iPhone had \$142.4 billion in net sales and [REDACTED] billion in operating income. (PX606.)

275. It is also significant to the Court that the evidence at trial demonstrated that the console makers actively engage in negotiations with app developers regarding various terms and conditions that Apple eschews. The fact and result of these negotiations demonstrates that the relationship with console makers has more give and take, a balancing of power. Negotiated contractual arrangements result in terms that collectively need to be considered in

order to determine value and real costs. The 30% commission paid to console makers cannot be assumed as an apples to apples comparison to what Apple charges. (Kreiner.)

276. *Third*, for reasons stated elsewhere, Apple’s treatment of developers further demonstrates Apple’s monopoly power. (See ¶ 112 above); *see also Microsoft*, 253 F.3d at 58 (finding aspects of Microsoft’s behavior “difficult to explain unless Windows is a monopoly power” and noting that its “pattern of exclusionary conduct could only be rational if the firm knew that it possessed monopoly power”).

277. The Court concludes that Apple has monopoly power in the iOS In-App Payment Solutions Market.

B. Apple willfully maintains its monopoly power.

278. The Court has found that Epic’s market definitions are proper, and that Apple has monopoly power in the iOS In-App Payment Solutions Market. As discussed above, the next step of the analysis is to consider whether Apple has engaged in anti-competitive conduct to maintain its monopoly. The Court analyzes this question under the rule of reason.

279. When the significant evidentiary record is placed against the legal standard, the Court concludes that Apple’s conduct violates the rule of reason. Apple’s conduct has significant anti-competitive effects on developers and consumers (Section VI.B.i below); Apple’s procompetitive justifications are pretextual (Section VI.B.ii below); and the anti-competitive effects of Apple’s conduct outweigh any alleged benefits (Section VI.B.iii below).

i. Apple’s IAP requirement has significant anti-competitive effects.

280. Apple concedes that Section 3.3.3 of the DPLA and Guideline 3.1.1 require exclusive use of IAP for in-app payment processing of digital content. (Findings of Fact ¶¶ 293-94.)

281. These contractual restrictions are enforced by Apple’s App Review process. During App Review, Apple rejects apps that do not comply with its IAP requirement. Since 2017, Apple has terminated thousands of developer accounts for introduction of non-IAP payment methods. (Findings of Fact ¶ 285.)

282. Apple has used its monopoly power to retaliate against developers who have included an alternative payment processing system in their apps. Epic’s August 2020 “hotfix” provided the Court with an example of this. Epic first sought permission to include its own payment processing system and when that request was denied (PX2457; PX2459), enabled Epic direct payment in *Fortnite* on iOS without Apple’s permission. Not only did Apple remove *Fortnite* from the App Store, Apple threatened to terminate all of Epic’s and Epic’s affiliates’ Apple Developer Program accounts and revoke Epic’s access to tools necessary “to improve hardware and software performance of Unreal Engine on Mac and iOS hardware”. (DX3460.)

283. Epic is not the only developer Apple has retaliated against in relation to the IAP requirement. In 2018, Netflix chose to evaluate the value that IAP conferred. It conducted tests to determine whether IAP was negatively impacting its business; it tested different geographies, some with IAP and some without; Apple responded with “punitive measures” intended to make Netflix “feel the pain”. (Findings of Fact ¶ 305.)

284. The legal standard for anti-competitive effects is discussed above. The Court looks to direct evidence, such as increased prices, reduced output, and reduced quality, as well as indirect evidence, which consists of market power plus some evidence that the challenged restraint harms competition. (*See* ¶¶ 129-31 above.) There is both strong direct and indirect evidence in this case.

285. Apple has monopoly power, and expressly prohibits entry by any competing in-app payment processors for digital content on iOS. As a result, developers and consumers must use Apple's one-size-fits-all IAP, must pay Apple's supra-competitive commission, and cannot enjoy the benefits of innovation by other payment solutions. (Findings of Fact Section VI.D.) This alone is sufficient indirect evidence to prove anti-competitive effects on developers and consumers. *See Microsoft*, 253 F.3d at 62 (finding anticompetitive effects where Microsoft "reduced rival browsers' usage share not by improving its own product but, rather, by preventing OEMs from taking actions that could increase rivals' share of usage"); *Macquarie Grp. v. Pac. Corp. Grp.*, No. 08-cv-2113-IEG-WMC, 2009 WL 539928, at *8 (S.D. Cal. Mar. 2, 2009) ("The exclusion of competitors from the market place has the anticompetitive effect of allowing defendant to charge supracompetitive prices and, additionally, reduces consumer options."); *United States v. Visa U.S.A., Inc.*, 163 F. Supp. 2d 322, 408 (S.D.N.Y. 2001) (finding "defendants' exclusionary rules restrict competition between networks and harm consumers by denying them innovative and varied products"); *see also In re Nat'l Collegiate Athletic Ass'n Athletic Grant-in-Aid Cap Antitrust Litig.*, 958 F.3d 1239, 1256-57 (9th Cir. 2020) (concluding district court properly found "significant anticompetitive effects in the relevant market" where "elite student-athletes lack any viable alternatives to [D1], they are forced to accept, to the extent they want to attend college and play sports at an elite level after high school, whatever compensation is offered to them by [D1] schools, regardless of whether any such compensation is an accurate reflection of the competitive value of their athletic services" (quoting *In re Nat'l Collegiate Athletic Ass'n Athletic Grant-in-Aid Cap Antitrust Litig.*, 375 F. Supp. 3d 1058, 1070 (N.D. Cal. 2019))).

286. There is also substantial direct evidence of anti-competitive effects.

287. As an initial matter, Apple has increased prices for in-app payment processing over time. In 2009, Apple began requiring IAP; prior to that time, developers could use other payment solutions for in-app purchases. (Findings of Fact ¶ 112.) In 2011, Apple extended its IAP requirements to subscriptions; again, prior to that time, developers could use other payment solutions for subscriptions. (Findings of Fact ¶¶ 121-22.) There is also evidence that developers pass on Apple's commission to consumers, resulting in increased prices to consumers. (Findings of Fact ¶ 256.) Increased prices are classic direct evidence of the injurious exercise of market power. As the Supreme Court found in a related case, "A claim that a monopolistic retailer (here, Apple) has used its monopoly to overcharge consumers is a classic antitrust claim." *Apple Inc. v. Pepper*, 139 S. Ct. 1514, 1519 (2019); *see also Wilk v. Am. Med. Ass'n*, 895 F.2d 352, 360-62 (7th Cir. 1990) (finding that impeding consumers' free choice and raising costs were anti-competitive effects).

288. There is evidence that Apple's IAP requirements have resulted in decreased output. Some small businesses cannot afford to absorb Apple's commission rate, and cannot afford to pass the costs on to consumers without losing users. (Findings of Fact ¶ 258.) As Steve Jobs, Apple's founder, acknowledged in an email about enforcing the IAP requirement, Apple's commission "is prohibitive for many things". (PX438.)

289. Finally, there is significant evidence of decreased quality.

290. *First*, Apple's IAP requirement prevents developers from controlling their relationships with their customers and must rely on Apple to resolve any payment disputes over transactions. This disconnect between customers and developers leads to confusion and complaints. (Findings of Fact ¶¶ 316-21.)

291. *Second*, Apple’s IAP requirement deprives developers of access to key payment analytics, such as fraud reports or authorization rates broken down by payment method and country. Access to such information would allow developers to improve user experiences and safety. (Findings of Fact ¶¶ 325-29.)

292. *Third*, Apple’s IAP requirement prevents developers from setting different prices across different countries. Instead, developers are required to select prices for products from a list of “price tiers” provided by Apple. (Findings of Fact ¶ 330-33.)

293. *Fourth*, Apple’s IAP requirement prevents consumers from having more flexible payment options. For example, the App Store permits carrier billing only in certain countries or regions and through certain carriers and their partners. Yet, many consumers find carrier billing to be a convenient way to pay because, among other reasons, it does not required a credit card. (Findings of Fact 334-38.)

294. *Fifth*, Apple’s IAP requirement results in consumers experiencing difficulty in obtaining refunds, as developers cannot directly refund consumers for purchases of digital content. (Findings of Fact ¶¶ 318-21.)

295. *Sixth* and finally, Apple’s IAP requirement prevents consumers from taking advantage of multi-platform payment processors. Multi-platform payment processors would provide many benefits to consumers, including persistent parental control settings and saved payment credentials, which consumers can use across different platforms, reducing switching costs between iOS and Android. (Findings of Fact ¶ 338.) For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX2235.) [REDACTED]

[REDACTED] (PX2235.)

296. Even Apple’s own employees recognize that IAP is not worth the 30% commission. In the words of one Apple employee conducting an assessment of developers who attempted to use non-IAP payment methods, IAP “would have to be a LOT better [than non-IAP payment methods] to overcome the 30% hit”. (PX0257.)

ii. Apple’s procompetitive justifications are pretextual.

297. As discussed above, after the plaintiff proves anti-competitive effects, the burden shifts to the defendant to put forth procompetitive justifications. (See ¶ 145 above.)

298. Apple has asserted two procompetitive justifications for its IAP requirement: security and compensation for its investments. Both are pretextual.

a. *Security justifications are pretextual.*

299. Apple asserts that an “important benefit” of the IAP structure is the protection of security and privacy, including fraud detection. (Rubin; Schmalensee.) The evidence does not support this assertion.

300. Apple already permits non-IAP payment solutions for “Multiplatform Services”, “Enterprise Services,” “Person-to-Person Services”, “app[s] that enable[] people to purchase physical goods or services that will be consumed outside of the app”, and “Free Stand-Alone Apps”. (PX2518 § 3.1.3.) There is no evidence that the alternative payment solutions in these apps have caused security issues. (Findings of Fact ¶¶ 574-80.) There is no evidence that

allowing alternative payment solutions for apps that currently fall outside of these Apple-created exceptions would in fact result in meaningful security issues.

301. Indeed, before Apple imposed its IAP requirement in 2009, non-IAP payment solutions were used by developers to service payments for digital content. There is no evidence that using those methods for those apps created any security issues. (Findings of Fact ¶ 112.)

302. Apple itself relies on the security of third-party payment service providers, including [REDACTED]. (Findings of Fact ¶ 30.) If allowed to provide these same services to app developers or competing iOS app stores, these same providers or developers themselves could perform the other functions that Apple's IAP system currently performs (*e.g.*, providing refunds to consumers) for purchases of digital products, just as they do today for physical goods and services. The fact that Apple contracts with third-party payment settlement providers suggests Apple itself trusts the security they provide. Millions of companies—including Amazon, Spotify, Wayfair, Peloton, Uber, and Lyft—already trust third-party payment systems such as Square and Stripe to securely process transactions on iOS. (Lee.)

303. Further, having Apple stand in the middle of developers and payment processors through IAP does not ensure security. Money laundering, refund fraud, credit card fraud, payment fraud and gift card fraud are all prevalent issues with IAP. Even as late as 2019, an analysis sent to Matt Fischer, head of the App Store, reported that Apple was “seeing more fraudulent activity on the platform”, and “potential fraud could be \$MMs”, equivalent to “2% - 5% of gross revenues” “on iOS alone”. (Findings of Fact ¶ 530.)

304. Apple has not conducted any studies comparing the security or privacy of non-IAP payment solutions to IAP or the security or privacy of third-party payment processors in

general. Nor has Apple conducted studies regarding potential security issues that would arise were Apple to allow developers to alternative payment solutions. (Findings of Fact ¶¶ 567-69.)

305. In fact, third-party payment processors may provide better security than Apple. Third-party payment providers have multi-platform datasets that can detect fraud better than Apple can through IAP. Security could also be a vector on which third-party payment processors may compete and innovate, leading to better security. (Findings of Fact ¶¶ 574-75; Lee.)

306. Further evidence that Apple's justification is pretextual is evident in the record with regard to Epic direct payment. Epic direct payment is Epic's own payment processing service. It has been used for a number of years for in-app purchases on other platforms (for instance, on PCs). It is a proven, safe and secure system that complies with appropriate payment industry standards. To safeguard customers' payment credentials, Epic stores the details with its third-party payment partners, and internal Epic teams conduct security checks of the infrastructure. (Findings of Fact ¶¶ 457-59.) In August 2020, Epic turned on the Epic direct payment functionality within iOS. The *Fortnite* app on iOS has had Epic direct payment as a payment option ever since, and it is undisputed that Apple has not found any security issues in Epic direct payment. It is reasonable to assume Apple looked very hard to find some. Moreover, there is no evidence in the record that the introduction of Epic direct payment to iOS in August 2020 caused any security or privacy issues on any iOS device on which it was used. (Findings of Fact ¶ 460.)

307. The Court concludes that Apple's procompetitive justification of security is pretextual.

b. *Apple's justifications based on investments in iOS are pretextual.*

308. Apple's second alleged procompetitive justification for its exclusionary conduct with respect to the iOS In-App Payment Solutions Market is based on obtaining a return on investment. (Schmalensee.) There is no doubt that Apple is entitled to get paid and set a price for the services it provides. However, the IAP requirement is unnecessary to achieve this. This justification is also pretextual.

309. As noted above, when the App Store launched in 2008, Steve Jobs, Apple's founder, said that "we don't intend to make money off the App Store . . . we are basically giving all the money to the developers here and if that 30% of it pays for running the store, well that will be great". (PX880 at '801.) Mr. Jobs did not suggest that the commission was necessary to compensate Apple for its investments in iOS or to drive future investment in the iOS ecosystem. Apple has invented this justification after the fact to defend its conduct.

310. The evidence demonstrates that there are a number of ways in which Apple obtains revenue from the iOS ecosystem. First and foremost, Apple's sales of hardware are immensely profitable. In fiscal year 2019, Apple earned \$164 billion in net sales from iOS devices, and [REDACTED] from commissions on in-app purchases (PX0608; Evans). Thus, although Apple's revenue from IAP is significant, it represents a small fraction of the total revenue Apple earns from the iOS ecosystem. Epic's economic evidence demonstrated that even without the IAP requirement, Apple would still command substantially higher profit margins than other online platforms. (Evans; Cragg.)

311. The evidence also demonstrates that an elimination of the IAP requirement would not eliminate Apple's incentives to continue to invest in the iOS ecosystem. All successful platform providers make developer tools widely available to attract third-party developers. (Findings of Fact ¶ 35.) Apple has acknowledged that [REDACTED]

to the app economy, as have countless others, including developers like Epic that are harmed by Apple's conduct. The question at issue in this case is not whether Apple has generally provided benefits to consumers and developers, but rather whether the *specific conduct at issue* provides such benefits or, instead, harms competition. On that question, the Court sides with Epic.

(Evans.)

316. This is not the first time that Apple has tried to defend anti-competitive conduct by pointing to unrelated innovations. In the ebooks litigation (Findings of Fact ¶ 63), Apple argued that “iPad’s backlit touchscreen, audio and video capabilities, and ability to offer consumers a number of services on a single device revolutionized tablet computing”. *United States v. Apple, Inc.*, 791 F.3d 290, 335 (2d Cir. 2015) (Livingston, J. concurring). After Apple appealed a loss of that case, the Second Circuit affirmed. *Id.* at 298. Judge Livingston declined to find that these features justified Apple’s conduct, stating that they were “unrelated to Apple’s [anti-competitive conduct]”, and that the district court “was correct not to score these hardware innovations as procompetitive benefits” because “Apple was not the only entity that could use the iPad’s new features to enhance the ebook experience—other retailers, or the publishers themselves, could have designed and launched ebook applications on the platform”. *Id.* at 335 (Livingston, J. concurring). Here too, just as other firms could distribute apps on the iOS platform, other firms could provide payment solutions for in-app purchases of digital content in iOS apps.

317. For the foregoing reasons, the Court concludes that Apple’s “investment” procompetitive justification is pretextual. *See Areeda & Hovenkamp, Antitrust Law* ¶ 1764a (4th ed. 2020 Supp.) (explaining that the “Recovery of investment” defense to tying is unpersuasive because “[i]f the defendant cannot recover its investment in an unrestrained market, the market

presumably tells us that its product is not worthwhile”). Here, it is clear that Apple would continue to make hefty profits without the IAP requirement and would indeed continue to have a significant incentive to invest in the iOS ecosystem.

iii. The anti-competitive effects of Apple’s conduct outweigh any benefits.

318. Apple’s procompetitive justifications are pretextual. The Court may stop there and find liability. However, even if Apple’s actions were not pretextual, Epic would nonetheless prevail on the basis that the anti-competitive effects of Apple’s conduct outweigh any benefits.

319. As noted above (*see* ¶ 147 above), the Court considers Apple’s procompetitive justifications in light of its less restrictive alternatives. With respect to security, the evidence demonstrates that Apple could require that all payment solutions on iOS maintain minimum security features. Any uniform, minimum standards would ensure that rogue payment processors that may jeopardize users’ data are not allowed. For example, Apple could require compliance with the Payment Card Industry Data Security Standard (PCI-DSS), which sets rigorous security requirements to prevent cardholder data loss as well as general requirements for the prevention, detection, and response to security incidents for all organizations accepting and/or processing payments. (Findings of Fact ¶ 457.) Epic’s eCommerce system, as well as third-party payment systems such as Square and Stripe are all Level 1 PCI-DSS compliant, meaning they are required to adhere to the strictest security standards and are subject to audits of their security systems. (Ko; Findings of Fact ¶ 457.)

320. With respect to compensation for its investments, as discussed above, there are a number of alternatives to requiring the use of Apple’s IAP that would still allow Apple a profit. *See Image Tech. Serv., Inc. v. Eastman Kodak Co.*, 903 F.2d 612, 619 (9th Cir. 1990), *aff’d sub nom. Eastman Kodak*, 504 U.S. 451 (“[I]t is a less restrictive alternative for [the

defendant] to structure its prices for equipment, parts, and service so that the price for which [the defendant] sells each of these reflects [its] investment costs in that area.”). Apple gets paid in a variety of ways already. (Findings of Fact Section II.F.) To the extent Apple is concerned about not receiving the *same level* of compensation if the IAP requirement is removed, that is no defense—if Apple cannot obtain the same price in a competitive market, that is just further proof of its illegal conduct.

321. Apple has pointed to protection of its intellectual property rights as a defense of the IAP requirement. As the Court has explained above, intellectual property rights do not confer any immunity from the antitrust laws. (See ¶¶ 226-27 above.) An intellectual property holder cannot license its products on anti-competitive terms. See *Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336, 1338, 1343-44 (9th Cir. 1984) (rejecting defendant’s argument that its refusal to license its operating system except to purchasers of its CPUs was justified by the need “to recover its substantial investment in software research and development” because “defendant must recover the cost of [the operating system] development by pricing [the operating system] appropriately, not by tying it to a separate product”); *Microsoft*, 253 F.3d at 63 (“Intellectual property rights do not confer a privilege to violate the antitrust laws.” (internal quotation marks omitted)).

322. For the foregoing reasons, the Court gives little weight to Apple’s competitive justifications. To the extent that there are any procompetitive benefits to Apple’s conduct that cannot be achieved by other means that do not harm competition, the anti-competitive effects of Apple’s conduct outweigh these procompetitive benefits. See *Microsoft*, 253 F.3d at 64; *Actavis*, 787 F.3d at 659. Epic has detailed the many harms caused by Apple’s

conditioning of access to app distribution on the use of Apple's IAP, while Apple has nothing but theoretical concerns that it claims might arise in the absence of its restrictions. (Evans.)

323. For the foregoing reasons, the Court concludes that Apple's conduct is anti-competitive.

C. Apple's conduct caused antitrust injury to Epic.

324. The final element of a Section 2 claim is antitrust injury. As explained above, the legal standard requires unlawful conduct causing an injury to the plaintiff that flows from that which makes the conduct unlawful, and that is of the type the antitrust laws were intended to prevent. (*See* ¶ 153 above.)

325. Epic has been injured as a would-be provider of a competing payment solution. Epic offers a payment solution through Epic direct payment to apps distributed by EGS on PCs and Macs that choose to use Epic's solution. (Sweeney; Ko.) Developers of apps distributed through EGS can also choose to use a competing payment solution. (Findings of Fact Section XI.H.) The Epic direct payment solution includes a variety of features like supporting regional pricing and accepting payments in 29 different currencies, combined with outsourced payment processing from providers like Chase, PayPal, and Adyen. (Findings of Fact Section XI.O.) If EGS were permitted on iOS and Apple did not require use of IAP, Epic would offer Epic direct payment to apps distributed by EGS on iOS, including both Epic's own apps and third-party apps. Because Apple prohibits alternative payment processing solutions for digital content, Epic has lost revenue and the ability to compete with IAP. Epic, therefore, has suffered antitrust injury as a competitor to Apple. *See Am. Ad Mgmt., Inc. v. Gen. Telephone Co.*, 190 F.3d 1051, 1057 (9th Cir. 1999) (recognizing "potential entrants" as a market participant that can suffer antitrust injury).

326. In addition, Epic has been injured as an app developer. Epic self-supplies Epic direct payment to its own apps on PCs, Macs, and Android. (Findings of Fact Section XI.O.) As Epic’s actions on August 13, 2020 made abundantly clear, if Apple did not require use of IAP, Epic would not use IAP exclusively. (Sweeney; Ko.) Epic would self-supply Epic direct payment. (Sweeney; Ko.) By having to use IAP, Epic has paid supra-competitive prices, suffered from impaired customer relationships, and lost the benefits of choice and innovation that competition among third-party payment processors would bring. (Findings of Fact Section VIII; Evans.) As the Ninth Circuit has recognized, “[c]onsumers in the market where trade is allegedly restrained are presumptively proper plaintiffs to allege antitrust injury”. *Glen Holly Ent., Inc. v. Tektronix, Inc.*, 352 F.3d 367, 372 (9th Cir. 2003) (internal quotation marks omitted).

327. Therefore, the Court finds that Apple is liable for unlawful monopoly maintenance in the iOS In-App Payment Solutions Market in violation of Section 2 of the Sherman Act.⁸

V. SECTION 1 OF THE SHERMAN ACT: APPLE’S UNREASONABLE RESTRAINT OF TRADE IN THE IOS APP DISTRIBUTION MARKET (COUNT 3).

328. So far, the Court’s opinion has addressed Apple’s unilateral conduct under Section 2 of the Sherman Act. The Sherman Act also prohibits conduct involving two or more persons that unreasonably restrains trade. The Court now turns to this conduct.

329. 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

⁸ To the extent that Apple asserts as affirmative defenses to Count 4 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 4 (monopoly maintenance in the iOS In-App Payment Solutions Market) for the same reasons. (See Section II.D above.)

States, or with foreign nations”. 15 U.S.C. § 1. “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).

330. “Restraints can be unreasonable in one of two ways. A small group of restraints are unreasonable *per se* because they always or almost always tend to restrict competition and decrease output. Typically only ‘horizontal’ restraints—restraints ‘imposed by agreement between competitors’—qualify as unreasonable *per se*. Restraints that are not unreasonable *per se* are judged under the ‘rule of reason’”, which “requires courts to conduct a fact-specific assessment of market power and market structure . . . to assess the [restraint]’s actual effect on competition”. *Am. Express*, 138 S. Ct. at 2283-84 (alteration in original) (citations omitted). “The existence of market power is a significant finding that casts an anticompetitive shadow over a party’s practices in a rule-of-reason case.” *Hahn v. Oregon Physicians’ Serv.*, 868 F.2d 1022, 1026 (9th Cir. 1988).

331. Applying Section 1, the DPLA is an agreement that unreasonably restrains trade for purposes of Section 1.

332. The DPLA is an agreement between Apple and Epic. Apple also has DPLAs with other developers.

333. The parties agree that “express ‘agreements’ are ‘direct evidence of concerted activity’ and satisfy the first element of a Section 1 claim”. (Legal Framework (ECF No. 276) at 23 (quoting *Paladin Assocs., Inc. v. Montana Power Co.*, 328 F.3d 1145, 1153 (9th Cir. 2003)); see *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.” (*Id.* (quoting *Paladin*, 328 F.3d at 1153-54 (internal quotation marks and alterations omitted)).)

334. An agreement can give rise to Section 1 liability even if it does not advance the interests of all parties and instead involves some form of coercion. *See, e.g., Datagate, Inc. v. Hewlett-Packard Co.*, 60 F.3d 1421, 1427 (9th Cir. 1995) (“A showing that the buyer of the tied product was coerced by the tying arrangement into making the purchase is sufficient to show that the buyer was not merely ‘acting independently.’”); *Cargill Inc. v. Budine*, No. CV-F-07-349-LJO-SMS, 2007 WL 4207908, at *3 (E.D. Cal. Nov. 27, 2007); *Packaging Sys., Inc. v. PRC-Desoto Int’l, Inc.*, 268 F. Supp. 3d 1071, 1085 (C.D. Cal. 2017). The DPLA is an agreement within the meaning of Section 1.

335. Further, the provisions of the DPLA requiring distribution of iOS apps through Apple’s App Store and prohibiting alternative app stores—Sections 3.2(g), 3.3.2, and 7.6—constitute an unreasonable restraint of trade.

336. As noted above, the rule of reason requires the Court to consider the defendant’s market power. The parties agree that “[m]arket power under Section 1 requires a lesser showing than monopoly power under Section 2”. (Legal Framework (ECF No. 276) at 26 (citing *Kodak*, 504 U.S. at 481.)

337. The Court has already found that the iOS App Distribution Market is a relevant antitrust market. Consumers and developers have no substitutes for app distribution on iOS because, among other reasons, apps and app stores developed for other operating systems do not work on iOS. (*See* ¶¶ 66-79 above.) The Court also found that Apple possesses monopoly power in the iOS App Distribution Market because, among other reasons, Apple has a 100%

market share, high profit margins, and the ability to foreclose all competitors. (*See* ¶¶ 103-12 above).

338. Because the rule of reason analysis under Section 1 is “essentially the same” as the rule of reason analysis under Section 2, the Court will not repeat the analysis here. *See Qualcomm*, 969 F.3d at 991.⁹ The Court previously found that Sections 3.2(g), 3.3.2, and 7.6 of the DPLA form one part of Apple’s unlawful conduct under Section 2. For the same reasons, those provisions an unreasonable restraint of trade under Section 1. (*See* Section II above.) Therefore, the Court finds Apple liable for unreasonably restraining trade in the iOS App Distribution Market.¹⁰

VI. SECTION 1 OF THE SHERMAN ACT: APPLE’S UNREASONABLE RESTRAINT OF TRADE IN THE IOS IN-APP PAYMENT SOLUTIONS MARKET (COUNT 5).

339. Next, the Court applies Section 1 to the iOS In-App Payment Solutions Market.

340. As noted, Section 1 requires an agreement that constitutes an unreasonable restraint of trade. (*See* Section V above.) A violation of Section 1 requires a showing that

⁹ Apple disputes that the rule of reason test is applied in the same way under Sections 1 and 2 of the Sherman Act. For example, it contends that there is no “less restrictive alternative” component to the third step of the rule of reason under Section 2. Because all of the ways in which Apple contends the analysis differs make it less demanding to prove a Section 1 violation, the analysis above with respect to Section 2 necessarily means that Epic has shown a violation of the rule of reason under Section 1 as well. To the extent that any elements of the rule of reason analysis discussed above apply *only* to Section 1, the Court considers them as part of this Section 1 analysis and incorporates herein the discussion of those issues that appears above.

¹⁰ To the extent that Apple asserts as affirmative defenses to Count 3 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 3 (unreasonable restraint of trade in the iOS App Distribution Market) for the same reasons. (*See* Section II.D above.)

Apple's conduct violates the rule of reason, which is evaluated under substantially the same standard described above. (*See* Section II.B above.)

341. The Court has found that the DPLA is an agreement for purposes of Section 1 (*see* Section V above); that Apple has market power in the iOS In-App Payment Solutions Market (*see* Section IV.A above); and that the DPLA's requirement that developers use Apple's IAP to the exclusion of all other payment processors for digital content violates the rule of reason (*see* Section IV.B above).

342. Therefore, the Court concludes that Apple is liable for unreasonably restraining trade in the iOS In-App Payment Solutions Market.¹¹

VII. SECTION 1 OF THE SHERMAN ACT: APPLE'S TIE OF APP DISTRIBUTION AND PAYMENT PROCESSING (COUNT 6).

343. Conduct may be *per se* unlawful under the antitrust laws when experience shows that the conduct is always or nearly always anti-competitive.

344. Tying can be an example of such conduct. Tying involves the linking of two separate products from two separate product markets. *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 21 (1984), *abrogated on other grounds by Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006).

345. Epic alleges that Apple's IAP requirement is a classic contractual tie. Apple conditions access to iOS app distribution on developers' agreement to use only Apple's IAP for in-app purchases of digital content. The Court agrees.

¹¹ To the extent that Apple asserts as affirmative defenses to Count 5 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 5 (unreasonable restraint of trade in the iOS In-App Payment Solutions Market) for the same reasons. (*See* Section II.D above.)

346. “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) (citation omitted); *see also Jefferson Parish*, 466 U.S. at 12-18; *Kodak*, 504 U.S. at 461-62.¹²

347. Apple has argued that the rule of reason, rather than *per se* analysis, should govern in tying cases where the tied good is “physically and technologically integrated with the tying good”. (Legal Framework (ECF No. 276) at 35 (quoting *Microsoft*, 253 F.3d at 90).) In *Microsoft*, the defendant technologically integrated its operating system with its web

¹² Apple has argued that there is a fourth element—a “pernicious effect” on competition in the tied market—for *per se* tying claims. (Legal Framework (ECF No. 276) at 46.) But Ninth Circuit precedent establishes that “the *per se* rule relieves plaintiff of the burden of demonstrating an anticompetitive effect, which is assumed”. *Newman v. Universal Pictures*, 813 F.2d 1519, 1522-23 (9th Cir. 1987); *Hirsh v. Martindale-Hubbell, Inc.*, 674 F.2d 1343, 1247 (9th Cir. 1982) (Once [the three *per se* tying] elements are established, a tying arrangement is presumptively illegal and will be prohibited without a specific showing of anticompetitive purpose or effect.”); *Betaseed, Inc. v. U and I Inc.*, 681 F.2d 1203, 1215 (9th Cir. 1982) (“Once [the *per se* tying elements] are demonstrated, no specific showing of unreasonable anticompetitive effect is needed.”); *see also Fortner Enters., Inc. v. U.S. Steel Corp.*, 394 U.S. 495, 498 (1969) (“[A]t least when certain prerequisites are met, arrangements of this kind are illegal in and of themselves, and no specific showing of unreasonable anticompetitive effect is required.”). Although certain district courts have considered whether tying conduct has a “pernicious effect on competition” in the tied product market, Apple has not identified any Ninth Circuit case adopting the “pernicious effect” requirement. That phrase derives from the Supreme Court’s decision in *Northern Pac. R. Co. v. United States*, 356 U.S. 1 (1958), which emphatically endorsed the *per se* treatment of tying, finding it to be among the “practices which because of their pernicious effect on competition and lack of any redeeming virtue are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused”. *Id.* at 5. Even if there were a separate “pernicious effect” requirement for *per se* tying (which there is not), Apple’s tie meets that requirement because Epic has proven substantial anti-competitive effects in the iOS In-App Payment Solutions Market. (See Section IV.B above.)

browser, and the court declined to condemn this technologically integrated product as *per se* unlawful for fear of chilling product innovation. *Id.* at 89-95. *Microsoft* is distinguishable for at least two reasons. *First*, as explained below, the App Store and IAP are not technologically integrated as Microsoft’s operating system was with its web browser. The tie here is a contractual one, and the *Microsoft* court did not question the line of “Supreme Court tying cases” that apply the *per se* standard to “contractual ties”. *See id.* at 90.

348. Apple’s conditioning of access to the App Store on developers’ use of IAP for in-app purchases of digital content meets each element of *per se* tying. (Sections VII.A-D below.) In the alternative, Apple’s conduct violates the rule of reason. (Section VII.E below.)

A. Apple ties together the sale of two distinct products—app distribution and payment solutions.

349. As noted, the first element of a *per se* tying claim requires that the plaintiff prove that the defendant ties two separate products together. Here, app distribution and payment solutions for in-app purchases are separate products (Section VII.A.i) that Apple has contractually tied together (Section VII.A.ii).

i. App distribution and in-app payment processing solutions are separate products.

350. “[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 Enters., Inc. v. Equilon Enters. LLC*, 532 F.3d 963, 975 (9th Cir. 2008). 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.

351. “[T]he ‘purchaser demand’ test of *Jefferson Parish* examines 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 (citations and internal quotation marks omitted).

352. Apple asserts that IAP and the App Store are an integrated product, and that app distribution cannot be separated from the solution that is used to handle subsequent in-app purchases. (Defendant Apple Inc.’s Opposition to Epic Games, Inc.’s Motion for a Preliminary Injunction (ECF No. 73) at 19-20.) The record does not support this position. Instead, the evidence shows demand for alternative payment solutions on iOS separate from the demand for app distribution on iOS.

353. Apple’s position suggests an organic, integrated development—that as the App Store developed, so too did IAP. This is contradicted by several facts in the trial record. During the time between the launch of the App Store in 2008 and the introduction of IAP in 2009, in-app payment processing and app distribution were entirely separate and iOS developers were monetizing their apps with purchase solutions that were self-provided. (Forstall Dep. 230:5-11, 230:16-18, 230:20-231:2.) As a result, in-app payment processing and app distribution were entirely separate. (See PX897 at ‘449-51 (January 2008, C.K. Haun: “Many games have a healthy after-market in additional game levels, enhanced graphics for in-game activities, and other data up to and including completely new games that can be created from a installed [*sic*] base game engine. Many for a fee. Some developers will want this for their

iPhone apps. . . . “[T]he new level/enhanced graphics business for fee (outside of [the iTunes Music Store]) [is] possible easily”. Greg Joswiak: “If this is accurate, it sounds like we’ll have to make sure our terms don’t allow this.”); Forstall Dep. 277:16-278:5.)

354. The history of IAP undercuts Apple’s claim of a necessarily integrated product. *See Kodak*, 504 U.S. at 462-63 (finding “[e]vidence in the record indicat[ing] that services and parts have been sold separately in the past” to cast doubt on the defendant’s claim of a “unified market” for services and parts).

355. Other aspects of the evidentiary record further support the independence of these two products.

356. *First*, Apple provides both app distribution without payment solutions, and payment solutions without app distribution.

357. Apple provides distribution services through the App Store without requiring use of IAP for “Multiplatform Services”, “Enterprise Services,” “Person-to-Person Services”, “app[s] that enable[] people to purchase physical goods or services that will be consumed outside of the app”, and “Free Stand-Alone Apps”. (PX2158 (Guidelines) § 3.1.3.) “If a consumer is selling a good, [a] hard good, for example, or a good that isn’t delivered in the app”, then “they have their own payment mechanism” and Apple is “not involved in that transaction from a monetary point of view”. (Findings of Fact ¶ 576.)

358. The evidence shows that for categories of apps for which Apple does not require the use of IAP, developers offer their own payment methods. Many of the most significant apps, including Grubhub, Wish, StubHub, Uber, DoorDash, Lyft, Instacart, Postmates, Amazon Shopping, Walmart, eBay, Amazon Prime Video, Altice One, and Canal+, procure payment processing services from sources other than Apple, *i.e.*, separately from the

distribution services they are forced to obtain from the App Store. (Findings of Fact Section VI.B.) And when Apple decided to give IAP as an option instead of a requirement for certain membership subscriptions, the head of the App Store conceded that [REDACTED] [REDACTED]. (PX202, at ‘546.) This is strong evidence of two separate products. *See Kodak*, 504 U.S. at 462 (finding “[e]vidence in the record indicat[ing] that services and parts . . . still are sold separately” to cast doubt on the defendant’s claim of a “unified market” for services and parts).

359. Conversely, Apple provides payment solutions outside of the App Store using the same payment systems as IAP. The payment systems Apple uses for IAP “are also used for other products outside of the App Store”, including “the iTunes Store on iOS, Apple Music, and iCloud or Cloud services”. (Findings of Fact ¶ 291.) Therefore, IAP is clearly not an integrated part of the App Store—it is simply a payment system Apple uses with many of its services.

360. *Second*, many developers, from the largest to the smallest and across industries, including Epic, Microsoft, Match, Google, and Basecamp, have requested to use non-IAP payment solutions to handle in-app purchases of digital content on iOS. Apple has denied these requests. Apple has also rejected or removed thousands of apps for including non-IAP payment methods. (Findings of Fact Section VI.B.)

361. Developers have a number of reasons for seeking to use alternative payment solutions. While the level of Apple’s commission is one reason, others include the ability to offer specific services precluded by Apple’s IAP. For instance, customized risk management and fraud protection tools, more flexible pricing structures, access to relevant commerce and payments data, visibility into the developer’s payments stream, and the ability to

provide direct and comprehensive customer service, all could be offered by alternative payment solutions. (Findings of Fact Section VI.B.) Among other evidence (Findings of Fact, Section VI.B), the Court heard directly from a number of these developers at trial about their reasons for desiring alternative payment solutions. (Sharma; Simon; Gould; Ong.)

362. *Third*, there is significant consumer demand for alternative payment solutions on iOS. When Epic offered Epic direct payment alongside IAP in *Fortnite* on iOS, more consumers used Epic direct payment than IAP. (Findings of Fact Section VI.B.)

363. Undoubtedly, one reason that consumers used Epic direct payment rather than IAP was that Epic competed on price. Courts encourage such price competition. *See, e.g., Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438, 451 (2009) (noting that winning business by offering low but not predatory prices “often is the very essence of competition” (citations and internal quotation marks omitted)).

364. But there are also non-price reasons why consumers prefer alternatives to IAP, including access to a wider range of payment options as well as the cross-platform ability to obtain purchase history, pay using the same credentials, enable family sharing, and set persistent parental control settings. (Findings of Fact Section VI.B.)

365. [REDACTED]

[REDACTED] (PX863; Ong Dep. 43:17-46:10.)

366. *Fourth*, on other platforms besides iOS, many app stores without market power do not tie distribution services and payment solutions. For example, EGS, itch.io, GetJar, SlideME, ONE Store, and Aptoide all allow developers to choose their own payment solutions.

(Findings of Fact ¶ 299.) When given the choice, many developers use alternatives. The evidence at trial shows several developers that distribute their games through EGS have elected to use their own solutions for in-app transactions. (Findings of Fact Section XI.H.)

367. *Fifth*, the in-app payment processing industry has grown substantially over the last two decades. A number of third-party payment processors, such as Chase Paymentech, Adyen, Worldpay, PayPal, Inc., Checkout.com, and Stripe, compete with each other along a number of dimensions, including their ability to accommodate varying consumer payment preferences, service multiple geographies, improve user interfaces, and deliver insights from data on payment processing to provide business insights. (Findings of Fact Section XI.O.) The vibrant competition among payment processors outside of iOS is strong evidence of separate demand. *See Kodak*, 504 U.S. at 462 (reasoning that “the development of the entire high-technology service industry is evidence of the efficiency of a separate market for service”).

368. Citing *Am. Express*, 138 S. Ct. (“*Amex*”), Apple argues that the App Store and IAP are not separate products because IAP is an “input[] into transactions” provided by the App Store. (Schmalensee.) This argument is unpersuasive. While *Amex* instructs that two-sided transaction platforms like the App Store “facilitate a single, simultaneous transaction between participants”, the Court made this observation in the context of explaining why it was necessary to “[e]valuat[e] both sides of a two-sided transaction platform . . . to accurately assess competition” (with “both sides” referring to cardholders and merchants in that case). *Amex*, 138 S. Ct. at 2286-87. Here, the two sides of the App Store are consumers and developers, and the Court has considered both sides in defining the relevant markets, assessing market power, and considering market effects—and has therefore followed this instruction from *Amex*. Apple reads *Amex* to say that not only must the two sides of the platform be considered, but also that products

and services that are *downstream* from a two-sided transaction platform (like payment solutions for subsequent in-app purchases) must also be considered part of that platform. But *Amex* says no such thing. For example, *Amex* says nothing about the market in which providers of credit card *terminals* compete, even though such terminals are clearly an “input” without which credit card transactions would not be possible. *Amex* does not address the question of separate demand for tying purposes. That question is not resolved merely by calling a market two-sided; it instead depends on the “purchaser demand” test from *Jefferson Parish* described above.

369. Apple has argued that even when separate demand exists for tied products, courts “should” also require “proof of [a] seller[’s] ability to unbundle” those products. (Legal Framework (ECF No. 276) at 41 (internal quotation marks omitted).) Apple has not identified any court that has adopted such a rule. In *Jefferson Parish*, 466 U.S. at 21, the Supreme Court established the “purchaser demand” test. Under that test, a plaintiff need not prove that a defendant can unbundle the tied and tying products in order to carry its burden of showing that the two products are separate and distinct. Applied here, Epic has carried its burden and more. The evidence demonstrates not only separable demand for the App Store and IAP, but also that there is no real technical reason why they need be integrated at all. Apple’s tie is not technological, it is contractual.

370. The Court concludes that app distribution and payment processing are separate products.

ii. Apple ties app distribution and in-app payment solutions.

371. A tie exists where “sale of the desired (‘tying’) product is conditioned on purchase of another (‘tied’) product”. *Aerotec*, 836 F.3d at 1178 (citation omitted). “[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.

372. As explained above, Apple does not dispute that it conditions app distribution on the exclusive use of Apple’s IAP for purchases of digital content under Section 3.3.3 of the DPLA and Guideline 3.1.1. (*See* § IV above.)

373. Apple argues, however, that even if IAP and App Distribution are separate products, they have not been tied because offering in-app purchases of digital content or charging for an app are only two of the many options offered to developers to monetize their apps in the App Store. (Schmalensee.) This argument misses the point. The purpose of the tying doctrine is to prevent a defendant from foreclosing competition for the tied product. If some developers choose not to offer in-app purchases because of Apple’s IAP requirement, that proves only that Apple’s IAP requirement restricts output in the iOS In-App Payment Solutions Market. It does not vindicate Apple’s tie. Independently, the factual premise of Apple’s argument is incorrect, as many apps cannot—as a practical matter—take advantage of other ways to monetize. (Evans.) For example, in-game advertising would create a poor experience for users and is not a viable substitute for selling digital content in *Fortnite*. (Findings of Fact ¶ 360.)

374. The Court concludes that Apple ties app distribution and payment processing.

B. Apple coerces developers into using IAP.

375. Next, the Court assesses whether Apple has sufficient market power in the tying product market—that is, the iOS App Distribution Market. “[T]he 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*, 515 F.3d at 915.

376. “[W]hat is required in a *per se* case is not power over the whole market for the tying product, but only . . . a ‘type of market power [that] has sometimes been referred to as leverage defined here as a supplier’s ability to induce his customers for one product to buy a second product from him that would not be purchased solely on the merit of that second product.’” *Digidyne Corp. v. Data Gen. Corp.*, 734 F.2d at 1341 (quoting *Jefferson Parish*, 466 U.S. at 14 n.20); *see also Cty. of Toulumne v. Sonora Cmty. Hosp.*, 236 F.3d 1148, 1157 (9th Cir. 2001) (requiring for a *per se* violation “such power in the tying product or service market that the existence of forcing is probable” (internal quotation marks omitted)).

377. Apple has a 100% monopoly in the iOS App Distribution Market, and employs this power to coerce developers into using IAP. (*See* § II.A above); *CollegeNet, Inc. v. Common Application, Inc.*, 355 F. Supp. 3d 926, 955 (D. Or. 2018) (“[F]orcing (or coercion) is likely if the seller has power in the tying product market” (quoting *Robert’s Waikiki U-Drive, Inc. v. Budget Rent-a-Car Sys., Inc.*, 732 F.2d 1403, 1407 (9th Cir. 1984))). In fact, developers are prohibited from using alternatives to IAP for purchases of digital content, and if developers resist the tie, they lose access to more than one billion iOS users.

378. The Court finds that Apple has sufficient market power to coerce developers into using IAP, and has so coerced them.

C. Apple’s tie affects a not insubstantial volume of commerce.

379. The final element to proving a tie is determining whether the alleged tie affects a not insubstantial volume of commerce in the tied product market. Here, as set forth above, the iOS In-App Payment Solutions Market is the tied market, and Apple’s practices have affected a not insubstantial volume of commerce.

380. A substantial volume of commerce with respect to the tied product is foreclosed where “a total amount of business, substantial enough in terms of dollar-volume so as

not to be merely de minimis, is foreclosed by competitors to the tie”. *Fortner Enters., Inc. v. U.S. Steel Corp.*, 394 U.S. 495, 501 (1969); *see also Datagate*, 60 F.3d at 1425 (foreclosure of a single purchaser sufficient so long as the dollar volume of sales is “not insubstantial”).

381. Apple’s tie easily affects the requisite level of commerce in the iOS In-App Payment Solutions Market. In fiscal year 2019 alone, Apple’s commission on in-app purchases accounted for over ██████ of App Store revenue, or about ██████. (Findings of Fact ¶ 303.) Apple forecloses Epic and all other potential providers of payment solutions from competing for this revenue and from offering their services on more than one billion iOS devices. (*See also* § IV.B.iii above.)

382. The Court concludes that Epic has proved the elements of *per se* tying.

D. Apple has no legitimate business justification for tying app distribution and in-app payment processing.

383. Apple has sought to excuse its conduct on the basis that “at all times its conduct was reasonable and that its actions were undertaken in good faith to advance legitimate business interests and had the effect of promoting, encouraging, and increasing competition”. (Apple’s Answer (ECF No. 66) at p. 36 (Affirmative Defense 2).) The Court finds this defense unavailing.

384. While the Ninth Circuit has “recognized that antitrust defendants may demonstrate a business justification for an otherwise *per se* illegal tying arrangement”, “[t]he defendant bears the burden of showing that the case falls within the contours of this affirmative defense”. *Mozart Co. v. Mercedes-Benz of N. Am., Inc.*, 833 F.2d 1342, 1348-49 (9th Cir. 1987).

385. For the same reasons that Apple is unable to show any procompetitive justifications for its unlawful monopoly maintenance under the rule of reason framework (*see* § IV.B above), its legitimate business justifications defense fails here as well.

386. The Court concludes that Apple is liable for *per se* tying under Section 1.

E. In the alternative, Apple’s tie violates the rule of reason.

387. Even if the Court had determined that Epic had not proven the elements of *per se* tying or that the *per se* standard did not apply, Apple would still be liable for a Section 1 tying violation.

388. Apple has argued that “[t]o prevail under the rule of reason, a plaintiff initially must prove the first three requirements of a *per se* tying claim”. (Legal Framework (ECF No. 276) at 49.) This is incorrect. The *per se* elements “are necessary only to bring into play the doctrine of *per se* illegality”. *Fortner Enters.*, 394 U.S. at 499-500. If a plaintiff fails to establish *per se* liability, a plaintiff “can still prevail on the merits”, *id.* at 500, by demonstrating that a defendant “violated the Sherman Act because it unreasonably restrained competition” under the rule of reason, *Jefferson Parish*, 466 U.S. at 29; *Microsoft Corp.*, 253 F.3d at 95-97; *Epic Games*, 2020 WL 5993222, at *16 n.28 (citing *Microsoft* and noting that “Epic Games may be able to prove anticompetitive effects even if it cannot show separate products”).

389. Under the rule of reason, Epic “can prove, on the basis of a more thorough examination of the purposes and effects of the practices involved, that the general standards of the Sherman Act have been violated”. *Fortner Enters.*, 394 U.S. at 500.

390. For rule of reason tying, Epic must show “an actual adverse effect on competition caused by the tying arrangement”. *Brantley v. NBC Universal, Inc.*, 675 F.3d 1192, 1200 (9th Cir. 2012) (citation and internal quotation marks omitted). Courts conduct this analysis using the familiar three-part burden-shifting framework. *See id.* at 1197; (§ V above).

391. Application of the burden-shifting analysis for Epic’s tying claim is the same as for its more general Section 1 claim relating to the iOS In-App Payment Solutions

Market. For the reasons stated above (*see* § VI above), Epic has proven its claim under that framework.¹³

VIII. CALIFORNIA’S CARTWRIGHT ACT: APPLE’S UNREASONABLE RESTRAINT OF TRADE IN THE IOS APP DISTRIBUTION MARKET (COUNT 7).

392. Epic brings suit not only under the federal antitrust laws, but also under the California antitrust and unfair competition laws. Although these laws largely track federal law, they are broader in important ways.

393. The Cartwright Act makes “unlawful, against public policy and void” “every trust”, 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, 16726.

394. “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) (citation omitted). “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)).

395. As recognized by the California Supreme Court, “[t]he Cartwright Act is broader in range and deeper in reach than the Sherman Act”. *In re Cipro Cases I & II*, 61 Cal.

¹³ To the extent that Apple asserts as affirmative defenses to Count 6 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 6 (tie of app distribution and payment processing) for the same reasons. (*See* § I.D above.)

4th 116, 161 (2015) (quoting *Cianci v. Super. Ct.*, 40 Cal. 3d 903, 920 (1985)). It “reaches beyond the Sherman Act to threats to competition in their incipiency—much like section 7 of the Clayton Act, which prohibits mergers that ‘*may . . . substantially . . . lessen competition, or . . . tend to create a monopoly*—and thereby goes beyond clear-cut menaces to competition in order to deal with merely ephemeral possibilities.” *Cianci*, 40 Cal. 3d at 918 (citations and internal quotation marks omitted).

396. Epic’s claim that Apple unreasonably restrains trade in the iOS App Distribution Market in violation of the Cartwright Act (Count 7) includes the same conduct as Epic’s claim that Apple unreasonably restrains trade in the iOS App Distribution Market in violation of Section 1 of the Sherman Act (Count 3). Accordingly, because Epic has prevailed on Count 3 (*see* § V above), the Court also finds in Epic’s favor on Count 7.

397. Finally, to the extent that Apple alleges the affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), the Court should deny those affirmative defenses with respect to Count 6 (unreasonable restraint of trade in the iOS App Distribution Market) for the same reasons (*see* § II.D above), except as to two of the affirmative defenses, which are rejected for different reasons discussed below.

398. *First*, with respect to Apple’s FTAIA affirmative defense, the FTAIA applies to only “Sections 1 to 7 of this title”—that is, the Sherman Act. 11 U.S.C. § 6a. Therefore, it does not limit the scope of California statutes, such as the Cartwright Act (or UCL, which is discussed below).

399. *Second*, with respect to Apple’s statute of limitations defense, a statute of limitations does not apply to Epic’s federal claims, but a statute of limitations does apply to Epic’s California claims. “The statute of limitations under the Cartwright Act and UCL is four

years.” *Bartlett v. BP W. Coast Prods. LLC*, No. 18-CV-01374, 2019 WL 2177655, at *2 (S.D. Cal. May 17, 2019) (citing Cal. Bus. & Prof. Code §§ 16750.1, 17208); *see also Garrison v. Oracle Corp.*, 159 F. Supp. 3d 1044, 1062 (N.D. Cal. 2016) (same). Because Epic brought suit within four years of suffering injury (*see* § II.D.v.b above), Epic’s claims are timely under the these statutes of limitations.

400. Accordingly, the Court finds that Apple has violated the Cartwright Act in the iOS App Distribution Market.

IX. CALIFORNIA’S CARTWRIGHT ACT: APPLE’S UNREASONABLE RESTRAINT OF TRADE IN THE IOS IN-APP PAYMENT SOLUTIONS MARKET (COUNT 8).

401. Epic also alleges that Apple violated the Cartwright Act by unreasonably restraining trade in the iOS In-App Payment Solutions Market. This claim is based on the same conduct as Epic’s claim that Apple unreasonably restrained trade in the iOS In-App Payment Solutions Market in violation of Section 1 of the Sherman Act (Count 5). Accordingly, because Epic has prevailed on Count 5 (*see* § VI above), it also prevails on Count 8.¹⁴

X. CALIFORNIA’S CARTWRIGHT ACT: APPLE’S TIE OF APP DISTRIBUTION AND PAYMENT PROCESSING (COUNT 9).

402. As explained above, Apple has tied app distribution and payment processing in violation of Section 1 of the Sherman Act. (*See* § VII above.) This conduct also violates the Cartwright Act.

¹⁴ To the extent that Apple asserts as affirmative defenses to Count 8 the same affirmative addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market) and/or Count 7 (unreasonable restraint of trade in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 8 (unreasonable restraint of trade in the iOS In-App Payment Solutions Market) for the same reasons. (*See* §§ II.D, VIII above.)

403. To establish a *per se* tying claim under § 16720 of the Cartwright Act, the plaintiff must show “(1) a tying agreement, arrangement or condition [] whereby the sale of the tying product [or service] was linked to the sale of the tied product or service; (2) the party had sufficient economic power in the tying market to coerce the purchase of the tied product; (3) a substantial amount of sale was effected in the tied product; and (4) the complaining party sustained pecuniary loss as a consequence of the unlawful act”. *UAS Mgmt., Inc. v. Mater Misericordiae Hosp.*, 169 Cal. App. 4th 357, 369 (2008) (alternation adding “or service” in original) (quoting *Classen v. Weller*, 145 Cal. App. 3d 27, 37 (Ct. App. 1983)). In addition, a tie, even if not *per se* illegal, may still be an “unreasonable restraint[] of trade” under the Cartwright Act. *Kim v. Servosnax, Inc.*, 10 Cal. App. 4th 1346, 1361 (1992).

404. Epic’s claim that Apple unlawfully ties app distribution to in-app payment solutions in the iOS In-App Payment Solutions Market in violation of the Cartwright Act is based on the same conduct as Epic’s claim that Apple unlawfully ties app distribution to in-app payment solutions in the iOS In-App Payment Solutions Market in violation of Section 1 of the Sherman Act (Count 6). If Apple’s conduct violates Section 1 of the Sherman Act, it also necessarily violates the Cartwright Act. Accordingly, because Epic has prevailed on Count 6 (*see* § VII above), it also prevails on Count 9.

405. By tying app distribution and in-app payment solutions in the iOS In-App Payment Solutions Market, Apple has violated the Cartwright Act.¹⁵

¹⁵ To the extent that Apple asserts as affirmative defenses to Count 9 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), Count 6 (tie of app distribution and payment processing), and/or Count 7 (unreasonable restraint of trade in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 9 (tie of app distribution and payment processing) for the same reasons. (*See* §§ II.D, VII.D, VIII above.)

XI. CALIFORNIA’S UNFAIR COMPETITION LAW: APPLE’S UNFAIR COMPETITION IN THE IOS APP DISTRIBUTION MARKET AND IOS IN-APP PAYMENT SOLUTIONS MARKET (COUNT 10).

406. Epic alleges that Apple has violated one other California statute.

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 business act or practice”. Cal. Bus. & Prof. Code § 17200. Claims under the UCL are available to both business competitor and consumer plaintiffs. *Cel-Tech Commc’ns, Inc. v. L.A. Cellular Tel. Co.*, 20 Cal. 4th 163, 186-87 & n.12 (1999).

407. Epic brings its UCL claim both as an app distributor that competes with Apple and as a consumer of Apple’s app distribution and IAP services.

408. As explained below, Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market is unlawful and/or unfair. (*See* § XI.A.) Further, Epic has statutory standing both as a competitor and consumer to bring its UCL claim. (*See* § XI.B.)

409. For the reasons explained below, the Court finds that Apple has violated the UCL.

A. Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market is unlawful and/or unfair.

410. Apple’s conduct is both unlawful (*see* § XI.A.i) and unfair (*see* § XI.A.ii) under the UCL.

i. Apple’s conduct is unlawful under the UCL.

411. The UCL “permits violations of other laws to be treated as unfair competition that is independently actionable”. *AngioScore, Inc. v. TriReme Med., LLC*, 70 F. Supp. 3d 951, 961 (N.D. Cal. 2014) (citation omitted). The law covers any conduct that “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) (citation omitted).

“Virtually any law—federal, state or local—can serve as a predicate for an action under Business and Professions Code section 17200.” *Durell v. Sharp Healthcare*, 183 Cal. App. 4th 1350, 361 (2010) (citation omitted).

412. Thus, in order to be found to be “unlawful” for purposes of Epic’s UCL claim, the Court must find that Apple also has violated the Sherman Act or Cartwright Act. *See, e.g., Aleksick v. 7-Eleven, Inc.*, 205 Cal. 4th 1176, 1185 (Ct. App. 2012); *Cascades Comput. Innovation LLC v. RPX Corp.*, No. 12-CV-01143-YGR, 2013 WL 316023, at *15 (N.D. Cal. Jan. 24, 2013); *Datel Holdings Ltd. v. Microsoft Corp.*, 712 F. Supp. 2d 974, 999 (N.D. Cal. 2010).

413. As discussed above, Epic has established that Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market violates the Sherman Act and Cartwright Act. (*See* §§ II-VII above.) Accordingly, Apple’s conduct is also unlawful under the UCL.

ii. Apple’s conduct is unfair under the UCL.

414. Conduct that violates the antitrust laws is also unfair under the UCL. *See Cel-Tech*, 20 Cal. 4th at 187 (for business competitor claim, *Cel-Tech* test is satisfied by a violation of the antitrust law); *Drum v. San Fernando Valley Bar Ass’n*, 182 Cal. App. 4th 247, 257 (2010) (for consumer claim under tethering test, analysis mirrors *Cel-Tech* test); *id.* (for consumer claim under balancing test, conduct is unlawful if it is “substantially injurious to consumers” and the conduct’s harm outweighs its utility).

415. While a violation of antitrust law may be sufficient, it is not necessary; conduct may be actionable as unfair under the UCL even if it does not violate an antitrust law. *Cel-Tech*, 20 Cal. 4th at 180 (“[A] practice may be deemed unfair even if not specifically

proscribed by some other law.”); *Chavez v. Whirlpool Co.*, 93 Cal. App. 4th 363, 375 (2001) (California courts “do not hold that in all circumstances an ‘unfair’ business act or practice must violate an antitrust law to be actionable under the unfair competition law”); *Korea Kumho Petrochemical v. Flexsys Am. LP*, No. C07-01057, 2008 WL 686834, at *9 (N.D. Cal. Mar. 11, 2008) (dismissing Sherman Act and Cartwright Act claims, but declining to dismiss UCL claim, finding that although plaintiff had not pled an antitrust violation, defendant’s alleged threats against plaintiff’s customers and attempts to organize boycotts directed at its customers constituted an “unfair” practice).

416. As a competitor and a consumer with respect to Apple (*see* § XI.B below), Epic has shown that Apple’s conduct is unfair for purposes of the UCL.

417. When the plaintiff is a business competitor, it must show that the alleged conduct “threatens an incipient violation of an antitrust law, or 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 otherwise significantly threatens or harms competition”. *Cel-Tech*, 20 Cal. 4th at 187. The business competitor plaintiff must show that “any finding of unfairness to competitors under [the UCL] [is] tethered to some legislatively declared policy or proof of some actual or threatened impact on competition”. *Id.* at 186-87; *see also People’s Choice Wireless, Inc. v. Verizon Wireless*, 131 Cal. App. 4th 656, 662 (2005) (conduct violates the policy or spirit of antitrust laws if the “effect of the conduct is comparable to or the same as a violation of the antitrust laws”).

418. Here, as discussed in detail above, Epic has sufficiently demonstrated that Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market

“threatens or harms competition” and is thus unfair for purposes of a UCL claim brought by a business competitor. *Cel-Tech*, 20 Cal. 4th at 187; (*see* §§ II-X above).

419. When UCL claims are brought by consumers of the defendant’s products or services, California law is unsettled with regard to the correct standard to apply. *Lozano v. AT & T Wireless Servs., Inc.*, 504 F.3d 718, 735-36 (9th Cir. 2007). California courts have applied three tests to evaluate claims by consumers of unfairness the UCL: (1) the “tethering test”, (2) the “balancing test”, and (3) the FTC test. *Drum v. San Fernando Valley Bar Ass’n*, 182 Cal. App. 4th 247, 257 (2010); *In re Adobe Sys., Inc. Privacy Litig.*, 66 F. Supp. 3d 1197, 1226 (N.D. Cal. 2014); *Camacho v. Auto. Club of S. Cal.*, 142 Cal. App. 4th 1394, 1403 (2006). However, the Ninth Circuit has “decline[d] to apply the FTC standard in the absence of a clear holding from the California Supreme Court”. *Lozano*, 504 F.3d at 736. Therefore, “[t]he remaining options . . . are to apply *Cel-Tech* to this case and require that the unfairness be tied to a legislatively declared policy or to adhere to the former balancing test”. *Id.* (internal quotation marks and citation omitted); *In re Adobe*, 66 F. Supp. 3d at 1226 (for consumer claims under the unfairness prong of the UCL, “there are at least two possible tests: (1) the ‘tethering test’, . . . and (2) the ‘balancing test’”).

420. The “tethering test” mirrors the *Cel-Tech* test that is applied in the context of business competitor claims, as discussed above. *Adobe*, 66 F. Supp. 3d at 1226-27 (citing *Cel-Tech* while analyzing the consumer plaintiff’s UCL claim under the “tethering test”). Epic has sufficiently demonstrated that Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market “threatens or harms competition” in the iOS App Distribution Market and thus violates the UCL under the tethering test. (*See* §§ II-X above.)

421. The “balancing test” requires a consumer plaintiff to show that (1) a defendant’s conduct “is immoral, unethical, oppressive, unscrupulous or substantially injurious to consumers” and (2) “the utility of the defendant’s conduct” is outweighed by “the gravity of the harm to the alleged victim”. *Drum*, 182 Cal. App. 4th at 257 (citation and internal quotation marks omitted).

422. Apple has argued that “a balancing test is inappropriate for consumer claims”. (Legal Framework (ECF No. 276) at 97.) This is incorrect. The balancing test remains good law after *Cel-Tech* for claims brought by consumers because “the [*Cel-Tech*] court expressly limited its new test to actions by competitors”. *Davis v. HSBC Bank Nev., N.A.*, 691 F.3d 1152, 1170 (9th Cir. 2012).

423. Epic has demonstrated that the balancing test is satisfied with respect to Apple’s conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market. Apple’s anti-competitive conduct with respect to iOS app distribution harms consumers, who are denied choice and innovation in app distribution channels and are forced to pay higher prices and suffer inferior customer service from Apple, the unwelcome middleman. Similarly, Apple’s anti-competitive conduct with respect to payment processing harms consumers, who are denied choice and innovation in payment processing solutions and are forced to pay higher prices and lose control of their relationships with their users. (*See* §§ II.B, IV.B above.)

B. Epic has statutory standing to bring its UCL claim.

424. To file suit under the UCL, a plaintiff must demonstrate it has standing . 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. Super. Ct.*, 51 Cal. 4th 310, 322 (2011); *see also* Cal. Bus. & Prof. Code § 17204.

425. The injury-in-fact requirement “incorporate[s] the established federal meaning . . . for federal standing under article III”. *Kwikset Corp.*, 51 Cal. 4th at 322. Accordingly, an 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) (citations and internal quotation marks omitted); *see also Juliana v. United States*, 947 F.3d 1159, 1168 (9th Cir. 2020).

426. The UCL requires the plaintiff to “demonstrate some form of economic injury”. *Kwikset Corp.*, 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.* (citation omitted). If the plaintiff proves “a personal, individualized loss of money or property in any nontrivial amount, he or she has also . . . proven injury in fact”. *Id.* at 325.

427. To satisfy the causation requirement, a plaintiff must show “a causal connection” between the defendant’s conduct and alleged injury. *Id.* at 326. This “imposes a requirement that a violation must cause or result in some sort of damage”. *Id.* (citations, internal quotation marks, and alterations omitted).

428. Epic meets each of these requirements and has statutory standing. Epic has standing under the UCL both as a potential competitor of Apple in the iOS App Distribution

Market and iOS In-App Payment Solutions Market (*see* XI.B.i below), and as a customer of Apple in the iOS App Distribution Market and iOS In-App Payment Solutions Market (*see* XI.B.ii below).

i. Epic has standing as a potential competitor of Apple.

429. **Injury in fact.** With respect to the iOS App Distribution Market, Epic has been injured as a would-be competing app distributor. Epic already distributes apps on PCs and Macs through EGS. If EGS were permitted on iOS, Epic would compete directly with Apple in the iOS App Distribution Market. (Findings of Fact ¶¶ 249, 347, 390, 391, 407.)

430. With respect to the iOS In-App Payment Solutions Market, Epic has been injured as a would-be competing payment solution provider. Epic offers payment solutions through Epic direct payment to apps distributed by EGS on PCs and Macs. If EGS were permitted on iOS and Apple did not require use of IAP, Epic would offer Epic direct payment to apps distributed by EGS on iOS. (Findings of Fact ¶ 290.)

431. **Lost money or property.** With respect to the iOS App Distribution Market, if EGS were permitted on iOS, Epic would earn revenue from the distribution of third-party games as well as grow the EGS userbase to make it a more desirable storefront for consumers and developers alike—but for Apple’s complete foreclosure of alternative means of app distribution on iOS. (Findings of Fact ¶¶ 250, 255.)

432. With respect to the iOS In-App Payment Solutions Market, Epic would earn revenue from developers using its payment solution on apps distributed by EGS—but for Apple’s IAP requirement. (Findings of Fact ¶ 290.)

433. **Causation.** With respect to the iOS App Distribution Market, Apple’s conduct expressly prohibits Epic from distributing apps for iOS and has thus caused the injuries described above. (Findings of Fact ¶¶ 249, 250, 255, 347, 390, 391, 407.)

434. With respect to the iOS In-App Payment Solutions Market, Apple’s conduct expressly prohibits Epic from handling in-app payments for digital content on iOS and has thus caused the injuries described above. (Findings of Fact ¶ 290.)

ii. Epic has standing as a customer of Apple in the iOS App Distribution Market and iOS In-App Payment Solutions Market.

435. Apple has disputed that Epic can bring a claim under the consumer standard. (Legal Framework (ECF No. 276) at 88.) However, a “consumer” under the UCL may include a business consumer or client. *See Copart, Inc. v. Sparta Consulting, Inc.*, 339 F. Supp. 3d 959, 992 (E.D. Cal. 2018) (in an action by Copart, a global used car auction company, against Sparta, which was hired to design and build a new business management system for Copart, the court evaluated Copart’s UCL claim against Sparta in the consumer context, finding that “Copart was Sparta’s consumer or client, not a competitor”). As an app developer, Epic is a business consumer of Apple. Apple distributes Epic’s apps and handles in-app purchases on Epic’s behalf.

436. **Injury in fact.** Epic has been injured as a customer of Apple. With respect to the iOS App Distribution Market, Epic been foreclosed from using methods of app distribution other than Apple’s App Store on iOS. Up until August 13, 2020, Epic distributed *Fortnite* and certain other apps to iOS users through Apple’s App Store. Epic still distributes other apps, such as *Houseparty*, through the App Store. Absent Apple’s rules, Epic would not distribute its apps through the App Store. Instead, Epic would directly distribute its apps to users like it currently does on PC, Mac, and Android, and/or distribute them through EGS on iOS. (Findings of Fact ¶¶ 249, 391.)

437. With respect to the iOS In-App Payment Solutions Market, Epic has been foreclosed from using non-IAP payment methods. Epic self-supplies Epic direct payment to its

own apps on PC, Mac, and Android. If Apple did not require use of IAP, Epic would not use IAP exclusively. Epic would self-supply Epic direct payment. (Findings of Fact ¶ 290.)

438. **Lost money or property.** With respect to both the iOS App Distribution Market and In-App Payment Solutions Market, Epic has paid supra-competitive commissions for in-app payment processing solutions that it would not have paid in the absence of Apple requiring that developers use the App Store and IAP. (Findings of Fact § VIII.A.)

439. **Causation.** With respect to both the iOS App Distribution Market and In-App Payment Solutions Market, Apple's conduct expressly prohibits Epic from distributing apps for iOS or from using non-IAP payment methods and has thus caused the injuries described above. (Findings of Fact, §§ IV.A, V.I.)

440. For the foregoing reasons, the Court finds that Apple has violated the UCL.¹⁶

XII. EPIC IS ENTITLED TO A PERMANENT INJUNCTION IN THE IOS APP DISTRIBUTION MARKET AND IOS IN-APP PAYMENT SOLUTIONS MARKET.

441. To remedy Apple's misconduct, Epic seeks a permanent injunction in a form described in Appendix A of the parties' joint Legal Framework (ECF No. 276-1). The Court attaches that document as Appendix 1 hereto.

442. Epic's requested injunction would not require substantial changes to the iOS platform: Apple could continue bundling the App Store with iOS devices; it could continue

¹⁶ To the extent that Apple asserts as affirmative defenses to Count 10 the same affirmative defenses addressed above in the context of Count 1 (monopoly maintenance in the iOS App Distribution Market), Count 6 (tie of app distribution and payment processing), and/or Count 7 (unreasonable restraint of trade in the iOS App Distribution Market), the Court denies those affirmative defenses with respect to Count 10 (unfair competition in the iOS App Distribution Market and iOS In-App Payment Solutions Market) for the same reasons. (*See* §§ II.D, VII.D, VIII above.)

scanning apps for, and taking other steps to prevent distribution of, malware; it could continue moderating the content that appears on the App Store in whatever manner it chooses; and it could continue offering IAP as a payment solution. What Apple would be unable to do is preference its own App Store or payment solution by prohibiting or discriminating against competitors on iOS.

443. Epic is entitled to this injunction under federal law (*see* § XII.A below) and California law (*see* § XII.B below).

A. Epic is entitled to a permanent injunction for its federal claims.

444. Under Section 16 of the Clayton Act, “[a]ny person, firm, corporation, or association shall be entitled to sue for and have injunctive relief, in any court of the United States having jurisdiction over the parties, against threatened loss or damage by a violation of the antitrust laws . . . , when and under the same conditions and principles as injunctive relief against threatened conduct that will cause loss or damage is granted by courts of equity, under the rules governing such proceedings”. 15 U.S.C. § 26.

445. Epic is entitled to a permanent injunction under Section 16 because Epic has antitrust standing to seek such relief (*see* § XII.A.i below); the traditional equitable factors for a permanent injunction are satisfied (*see* § XII.A.ii below); and the scope of Epic’s requested injunction is proper (*see* § XII.A.iii below).

i. Epic has antitrust standing to seek a permanent injunction.

446. The elements of antitrust standing are undisputed. (Legal Framework (ECF No. 276) at 132.)

447. “[A]ntitrust standing’ is a threshold requirement that every plaintiff must satisfy to bring a private suit under the federal . . . antitrust laws”. *Lorenzo v. Qualcomm Inc.*, 603 F. Supp. 2d 1291, 1300 (S.D. Cal. 2009). “To have standing [to seek injunctive relief] under

§ 16 [of the Clayton Act], a plaintiff must show (1) a threatened loss or injury cognizable in equity (2) proximately resulting from the alleged antitrust violation”. *City of Rohnert Park v. Harris*, 601 F.2d 1040, 1044 (9th Cir. 1979). As discussed previously, Epic has satisfied the standard for antitrust injury and shown that Apple proximately caused its injuries.

448. In the iOS App Distribution Market, Epic has been injured as a consumer of app distribution because it is unable to distribute its iOS apps through any distribution channel other than the App Store. (*See* § II.C above.) Epic also has been harmed as an app distributor because Apple has prohibited Epic from offering EGS on iOS. (*See* § II.C above.)

449. Similarly, in the iOS In-App Payment Solutions Market, Apple has harmed Epic as an app developer because Epic cannot enjoy a choice of payment processing solutions, is denied the benefits of innovation in in-app payment processing, and is forced to pay a supra-competitive rate for using Apple’s IAP. (*See* § IV.C above.) Apple has also harmed Epic as a provider of competing in-app payment solutions because Epic cannot make Epic direct payment available as an option for apps that would be distributed by EGS on iOS. (*See* § IV.C above.)

450. Therefore, Epic has antitrust standing for Epic’s claims in both markets to seek a permanent injunction.

ii. The traditional equitable factors for a permanent injunction are satisfied.

451. In general, “a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff 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). At least one court in the Ninth Circuit has held that the Sherman Act does not impose any additional requirements on plaintiffs before a court may grant a permanent injunction. *See O'Bannon v. Nat'l Collegiate Athletic Ass'n*, 7 F. Supp. 3d 955, 1007 (N.D. Cal. 2014), *aff'd in part, vacated in part on other grounds*, 802 F.3d 1049 (9th Cir. 2015). But if the equitable factors apply here, Epic has satisfied them.

452. *First*, Epic has suffered irreparable harm. Irreparable harm is harm “for which there is no adequate legal remedy”. *Ariz. Dream Act Coal. v. Brewer*, 757 F.3d 1053, 1068 (9th Cir. 2014). “A lessening of competition constitutes an irreparable injury under [Ninth Circuit] case law”. *Boardman v. Pac. Seafood Grp.*, 822 F.3d 1011, 1023, 1025 (9th Cir. 2016) (affirming preliminary injunction); *see also Optronic Techs., Inc. v. Ningbo Sunny Elec. Co.*, No. 5:16-CV-06370-EJD, 2020 WL 1812257, at *3 (N.D. Cal. Apr. 9, 2020) (permanently enjoining defendant and finding irreparable injury where antitrust violations “caused structural harm” to the relevant market and “created a reasonable likelihood of substantially lessening competition”), *appeal docketed*, No. 20-15837 (9th Cir.).

453. As noted above, Apple has foreclosed competition in the iOS App Distribution Market. (*See* § II.B above.) Apple’s negative impact on competition has injured Epic in its capacity as an app developer and as a competing distributor. (*See* § II.C above.) These harms are irreparable. *See Boardman*, 822 F.3d at 1023; *Optronic*, 2020 WL 1812257, at *3.

454. Further, as explained above, Apple’s conduct has foreclosed competition in the iOS In-App Payment Solutions Market. The lack of competition injures Epic as an app developer and as a competing provider of payment solutions. (*See* Section IV.C above.) Such harm is irreparable. *See Ariz. Dream Act Coal.*, 757 F.3d at 1068.

455. A plaintiff can also prove irreparable harm by showing that “remedies available at law, such as monetary damages, are inadequate to compensate for the injury”, *Herb Reed Enters., LLC v. Fla. Entm’t Mgmt., Inc.*, 736 F.3d 1239, 1249-50 (9th Cir. 2013), or “where ‘[t]he nature of the plaintiff’s loss may make damages very difficult to calculate’”, *Cornucopia Prods., LLC v. Dyson Inc.*, No. CV 12-00234-PHX-NVW, 2012 WL 3094955, at *9 (D. Ariz. July 27, 2012) (quoting *Roland Machinery Co. v. Dresser Indus., Inc.*, 749 F.2d 380, 386 (7th Cir. 1984)).

456. It is impossible to quantify the harm that Epic has suffered as a developer unable to use non-IAP payment solutions or to distribute apps to the roughly one billion iOS users except through the App Store. The evidence at trial demonstrated that Epic’s inability to process refunds has generated a constant stream of customer complaints, impairing Epic’s good will. *See Stuhlberg Int’l Sales Co. v. John D. Brush & Co.*, 240 F.3d 832, 841 (9th Cir. 2001) (“loss of prospective customers or goodwill certainly supports a finding of . . . irreparable harm”). Similarly, how successful EGS or Epic direct payment could be on iOS but for Apple’s foreclosure of competition is unknown. *See Cornucopia*, 2012 WL 3094955, at *9 (finding irreparable harm where “it is difficult to predict Dyson’s damages”). Monetary damages cannot be calculated for the additional reason that, because Apple’s unlawful conduct continues, the harm to Epic is ongoing. *See MGM Studios, Inc. v. Grokster, Ltd.*, 518 F. Supp. 2d 1197, 1219 (C.D. Cal. 2007) (finding irreparable injury where the defendant’s conduct “has and will continue to irreparably harm Plaintiffs’ [legal interests]” and “Plaintiffs cannot possibly recover all damages . . . as a consequence of the [defendant’s conduct]”).

457. *Second*, damages would be inadequate. “‘The necessary prerequisite’ for a court to award equitable remedies is ‘the absence of an adequate remedy at law.’” *Barranco v.*

3D Sys. Corp., 952 F.3d 1122, 1129 (9th Cir. 2020) (quoting *Dairy Queen, Inc. v. Wood*, 369 U.S. 469, 478 (1962)). Whether remedies available at law are inadequate to compensate for the injury “inevitably overlaps” with the first prong of the injunctive relief analysis. *MGM*, 518 F. Supp. 2d at 1219. As explained above, it is impossible to quantify the harm that Epic has suffered. Moreover, no monetary award would enable Epic to freely compete in the iOS App Distribution Market or iOS In-App Payment Solutions Market, and Epic has not even sought such an award. Absent injunctive relief, Apple will continue harming Epic into the future. *See id.* at 1220 (no adequate remedy at law where “[t]he only realistic method for remedying . . . future harm . . . is by way of a permanent injunction”).

458. *Third*, the balance of hardships tips in Epic’s favor. In considering the balance of hardships between the plaintiff and defendant, the Court “must consider the effect on each party of the granting or withholding of the requested relief”. *Klein v. City of San Clemente*, 584 F.3d 1196, 1199-1200 (9th Cir. 2009) (quoting *Winter v. Nat’l Res. Def. Council, Inc.*, 555 U.S. 7, 24 (2008)). The balance of hardships favors the plaintiff where “an injunction will merely prohibit [d]efendants from engaging in future unlawful activity”. *Entrepreneur Media, Inc. v. Dye*, No. SA CV 18-0341-DOC, 2018 WL 6118443, at *8 (C.D. Cal. Sept. 11, 2018). “There is no hardship to a defendant when a permanent injunction would merely require the defendant to comply with law”. *Id.* (quoting *Deckers Outdoor Corp. v. Ozwear Connection Pty Ltd.*, No. CV 14-2307, 2014 WL 4679001, at *13 (C.D. Cal. Sept. 18, 2014)).

459. Epic is asking only that Apple be required to follow the law and cease its unlawful conduct in the iOS App Distribution Market and iOS In-App Payment Solutions Market. Moreover, Apple already has the technological capability to permit secure third-party app distribution. (*See* Section III.D above.) Apple can also de-couple app distribution from

payment processing by simply eliminating certain contractual restrictions. (Findings of Fact § VII.) Because the Court has found that Apple’s conduct is unlawful, the injunction will cause no hardship to Apple. *See Entrepreneur Media*, 2018 WL 6118443, at *8; *Deckers*, 2014 WL 4679001, at *13.

460. Apple has argued that “misconduct by the plaintiff may be taken into account when a court is asked to impose an equitable remedy”. (Legal Framework (ECF No. 276) at 140 (citing *Heldman*, 354 F. Supp. at 1249).) But as explained above (*see* Section II.D.i above), “[u]nclean hands’ has not been recognized as a defense to an antitrust action for many years”. *Memorex*, 555 F.2d at 1381. Because the restrictions that Epic challenged through its implementation of Epic direct payment in August 2020 were unlawful, Epic’s actions do not disentitle it to a remedy. Apple has proffered one dated and out-of-circuit district court case, which ruled only that unclean hands might apply at the preliminary injunction stage because “as of now, no violation of law by defendants has been tried, established or decided”. *Heldman*, 354 F. Supp. at 1249. Denying a permanent injunction that would prohibit an *adjudicated* antitrust violator from violating the laws would clearly undermine Congressional policy in favor of enforcing the antitrust laws.

461. Even if unclean hands were applicable in determining the scope of the remedy, it does not apply here. The core of Apple’s unclean hands defense is centered on Project Liberty, through which Epic brought its direct pay option to the iOS platform. While Epic did not disclose Project Liberty to Apple, Epic could not have disclosed it without causing Apple to reject Version 13.40 of *Fortnite* pursuant to Apple’s anti-competitive restrictions. Epic did not behave inequitably by launching the direct pay option, let alone at a level that would deny it relief. *See Kaiser Steel*, 455 U.S. at 77 (“our cases leave no doubt that illegal promises

will not be enforced in cases controlled by the federal law”); *Perma Life Mufflers*, 392 U.S. at 139 (“[T]he purposes of the antitrust laws are best served by insuring that the private action will be an ever-present threat to deter anyone contemplating business behavior in violation of the antitrust laws.”); (*see* § II.D.i above.)

462. *Fourth*, the public interest is served by injunctive relief that calls an end to Apple’s anti-competitive conduct. “[T]he public interest inquiry primarily addresses impact on non-parties rather than parties and takes into consideration” the “public consequences” of the injunction. *hiQ Labs, Inc. v. LinkedIn Corp.*, 938 F.3d 985, 1004 (9th Cir. 2019) (quotation marks omitted). The public interest favors enforcement of the antitrust laws. *See, e.g., California v. Am. Stores Co.*, 495 U.S. 271, 284 (1990); *Optronic Techs. v. Ningbo Sunny Elec. Co.*, No. 5:16-cv-06370-EJD, 2020 WL 1812257, at *4, *8 (N.D. Cal. Apr. 9, 2020). Requiring Apple to allow competition in the iOS App Distribution Market and iOS In-App Payment Solutions Market will not impair the security, privacy or reliability of iOS devices. (*See* Section II.B.ii above); *see Am. Stores Co.*, 495 U.S. at 284; *Optronic Techs.*, 2020 WL 1812257, at *4, *8.

iii. The scope of Epic’s requested injunction is proper.

463. “Once plaintiffs establish they are entitled to injunctive relief, the district court has broad discretion in fashioning a remedy.” *Orantes-Hernandez v. Thornburgh*, 919 F.2d 549, 558 (9th Cir. 1990). The relief ordered should be based “on some clear ‘indication of a significant causal connection between the conduct enjoined or mandated and the violation found directed toward the remedial goal intended’”. *Microsoft*, 253 F.3d at 105 (quoting 3 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 653(b) (1996)).

464. An order granting an injunction must “state the reasons why it issued,” “state its terms specifically,” and “describe in reasonable detail—and not by referring to the

complaint or other document—the act or acts restrained or required”. Fed. R. Civ. P. 65(d)(1); *see also United States v. Holtzman*, 762 F.2d 720, 726 (9th Cir. 1985) (an injunction must be “reasonably clear so that ordinary persons will know precisely what action is proscribed”).

465. Epic’s requested injunction is appropriately tailored with respect to the conduct enjoined (*see* § XII.A.iii.a below), the persons affected (*see* § XII.A.iii.b below) and its geographic reach (*see* § XII.A.iii.c below).

a. Conduct enjoined.

466. An injunctive order should represent “a reasonable method of eliminating the consequences of the illegal conduct”. *Nat’l Soc’y of Prof’l Engineers v. United States*, 435 U.S. 679, 698 (1978). Pursuant to their broad discretionary powers, district courts are empowered to frame relief that is both suitable and necessary to address the anti-competitive effects of a defendant’s illegal conduct. *See Besser Mfg. Co. v. United States*, 343 U.S. 444,449 (1952); *United States v. E. I. du Pont de Nemours & Co.*, 366 U.S. 316, 322-23 (1961).

467. **iOS App Distribution Market.** Because Epic has prevailed on Counts 1, 2, and 3 of its Complaint, Epic is entitled to an order enjoining Apple from undertaking the four specific types of conduct described below; an anti-circumvention order; and an anti-retaliation order. (*See* App’x 1.)

468. *First*, the Court hereby “[e]njoin[s] Apple from further violations of Section 1 and/or Section 2 of the Sherman Act, the Cartwright Act and/or the California Unfair Competition Law with respect to the iOS App Distribution Market and/or the App Store on the iOS platform”. (App’x 1.) This relief is appropriate because a court may enter an order that “den[ies] to the defendant the fruits of its statutory violation, and ensure[s] that there remain no practices likely to result in monopolization in the future”. *Microsoft*, 253 F.3d at 103 (quoting *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 250 (1968)). Similarly, a court may

enjoin “acts [of the defendant] which are of the same type or class as unlawful acts which the court has found to have been committed or whose commission in the future unless enjoined, may fairly be anticipated from the defendant’s conduct in the past”. *Zenith*, 395 U.S. at 132. If Apple could continue to violate the antitrust laws after being found liable in this case, Epic’s victory would be hollow.

469. *Second*, the Court hereby “[e]njoin[s] Apple from restricting, prohibiting, impeding or deterring the distribution of iOS apps through a distribution channel other than the App Store”. (App’x 1 (footnote omitted).) A court may enjoin a defendant from “us[ing] its monopoly to destroy threatened competition”. *Lorain Journal Co. v. United States*, 342 U.S. 143, 154 (1951). Similarly, a court may enjoin a defendant from preventing market participants from “exercis[ing] new-found freedoms offered by the remedy in [an antitrust] case”. *New York v. Microsoft Corp.*, 224 F. Supp. 2d 76, 163 (D.D.C. 2002), *aff’d sub nom. Massachusetts v. Microsoft Corp.*, 373 F.3d 1199 (D.C. Cir. 2004); *see also id.* at 266-77 (Appendix B Final Judgment). This relief is central to remedying Apple’s anti-competitive conduct because it will open up the iOS App Distribution Market to competition.

470. *Third*, the Court hereby “[e]njoin[s] Apple from discriminating against or disadvantaging iOS app distribution through channels other than the App Store”. (App’x 1.) This relief is appropriate because a court may enjoin a defendant from engaging in discriminatory practices that are “designed to operate as, and do[] operate as, a method of excluding” competitors from the market. *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 321, 352 (D. Mass. 1953), *aff’d*, 347 U.S. 521 (1954). Similarly, a court may enter an order that requires a defendant to offer market participants “nondiscriminatory terms and prices”. *Kodak*, 125 F.3d at 1201, 1225. If alternative methods of app distribution are permitted

on iOS but Apple can discriminate against them in favor of its own App Store, then consumers and developers are unlikely to realize the benefits of competition.

471. *Fourth*, the Court hereby “grant[s] the following time-limited relief, which shall be effective from the date of this Order for a period of three (3) years”. The Court “[e]njoin[s] Apple from enforcing contractual provisions, guidelines or policies, or imposing technical restrictions, that restrict, prohibit, impede or deter distribution of iOS app stores through the App Store”. (App’x 1.) This relief is appropriate to remedy Apple’s past misconduct and its anti-competitive effects in the iOS App Distribution Market and other relevant markets, and in order to restore competition in the iOS App Distribution Market. A court may enter an order that “eliminat[es] the consequences of the [defendant’s] illegal conduct”. *Nat’l Soc’y of Prof’l Eng’rs v. United States*, 435 U.S. 679, 698 (1978). Given Apple’s longstanding restrictions on the iOS App Distribution Market, the App Store has an extraordinary lead over other app stores, which is all the more meaningful because competing app stores will need to overcome the “chicken and egg” problem associated with indirect network effects. Permitting new app stores to be distributed on Apple’s App Store for three years (roughly the lifespan of a smartphone (Evans)), will give new app stores a reasonable period of time to gain exposure and an opportunity to become real competitive threats to Apple’s App Store.

472. *Fifth*, the Court hereby “enjoin[s] Apple from circumventing th[e] Order by taking steps that violate the purpose, if not the terms, of th[e] Order, including by imposing disincentives or providing incentives that are designed to, and have the effect of, making real competition in the iOS App Distribution Market and/or the iOS In-App Payment Solutions Market impracticable”. (App’x 1.) Anti-circumvention orders like this are common features of

antitrust injunctions. *See, e.g., Nat'l Soc. of Pro. Eng'rs*, 435 U.S. at 698 (“While [the injunction] goes beyond a simple proscription against the precise conduct previously pursued[,] that is entirely appropriate.”); *Microsoft*, 224 F. Supp. 2d at 163 (“Given the power wielded by a monopolist like Microsoft, in the absence of protection against retaliation and threats of retaliation, industry participants whose survival hinges on their relationship with such a monopolist will be reluctant to exercise the new-found freedoms offered by the remedy in this case.”). Epic and the Court cannot foresee all possible steps that Apple may take to undermine the purpose of Epic’s requested injunction. Thus, Apple should be prohibited from violating both the letter and purpose of the injunction.

473. *Sixth*, the Court hereby “permanently enjoin[s] Apple from taking any retaliatory actions against Epic or any of its affiliates in connection with or based on Epic’s filing of this Action, the August 2020 enablement of a direct payment option in *Fortnite*, or the steps Epic took to enable that option (‘Prior Epic Actions’). For the avoidance of doubt, prohibited retaliatory actions include conduct by Apple that denies *Fortnite* access to Apple’s App Store on the basis of such Prior Epic Actions.” (App’x 1.) Epic undertook the Prior Epic Actions to enforce the antitrust laws. In retaliation against Epic for the Prior Epic Actions, Apple has terminated Epic’s Developer Program account, removed *Fortnite* from the App Store, and threatened to revoke access to iOS and macOS developer tools necessary to support *Unreal Engine* and to terminate Epic’s affiliates’ Developer Program accounts. If courts fail to protect successful plaintiffs from retaliation by adjudicated antitrust violators, then the Congressional policy in favor of enforcing antitrust laws will be chilled. *See, e.g., Acquire*, 24 F.3d at 411-12 (affirming injunction prohibiting defendant beverage company from retaliating against distributors that defied its unlawful policy); *Milsen Co. v. Southland Corp.*, 454 F.2d 363, 369

(7th Cir. 1971) (reversing denial of preliminary injunction because courts “have refused to permit a party to benefit from contractual rights when the contract is an instrument of restraint of trade”); *Microsoft*, 224 F. Supp. 2d at 163.

474. **iOS In-App Payment Solutions Market.** Because Epic has prevailed on Counts 4, 5, and 6 of its Complaint, Epic is entitled to an order enjoining Apple from undertaking the four specific types of conduct described below; an anti-circumvention order; and an anti-retaliation order. (*See* App’x 1.)¹⁷

475. *First*, the Court hereby “[e]njoin[s] Apple from further violations of Section 1 and/or Section 2 of the Sherman Act, the Cartwright Act and/or the California Unfair Competition Law with respect to the iOS In-App Payment Solutions Market”. (App’x 1.) As explained above (*see* ¶¶ 470-75), this type of injunction is a common remedy to prevent repetition of antitrust violations. *See Microsoft*, 253 F.3d at 103; *Zenith*, 395 U.S. at 132.

476. *Second*, the Court hereby “[e]njoin[s] Apple from restricting, prohibiting, impeding or deterring the use of in-app payment processors other than Apple’s IAP”. (App’x 1.) This remedy is the core relief necessary to open up competition in the iOS In-App Payment Solutions Market. *See Microsoft*, 224 F. Supp. 2d at 163.

477. *Third*, the Court hereby “[e]njoin[s] Apple from discriminating against payment processors other than Apple’s IAP, iOS developers that use payment processors other than Apple’s IAP, or iOS apps or app stores that use payment processors other than Apple’s IAP”. (App’x 1.) As explained above (*see* ¶¶ 470-75), such non-discrimination injunctions are

¹⁷ In the interest of brevity, the Court will not repeat its discussion of the anti-circumvention and anti-retaliation orders in the prior section.

an appropriate way of preventing the defendant from undermining the core relief. *See United Shoe*, 110 F. Supp. at 321, 352; *Eastman Kodak*, 125 F.3d at 1201, 1225-26.

478. *Fourth*, the Court hereby “[e]njoin[s] Apple from imposing a financial penalty or technical limitation on access to the iOS platform by iOS apps (including iOS app stores) that use payment processing solutions other than or in addition to Apple’s IAP”.

(App’x 1.) This injunction is also necessary to prevent Apple from tilting the playing field in its favor by penalizing developers or app distributors for choosing alternative payment solutions. *See Nat’l Soc’y of Prof’l Eng’rs*, 435 U.S. at 698.

b. Persons affected.

479. In private antitrust actions, courts “possess[] broad power to fashion the equitable relief necessary to halt conduct in violation of the Sherman Act. . . . Antitrust relief should unfetter a market from anti-competitive conduct and pry open to competition a market that has been closed by illegal restraints.” *Gen. Atomic Co. v. Exxon Nuclear Co.*, No. 78-223-E, 1979 WL 1708, at *3 (S.D. Cal. Sept. 6, 1979). For that reason, the relief “should not myopically focus solely on [plaintiff]’s harm”. *Cont’l Airlines, Inc. v. United Air Lines, Inc.*, 136 F. Supp. 2d 542, 550 (E.D. Va. 2001), *vacated on other grounds*, 277 F.3d 499 (4th Cir. 2002) (quotation marks omitted). “There is no general requirement that an injunction affect only the parties in the suit.” *Bresgal v. Brock*, 843 F.2d 1163, 1169 (9th Cir. 1987). “[A]n injunction is not necessarily made over-broad by extending benefit or protection to persons other than prevailing parties in the lawsuit—even if it is not a class action—if *such breadth is necessary to give prevailing parties the relief to which they are entitled*”. *Id.* at 1170-71 (emphasis in original); *see also, e.g., Kodak*, 125 F.3d at 1226 (affirming injunction as to non-party market participants affected by illegal tying arrangement as “proper under these circumstances” (citing *Hawaii v. Standard Oil Co.*, 405 U.S. 251, 261 (1971) (“While . . . any individual threatened

with injury by an antitrust violation may . . . sue for injunctive relief . . . one injunction is as effective as 100”).)). The Court should not limit the injunction to apply only to Epic because remedying Epic’s harm requires open competition in the iOS App Distribution Market and iOS In-App Payment Solutions Market.

480. The injunction opens iOS to alternative app stores—not just EGS. As a developer, Epic will benefit from having multiple channels to distribute its apps on iOS and to enjoy the benefits of innovation from competition on iOS. Epic could not enjoy these benefits if the only options are self-distribution or Apple’s App Store. For similar reasons, the injunction requires Apple to permit all developers—not just Epic—to directly distribute their apps to users on iOS. Direct distribution on iOS will place competitive pressure on app stores, from which Epic will benefit as a developer.

481. The injunction is not limited to permitting only Epic to use or provide non-IAP payment solutions. Alternative providers will be far less likely to enter the iOS In-App Payment Solutions Market and invest in innovation if their only potential customer is Epic. The market has to be freed for Epic to enjoy the benefits of competition.

c. Geographic reach.

482. The injunction applies globally, excluding China. The Court has the ability to order Apple, located here in the United States, to take the necessary actions to effectuate this order. The global reach of the injunction is consistent with the geographic scope of the markets and conduct at issue. The U.S. Supreme Court has interpreted Section 16 of the Clayton Act to permit global injunctions. *See Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 132-33 (1969) (upholding an injunction “barr[ing defendant] from conspiring with others to restrict or prevent [plaintiff] from entering any . . . foreign market” where plaintiff was “interested in expanding its foreign commerce and . . . suffered at the hands of [defendant]”).

483. If Epic were able to operate EGS on iOS, it would distribute apps globally and make Epic direct payment available to apps distributed by EGS globally, just as it does on PC and Macs. (Findings of Fact § IX.G.) Similarly, as a developer, Epic wishes to make its own apps available globally and to sell in-app purchases globally. (Findings of Fact ¶ 350.) Only a global injunction will allow Epic to compete where it intends and to reach the consumers it needs. *See Zenith Radio*, 395 U.S. at 132-33.

484. Apple has argued that “[t]he FTAIA on its face limits the geographic reach of any injunction”. (Legal Framework (ECF No. 276) at 149.) This is wrong. The FTAIA says nothing about injunctions on its face. *See* 15 U.S.C. § 6a. To the contrary, “[t]he FTAIA does not limit the power of the federal courts; rather, it provides substantive elements under the Sherman Act in cases involving nonimport trade with foreign nations”. *United States v. Hui Hsiung*, 778 F.3d 738, 753 (9th Cir. 2015). Thus, the FTAIA does not limit the scope of the injunctive relief the Court has the power to order.

B. Epic is entitled to a permanent injunction for its California law claims.

485. Epic is also entitled to a permanent injunction under the Cartwright Act (*see* § XII.B.i below), and the UCL (*see* § XII.B.ii below).

i. California Cartwright Act.

486. Under the Cartwright Act, “Any person who is injured in his or her business or property by reason of anything forbidden or declared unlawful by this chapter, may sue therefor” to obtain “preliminary or permanent injunctive relief when and under the same conditions and principles as injunctive relief is granted by courts generally under the laws of this state and the rules governing these proceedings”. Cal. Bus. & Prof. Code § 16750(a).

487. As explained above, “[t]he Cartwright Act is broader in range and deeper in reach than the Sherman Act”. *In re Cipro Cases*, 61 Cal. 4th at 161 (quoting *Cianci*, 40 Cal. 3d at 920) (internal quotation marks omitted); (*see* §§ VIII-X above).

488. There are no material differences between federal antitrust law and the Cartwright Act that would limit the scope of Epic’s requested injunction under the Cartwright Act. Therefore, because Epic has prevailed on Counts 7, 8, and 9, Epic is entitled to the same injunction under the Cartwright Act to which it is entitled under the Clayton Act. (*See* § XII.A above.)

489. Apple has argued that “[i]njunctive relief obtained under the Cartwright Act may not extend outside of California”. (Legal Framework (ECF No. 276) at 151 (citing *Healy v. Beer Inst., Inc.*, 491 U.S. 324, 336 (1989)).) This is contrary to the California Supreme Court’s holding in *Younger v. Jensen*, which applied the Cartwright Act to “interstate and intra-California aspects” of an investigation when the interstate aspects “significantly affect[ed]” California’s interests. 26 Cal. 3d 397, 405-06 (1980); *see also id.* at 405 (“Obviously there is an overlap between coverages of the Sherman Act and state antitrust laws that prohibit substantially the same conduct, such as California’s Cartwright Act. Neither the Sherman Act nor the federal prohibition of undue burdens on interstate commerce prevents those state laws from reaching transactions that have interstate aspects but significantly affect state interests” (citations omitted)). Apple’s interstate conduct significantly affects California’s interests because Apple’s foreclosure of the iOS App Distribution Market harms many developers and consumers in California. Moreover, Apple’s cited authority addressed the application of state law to “commerce that takes place wholly outside of the State’s borders”. *Healy*, 491 U.S. at 336. But California is Apple’s principal place of business and state of incorporation. (PX2573 at 1.) And

California law governs the DPLA (PX2453 (DPLA) § 14.10)—one of the central contracts in this case. The commerce at issue in this case clearly takes place at least in part in California.

ii. California UCL.

490. Under the UCL, “Any person who engages, has engaged, or proposes to engage in unfair competition may be enjoined in any court of competent jurisdiction. The court may make such orders or judgments, including the appointment of a receiver, as may be necessary to prevent the use or employment by any person of any practice which constitutes unfair competition, as defined in this chapter, or as may be necessary to restore to any person in interest any money or property, real or personal, which may have been acquired by means of such unfair competition”. Cal. Bus. & Prof. Code § 17203.

491. “[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 (citations, quotation marks and alterations omitted). Thus, the Court has even greater authority to extend an injunction under the UCL to third parties that are also affected by Apple’s unlawful conduct than under federal law.

492. There are no material differences between federal antitrust law and the UCL that would limit the scope of Epic’s requested injunction under the UCL. Therefore, because Epic has prevailed on Count 10, Epic is entitled to the same injunction under the UCL to which it is entitled under the Clayton Act. (*See* § XII.A above.)

493. Apple argues that “[a] plaintiff seeking equitable relief from a federal court under state law must meet two requirements”. (Legal Framework (ECF No. 276) at 152-

53.) The first purported requirement is that the plaintiff must show “that no adequate remedy at law exists”. *Id.* Epic has satisfied this requirement. (*See* § XII.A.ii above.) The second purported requirement is that “the plaintiff must ‘disprove[]’ the adequacy of an alternative remedy”. (Legal Framework (ECF No. 276) at 152-53.) This is not a requirement. Apple’s cited cases simply involved situations where the plaintiffs sought damages in addition to equitable relief, and Epic does not seek damages. *See Anderson v. Apple Inc.*, No. 20-CV-2328, 2020 WL 6710101, at *7 (N.D. Cal. Nov. 16, 2020) (“Because [the plaintiffs] also request money damages, it is possible their legal remedy is sufficient; on this record, they have not yet disproven that”.); *Bird v. First Alert, Inc.*, No. C 14-3585 PJH, 2014 WL 7248734, at *5 (N.D. Cal. Dec. 19, 2014) (finding, where “plaintiff is seeking damages under the CLRA”, that damages were an adequate remedy at law).

XIII. APPLE IS NOT ENTITLED TO RELIEF ON ITS COUNTERCLAIMS.

494. Finally, the Court addresses the five counterclaims alleged by Apple against Epic. (*See* §§ XIII.A-E below.) The Court denies relief on each.

A. Apple is not entitled to relief because the challenged provisions of the DPLA and Schedule 2 are unlawful, void as against public policy, and unconscionable (Count 1).

495. Apple alleges that Epic breached five provisions of the DPLA (§§ 3.2(f), 3.3.2, 3.3.3, 3.3.25, 6.1) and one provision of Schedule 2 (§ 3.4), and seeks “[a]n award of compensatory damages in the amounts Epic contractually agreed to pay to Apple under the Apple Developer Program License Agreement, including 30% of in-app purchases made by iOS end users via Epic Direct Payment”. (*See* Legal Framework, App’x A (ECF No. 276-1) at 8; *see also* Apple’s Answer (ECF No. 66) at pp. 56-57.)

496. The DPLA is “governed by and construed in accordance with the laws of the United States and the State of California”. (PX2453 (DPLA) § 14.10.) Under California

law, “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); *see* CACI No. 303 (2020).

497. Epic does not contest that it breached the DPLA and Schedule 2. Nor does Epic contest that if the Court finds the breached provisions enforceable against Epic in this matter, then Epic would be liable to Apple for breach of contract in an amount equal to 30% of in-app purchases made by end users on the *Fortnite* iOS app via Epic direct payment.

498. But because these contracts are *not* lawful, Apple is entitled to nothing. The Court upholds Epic’s defenses that the challenged provisions of the DPLA and Schedule 2 are unenforceable under the doctrine of illegality (*see* § XIII.A.i below); void as against public policy (*see* § XIII.A.ii below); and unconscionable (*see* § XIII.A.iii below).

- i. The challenged provisions of the DPLA and Schedule 2 are illegal under the antitrust laws (Affirmative Defenses 1 and 2).

499. Epic has pleaded that Apple’s claims are barred in whole or in part because the contractual provisions on which they are based are unlawful under Sections 1 and 2 of the Sherman Act, the Cartwright Act, and the UCL. (Epic’s Answer (ECF No. 106) at p. 17 (Affirmative Defenses 1 and 2).)

500. **Federal Law.** “The authorities from the earliest time to the present unanimously hold that no court will lend its assistance in any way towards carrying out the terms of an illegal contract.” *McMullen*, 174 U.S. at 654. “In such cases the aid of the court is denied, not for the benefit of the [non-complying party], but because public policy demands that it should be denied.” *Cont’l Wall Paper*, 212 U.S. at 262; *see also Kaiser Steel*, 455 U.S. at 77

(“our cases leave no doubt that illegal promises will not be enforced in cases controlled by the federal law”).

501. “[T]he illegality defense should be entertained in those circumstances where its rejection would be to enforce conduct that the antitrust laws forbid.” *Kaiser Steel*, 455 U.S. at 81-82. Courts decline to enforce a contract as in violation of the Sherman Act if “the judgment of the Court would itself be enforcing the precise conduct made unlawful by [the antitrust laws]”. *Kelly v. Kosuga*, 358 U.S. 516, 520 (1959); *see also Bassidji v. Goe*, 413 F.3d 928, 936 (9th Cir. 2005) (“Both federal law and California law begin from the core proposition that whatever flexibility may otherwise exist with regard to the enforcement of ‘illegal’ contracts, courts will not order a party to a contract to perform an act that is in direct violation of a positive law directive, even if that party has agreed, for consideration, to perform that act.”).

502. **California Law.** “The object of a contract must be lawful when the contract is made.” Cal. Civ. Code § 1596. Among other possibilities, a contract is unlawful if it is (1) “[c]ontrary to an express provision of law,” (2) “[c]ontrary to the policy of express law, though not expressly prohibited,” or (3) “[o]therwise contrary to good morals”. Cal. Civ. Code § 1667.

503. “There is no doubt that the general rule requires the courts to withhold relief under the terms of an illegal contract or agreement which is violative of public policy.” *Tri-Q, Inc. v. Sta-Hi Corp.*, 63 Cal. 2d 199, 218 (1965); *see Tiedje v. Aluminum Taper Milling Co.*, 46 Cal. 2d 450, 453-54 (1956) (“A contract made contrary to public policy or against the express mandate of a statute may not serve as the foundation of any action, either in law or in equity.”). “These rules are intended to prevent the guilty party from reaping the benefit of his

wrongful conduct, or to protect the public from the future consequences of an illegal contract.” *Tri-Q*, 63 Cal. 2d at 218.

504. “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) (quoting *Morey v. Paladini*, 187 Cal. 727, 734 (1922)).

505. **Application.** The challenged provisions of the DPLA and Schedule 2 are unlawful under federal and California law. Those provisions are non-negotiable terms in contracts of adhesion into which Apple forces developers to enter by means of its market power. (Findings of Fact § IV.A.) Those provisions reinforce Apple’s market power in the iOS App Distribution Market and iOS In-App Payment Solutions Market by requiring the exclusive use of Apple’s App Store and Apple’s IAP, prohibiting all alternative app stores and all non-IAP payment solutions, and imposing Apple’s supra-competitive 30% commission. These provisions are unlawful for the reasons previously explained. (*See* §§ II-XI above.) Because enforcing the challenged provisions of the DPLA and Schedule 2 would further Apple’s anti-competitive conduct, the Court denies Apple’s breach of contract counterclaim. *See McMullen*, 174 U.S. at 654; *Cont’l Wall Paper*, 212 U.S. at 262; *Kaiser Steel*, 455 U.S. at 77.

- ii. The challenged provisions of the DPLA and Schedule 2 are void as against public policy (Affirmative Defense 3).

506. Epic has pleaded that Apple’s claims are barred in whole or in part because the contractual provisions on which they are based are void as against public policy. (Epic’s Answer (ECF No. 106) at p. 17 (Affirmative Defense 3).)

507. “That is not lawful which is . . . [c]ontrary to the policy of express law, though not expressly prohibited.” Cal. Civ. Code § 1667(2); *see also Kelton v. Stravinski*,

138 Cal. App. 4th 941, 949 (2006) (“In general, a contract contrary to public policy will not be enforced.”); *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.”).

508. “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; *see also 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.”). A provision in a contract that obligates a party to the contract to violate the antitrust laws is void as against public policy. *See Foley v. Interactive Data Corp.*, 47 Cal. 3d 654, 713 n.12 (1988) (citing *Tameny v. Atlantic Richfield Co.*, 27 Cal. 2d 167 (1980)).

509. The challenged provisions of the DPLA and Schedule 2 are void as against public policy for reasons similar to why they are illegal. Apple uses its market power to force developers to enter into those provisions; 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. (*See* § XIII.A.i above.) The Court denies Apple’s breach of contract claim because the contractual provisions on which it is based undermine the public policy in favor of competitive markets.

- iii. The challenged provisions of the DPLA and Schedule 2 are unconscionable (Affirmative Defense 4).

510. Epic has pleaded Apple's claims are barred in whole or in part because the challenged provisions of the DPLA and Schedule 2 are unconscionable. (Epic's Answer (ECF No. 106) at pp. 17-18 (Affirmative Defense 4).)

511. "[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, Inc.*, 181 Cal. App. 4th 816, 821 (2010) (internal quotation marks and citations omitted). "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." Cal. Civil Code § 1670.5(a); *Graham*, 28 Cal. 3d at 820 n.19 (citing Cal. Civil Code § 1670.5) ("The judicially developed concept of unconscionability has recently become a part of our statutory law.").

512. “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). “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).

513. “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).

514. The challenged provisions of the DPLA and Schedule 2 are unconscionable for reasons similar to why they are illegal and void as against public policy. They are procedurally unconscionable because they are non-negotiable terms in contracts of adhesion. Apple does not negotiate these terms, and developers, who have to be on iOS to monetize their apps, have no choice but to enter into them. (Findings of Fact § IV.A.) The

challenged provisions of the DPLA and Schedule 2 are also 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. (*See* § XIII.A.i above.) The Court denies Apple's breach of contract claim because the contract provisions on which it is based are unconscionable.

B. Apple's implied covenant claim entitles Apple to no more than Apple's breach of contract claim (Count 2).

515. Apple has alleged an implied covenant claim against Epic based on the same conduct and seeking the same damages as Apple's breach of contract claim. (*See* Legal Framework, App'x A (ECF No. 276-1) at 8; *see also* Apple's Answer (ECF No. 66) at pp. 56-58.)

516. "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) (citing CACI No. 325 (2020)).

517. Apple's implied covenant claim fails because the contractual provisions on which it is based are unlawful. *Toce v. Rentch*, No. 17-cv-0603-AJB-BLM, 2018 WL 5994598, at *12 (S.D. Cal. Nov. 15, 2018) (granting summary judgment against implied covenant claim because "the terms of the Campaign Agreement are illegal").

518. Further, even if the contractual provisions were lawful (which they are not), Apple still would not be entitled to double recovery for its implied covenant claim. Both causes of action “are limited to contract damages”. *Applied Equip. Corp. v. Litton Saudi Arabia Ltd.*, 7 Cal. 4th 503, 516 (1994) (internal quotation marks and citation omitted).

519. Because the Court has found that the challenged provisions of the DPLA and Schedule 2 are unlawful, Apple cannot recover on an implied covenant claim arising from the same provisions. The Court denies relief on Count 2.

C. Apple is not entitled to recover on its quasi-contract / unjust enrichment claim (Count 3).

520. Apple alleges an unjust enrichment claim “[i]n the alternative”, seeking the same damages as its breach of contract claim. (Apple’s Answer (ECF No. 66) at pp. 56-58; Legal Framework, App’x A (ECF No. 276-1) at 8.)

521. “The elements of unjust enrichment are ‘receipt of a benefit and unjust retention of the benefit at the expense of another.’” *Berger v. Home Depot USA, Inc.*, 741 F.3d 1061, 1070 (9th Cir. 2014) (quoting *Lectrodryer v. SeoulBank*, 77 Cal. App. 4th 723, 726 (2000)). “The person receiving the benefit is required to make restitution only if the circumstances are such that, as between the two individuals, it is *unjust* for the person to retain it.” *Doe I v. Wal-Mart Stores, Inc.*, 572 F.3d 677, 684 (9th Cir. 2009) (internal quotation marks and citation omitted) (emphasis in original).

522. Apple is not entitled to recover on its unjust enrichment claim.

523. As an initial matter, it is not unjust for Epic to retain the alleged benefits that it received. As explained above, Apple benefited greatly from Epic’s presence on iOS. (Findings of Fact ¶¶ 104-07.) “Exchanges where both parties benefit do not constitute unjust

enrichment.” *Howard v. Gap, Inc.*, No. C 06-06773 WHA, 2007 WL 164322, at *4 (N.D. Cal. Jan. 19, 2007) (New York law).

524. Independently, permitting Apple to recover on an unjust enrichment claim would undermine Congressional policy just as much as permitting Apple to recover on the express provisions of the DPLA and Schedule 2. (*See* § XIII.A.i above.) “As a general rule . . . a guilty party to an illegal contract cannot recover in quasi contract for the benefit conferred.” *Ryan v. Mike-Ron Corp.*, 226 Cal. App. 2d 71, 75 (1964); *see also Toce*, 2018 WL 5994598, at *4 (“a party may not recover for that which cannot be recovered on a contract”); Restatement (Third) of Restitution and Unjust Enrichment § 32 (2011) (“Restitution will also be allowed, as necessary to prevent unjust enrichment, if the allowance of restitution will not defeat or frustrate the policy of the underlying prohibition.”).

525. Further, even if the contractual provisions were lawful (which they are not), Apple still would not be entitled to double recovery for its unjust enrichment claim, as “restitution under an unjust enrichment pleading” are available “in lieu of contract damages”. *See JPMorgan Chase Bank, N.A. v. Lewis*, No. 12-CV-2971-H-RBB, 22014 WL 12531091, at *7 (S.D. Cal. June 27, 2014).

526. Because the Court has found that the challenged provisions of the DPLA and Schedule 2 are unlawful, Apple cannot recover on its related unjust enrichment claim either. The Court denies relief on Count 3.

D. Because the Court upholds Epic’s antitrust claims, Apple’s declaratory judgment claim fails (Count 6).

527. Apple seeks a declaration that the Developer Agreement and DPLA are lawful contracts, that Apple’s terminations of the Developer Agreement and DPLA with Epic were lawful, and that Apple has the contractual right to terminate the Developer Agreements and

DPLAs with Epic’s affiliates. (Legal Framework, App’x A (ECF No. 276-1) at 8-9; *see also* Apple’s Answer (ECF No. 66) at p. 63.)

528. Because Epic prevailed on its claims, Apple is not entitled to this declaration. Epic contends that the challenged provisions of the DPLA are unlawful. Because the Court agrees, Apple is not entitled to a declaration that the DPLA is lawful.

529. Similarly, Epic contends that Apple terminated the Developer Agreement and DPLA with Epic, and threatened to terminate the Developer Agreements and DPLAs with Epic’s affiliates, in retaliation against Epic’s decision to take a stand against Apple’s monopolies. Because the Court agrees that this retaliation is unlawful, Apple is not entitled to a declaration that Apple’s terminations of the Developer Agreement and DPLA with Epic were lawful or that Apple has the contractual right to terminate the Developer Agreements and DPLAs with Epic’s affiliates.

530. The Court declines to grant the declaratory relief requested in Count 6.

E. Apple is not entitled to indemnification for actions between the contracting parties (Count 7).

531. Finally, based on Section 10 of the DPLA, Apple alleges that it “is entitled to indemnification from Epic, including recovery of attorneys’ fees and costs of defending this litigation and pursuing these Counterclaims”. (Apple’s Answer (ECF No. 66) at pp. 63-64.)

532. Section 10 of the DPLA provides that:

“To the extent permitted by applicable law, [Epic] agree[s] 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 (collectively, ‘Losses’), incurred by an Apple Indemnified Party and arising from or related to any of the following . . . :

(i) [Epic’s] breach of any certification, covenant, obligation, representation or warranty in this Agreement, including Schedule 2

and Schedule 3 (if applicable); . . . or (vi) [Epic’s] use (including [Epic’s] Authorized Developers’ use) of the Apple Software or services, [Epic’s] Licensed Application Information, Pass Information, metadata, [Epic’s] Authorized Test Units, [Epic’s] Registered Devices, [Epic’s] Covered Products, or [Epic’s] development and distribution of any of the foregoing.” (PX2453 (DPLA) § 10.)

533. “An 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”). 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).

534. Apple is not entitled to indemnification for two reasons.

535. *First*, Section 10 applies only to claims brought by third parties against Apple—not to claims between Epic and Apple. “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.” *Alki*, 4 Cal. App. 5th at 600. “An indemnification clause in which one party to promised to ‘indemnify’ the other from ‘any, all, and every claim’ which arises out of ‘the performance of the contract’ deals only with third party claims, and cannot support an award of attorney fees in an action for breach of contract between the parties to the agreement.” *Id.* at 601 (internal citation omitted).

536. 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. *Id.* at 600. 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 between the parties to the indemnity agreement itself.” *Id.*

537. Section 10 states that Epic will “indemnify” Apple for “any and all . . . losses . . . arising from”, among other things, Epic’s “breach of any certification, covenant, obligation, representation or warranty in this Agreement”. (PX2453 (DPLA) § 10.) Nothing in Section 10 clearly states or indicates that the indemnification provision applies to claims asserted by one party against another. Accordingly, Section 10 does not apply to an action between the two parties.

538. *Second*, even if the indemnification clause applied to intra-party disputes (which it does not), Section 10 should not be enforced in this case because such enforcement would be unconscionable.

539. The legal standard for unconscionability is discussed above. (*See* § XIII.A.iii above.)

540. If interpreted to cover intra-party disputes, the indemnification clause of the DPLA would be procedurally unconscionable because the DPLA is a contract of adhesion. (Findings of Fact § tIV.A.)

541. Section 10 is substantively unconscionable. Courts have found indemnity clauses to be substantively unconscionable where, under the “bare language” of the clause, the defendant would be entitled to attorneys’ fees, costs and expenses and even the judgment amount from plaintiff even where plaintiff won suit against defendant. *See, e.g., Lennar Homes of*

California, Inc. v. Stephens, 232 Cal. App. 4th. 673, 693 (2014). Under Apple’s reading, Section 10, requires Epic to pay regardless of whether Apple or Epic sues, and regardless of whether Apple or Epic prevails, because Apple will incur some amount of “[l]osses” in all scenarios. This is unconscionable. *See id.*

542. For the foregoing reasons, the Court denies relief on Count 7.

XIV. APPENDIX 1: SPECIFIC RELIEF

For the reasons provided in Epic’s [Proposed] Conclusions of Law, Epic respectfully requests that the Court enter the permanent injunction set forth below.

Claims Concerning iOS App Distribution

The Court has found in favor of Epic on the following claims:

- Epic Count 1: Sherman Act § 2: Unlawful Monopoly Maintenance in the iOS App Distribution Market
- Epic Count 2: Sherman Act § 2: Denial of Essential Facility in the iOS App Distribution Market
- Epic Count 3: Sherman Act § 1: Unreasonable Restraints on Trade in the iOS App Distribution Market
- Epic Count 7: California Cartwright Act: Unreasonable Restraints of Trade in the iOS App Distribution Market
- Epic Count 10: California Unfair Competition Law (with respect to iOS app distribution)

To remedy Epic’s injuries, the Court orders the following relief:

Apple is permanently enjoined from further violations of Section 1 and/or Section 2 of the Sherman Act, the Cartwright Act and/or the California Unfair Competition Law with respect to the iOS App Distribution Market and/or the App Store on the iOS platform;

Apple is permanently enjoined from restricting, prohibiting, impeding or deterring the distribution¹⁸ of iOS apps through a distribution channel other than the App Store, including by:

- Restricting, prohibiting, impeding or deterring users of iOS devices, through technical, contractual, financial, or other means, from downloading, executing,

¹⁸ Distribution includes both supply of apps by developers and acquisition of apps by consumers unless otherwise specified.

installing and/or updating iOS apps and app stores from a distribution channel other than the App Store;

- Enforcing contractual provisions, guidelines or policies, or imposing technical restrictions or financial penalties, that (i) restrict, prohibit, impede or deter the distribution of iOS apps through a distribution channel other than the App Store or (ii) have the effect of impeding or deterring competition among app distributors (including competition between third party app distributors and the App Store);
- Conditioning access of developers to iOS on the pricing of their apps or in-app content on other platforms;
- Conditioning access of developers to the App Store on the pricing of their apps or in-app content on other platforms and/or on the pricing of their iOS apps or in-app content available through other distribution channels;
- Conditioning distribution through the App Store on exclusivity or on an agreement by a developer not to distribute an iOS app through other means; and
- Retaliating or threatening to retaliate against any developer on the basis of the developer's choice of iOS app distribution channel.

Apple is permanently enjoined from discriminating against or disadvantaging iOS app distribution through channels other than the App Store, including by:

- Denying iOS app stores access to iOS functionality that the App Store has access to, including iOS functionality that assists in or is required for the downloading, execution, installation, updating and removal of apps;
- Denying iOS apps that were downloaded through a distribution channel other than the App Store equivalent access to iOS functionality and/or features that iOS apps downloaded through the App Store have access to;
- Deterring users from downloading, executing, installing and/or updating iOS apps from or through an app distribution channel other than the App Store, including by imposing "warning" screens or other user obstructions or deterrents on iOS apps

distributed through channels other than the App Store that are not present for apps distributed through the App Store.

To remedy Apple's past misconduct and its anti-competitive effects in the iOS App Distribution Market and other relevant markets, and in order to restore competition in the iOS App Distribution Market, the Court orders the following time-limited relief, which shall be effective from the date of this Order for a period of three (3) years:

- Apple is enjoined from enforcing contractual provisions, guidelines or policies, or imposing technical restrictions, that restrict, prohibit, impede or deter distribution of iOS app stores through the App Store.

Nothing in this Order shall prohibit Apple from taking steps to prevent the distribution of malware.

Claims Concerning In-App Payment Processing

The Court has found in favor of Epic on the following claims:

- Epic Count 4: Sherman Act § 2: Unlawful Monopoly Maintenance in the iOS In-App Payment Solutions Market
- Epic Count 5: Sherman Act § 1: Unreasonable Restraints of Trade in the iOS In-App Payment Solutions Market
- Epic Count 6: Sherman Act § 1: Tying the App Store in the iOS App Distribution Market to In-App Purchase in the iOS In-App Payment Solutions Market
- Epic Count 8: California Cartwright Act: Unreasonable Restraints of Trade in the iOS In-App Payment Solutions Market
- Epic Count 9: California Cartwright Act: Tying the App Store in the iOS App Distribution Market to In-App Purchase in the iOS In-App Payment Solutions Market
- Epic Count 10: California Unfair Competition Law (with respect to iOS in-app payment processing)

To remedy Epic's injuries, the Court orders the following relief:

Apple is permanently enjoined from further violations of Section 1 and/or Section 2 of the Sherman Act, the Cartwright Act and/or the California Unfair Competition Law with respect to the iOS In-App Payment Solutions Market;

Apple is permanently enjoined from restricting, prohibiting, impeding or deterring the use of in-app payment processors other than Apple's In-App Purchase ("IAP"), including by:

- Rejecting iOS apps for distribution through the App Store or retaliating or threatening to retaliate against any developer of an iOS app on the basis of the developer's or the app's actual or intended integration of one or more non-IAP payment processors;
- Enforcing contractual provisions, guidelines or policies, or imposing technical restrictions or financial penalties, that (i) restrict, prohibit, impede or deter developers from integrating payment processors other than Apple's IAP into their apps for processing in-app purchases of in-app content or (ii) have the effect of impeding or deterring competition among in-app payment processors;

Apple is permanently enjoined from discriminating against payment processors other than Apple's IAP, iOS developers that use payment processors other than Apple's IAP, or iOS apps or app stores that use payment processors other than Apple's IAP, including by:

- Denying access to iOS apps or app stores that use payment processors other than Apple's IAP, to the same iOS functionality and/or features that apps using exclusively Apple's IAP for processing in-app purchases of in-app content have;
- Giving preferential treatment in search to iOS apps that exclusively use Apple's

IAP; and

Apple is permanently enjoined from imposing a financial penalty or technical limitation on access to the iOS platform by iOS apps (including iOS app stores) that use payment processing solutions other than or in addition to Apple's IAP.

* * * * *

Nothing in this Order shall prohibit Apple from seeking a modification of the Court's Order regarding the iOS In-App Payment Solutions Market on the basis of changed circumstances (*i.e.*, Apple's loss of monopoly power in the iOS App Distribution Market).

Anti-Circumvention

Apple is permanently enjoined from circumventing this Order by taking steps that violate the purpose, if not the terms, of this Order, including by imposing disincentives or providing incentives that are designed to, and have the effect of, making real competition in the iOS App Distribution Market and/or the iOS In-App Payment Solutions Market impracticable.

Anti-Retaliation

Apple is permanently enjoined from taking any retaliatory actions against Epic or any of its affiliates in connection with or based on Epic's filing of this Action, the August 2020 enablement of a direct payment option in *Fortnite*, or the steps Epic took to enable that option ("Prior Epic Actions"). For the avoidance of doubt, prohibited retaliatory actions include conduct by Apple that denies *Fortnite* access to Apple's App Store on the basis of such Prior Epic Actions.