



EUROPEAN COMMISSION

CASE DMA.100047 – Apple – iPadOS

(Only the English text is authentic)

Digital Markets Act Regulation (EU) 2022/1925 of the European Parliament and of the Council

Article 17 Regulation (EU) 2022/1925

Date: 29/04/2024

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EUROPEAN
COMMISSION

Brussels, 29.4.2024
C(2024) 2500 final

PUBLIC VERSION

COMMISSION IMPLEMENTING DECISION

of 29.4.2024

closing the market investigation opened by Decision C(2023)6076, pursuant to Article 17 of Regulation (EU) 2022/1925 of the European Parliament and of the Council on contestable and fair markets in the digital sector and amending Commission Decision C(2023)6100 of 5 September 2023 designating Apple as a gatekeeper pursuant to Article 3 of that Regulation

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act), and in particular Articles 3(9) and 17 thereof,¹

After consulting the Digital Markets Advisory Committee,

Whereas:

1. INTRODUCTION

- (1) On 3 July 2023, Apple Inc. and Apple Distribution International Ltd. notified the Commission, pursuant to Article 3(3), first subparagraph, of Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector (Digital Markets Act),² that Apple Inc., together with all legal entities directly or indirectly controlled by it, (hereinafter referred to as “Apple” or the “Undertaking”) meets the thresholds laid down in Article 3(2) of that Regulation in relation to the following core platform services (“CPSs”): (i) its online intermediation service iOS App Store; (ii) its operating system iOS; (iii) its web browser Safari; and (iv) its number-independent interpersonal communication service (“NIICS”) iMessage.³ According to the Form GD, iPadOS is an operating system CPS within the meaning of Article 2, point (2), subpoint (f), of Regulation (EU) 2022/1925, but Apple did not, at the time of the notification, meet the quantitative thresholds laid down in Article 3(2)(b) and (c) of that Regulation in relation to iPadOS.⁴

¹ OJ L 265, 12.10.2022, p. 1.

² OJ L 265, 12.10.2022, p. 1-66.

³ Apple Inc. and Apple Distribution International Ltd., Notification pursuant to Article 3 of Regulation (EU) 2022/1925, Form for Gatekeeper Designation (GD), notified on 3 July 2023 (“Form GD”) [ID 5336-1]. While Apple includes iMessage within the list of CPSs in its Form GD, it argues that iMessage does not constitute a NIICS.

⁴ Form GD, paragraph 48 and Table 4 [ID 5336-1].

- (2) On 5 September 2023, the Commission adopted a decision designating Apple as a gatekeeper pursuant to Article 3 of Regulation (EU) 2022/1925 (hereinafter referred to as the “Designation Decision”).⁵ In the Designation Decision, the Commission listed the following CPSs provided by Apple which individually constitute an important gateway for business users to reach end users: (i) the online intermediation service App Store, (ii) the operating system iOS, and (iii) the web browser Safari.
- (3) In the Designation Decision, the Commission noted that iPadOS constitutes an operating system within the meaning of Article 2, point (10), of Regulation (EU) 2022/1925, and that it is a distinct CPS from other operating systems provided by Apple.⁶
- (4) On 5 September 2023, the Commission decided to open a market investigation pursuant to Articles 16(1) and 17(1) of Regulation (EU) 2022/1925, to assess whether Apple should be designated as a gatekeeper, pursuant to Article 3(8) of that Regulation, in relation to its operating system iPadOS.⁷

2. PROCEDURE

- (5) In the framework of the market investigation into iPadOS, the Commission sent a number of requests for information (“RFIs”) pursuant to Article 21 of Regulation (EU) 2022/1925 to Apple and to third parties, as explained below.
- (6) The Commission sent, on 11 September 2023 and 15 September 2023 respectively, two RFIs to Apple pursuant to Article 21 of Regulation (EU) 2022/1925. Apple provided its final responses to these RFIs on 4 October 2023 and 17 November 2023, respectively.
- (7) In September and October 2023, the Commission also addressed RFIs to a variety of stakeholders, namely providers of operating systems for tablets and original equipment manufacturers; Union-based consumer associations; industry associations; third-party application developers offering applications for iPadOS; and providers of tablet-compatible accessories and smart devices.⁸
- (8) On 13 December 2023, the Commission communicated its preliminary findings to Apple according to Article 17(2) of Regulation (EU) 2022/1925.⁹ Apple replied on 17 January 2024.

3. LEGAL FRAMEWORK FOR THE DESIGNATION OF GATEKEEPERS PURSUANT TO REGULATION (EU) 2022/1925

- (9) Article 3 of Regulation (EU) 2022/1925 sets out the rules for the designation of gatekeepers. An undertaking shall be designated as a gatekeeper under that regulation if it satisfies the requirements set out in Article 3(1) thereof, namely if (a)

⁵ Commission decision of 5 September 2023, C(2023)6100 [ID 5348-1].

⁶ Designation Decision, recitals (81)-(82) [ID 5348-1].

⁷ Commission decision of 5 September 2023, C(2023) 6076, hereinafter referred to as the “decision to open a market investigation” [ID 8-1].

⁸ The Commission received responses from 3 providers of operating systems for tablets, from 8 original equipment manufacturers, from 4 consumer associations, from 7 industry associations, from 133 application developers representing the full range of application categories on iPadOS stated in the App Store, and from 46 providers of tablet-compatible accessories and smart devices.

⁹ Commission Decision C(2023)8948.

it has a significant impact on the internal market, (b) it provides a CPS which is an important gateway for business users to reach end users, and (c) it enjoys an entrenched and durable position, in its operations, or it is foreseeable that it will enjoy such a position in the near future.

- (10) Pursuant to Article 3(9) of Regulation (EU) 2022/1925, where an undertaking satisfies those requirements, the Commission shall list in the designation decision the relevant CPSs that are provided by the undertaking and that are individually an important gateway for business users to reach end users as referred to in Article 3(1)(b) of that regulation.
- (11) Article 3(8), first subparagraph, of Regulation (EU) 2022/1925 requires the Commission to designate as a gatekeeper, in accordance with the procedure laid down in Article 17 of that regulation, any undertaking offering CPSs that meets each of the requirements of Article 3(1) although it does not satisfy each of the quantitative thresholds set out in Article 3(2).
- (12) For that purpose, pursuant to Article 3(8), second subparagraph, of Regulation (EU) 2022/1925, the Commission shall take into account some or all of the following elements, insofar as they are relevant for the undertaking providing the CPSs under consideration:
 - (a) the size, including turnover and market capitalisation, operations and position of that undertaking;
 - (b) the number of business users using the CPS to reach end users and the number of end users;
 - (c) network effects and data driven advantages, in particular in relation to that undertaking's access to, and collection of, personal data and non-personal data or analytics capabilities;
 - (d) any scale and scope effects from which the undertaking benefits, including with regard to data, and, where relevant, to its activities outside the Union;
 - (e) business user or end user lock-in, including switching costs and behavioural bias reducing the ability of business users and end users to switch or multi-home;
 - (f) a conglomerate corporate structure or vertical integration of that undertaking, for instance enabling that undertaking to cross subsidise, to combine data from different sources or to leverage its position; or
 - (g) other structural business or service characteristics.
- (13) Pursuant to Article 3(8), third subparagraph, of Regulation (EU) 2022/1925, in carrying out its assessment the Commission shall take into account foreseeable developments in relation to the elements listed above, including any planned concentrations involving another undertaking providing CPSs or providing any other services in the digital sector or enabling the collection of data.

4. ASSESSMENT PURSUANT TO ARTICLE 17(1) OF REGULATION (EU) 2022/1925

4.1. The Undertaking's view

- (14) Apple does not contest the Commission's preliminary findings that Apple meets the criteria set out in Article 3(1) of Regulation (EU) 2022/1925 in relation to iPadOS. According to Apple, this is based on foreseeable developments in relation to end user

numbers, as referred to in Article 3(8) of Regulation (EU) 2022/1925, and the elements listed under Article 3(8), second subparagraph, points (a) and (b).

- (15) However, Apple does not agree with the Commission's preliminary finding that the elements listed under Article 3(8), second subparagraph, points (c) to (g), of Regulation (EU) 2022/1925, support this conclusion, or with the Commission's preliminary findings on each of these elements. [...].

4.2. The Commission's assessment

- (16) The Commission's assessment is based on the evidence collected by the Commission in the context of its market investigation pursuant to Article 17(1) of Regulation (EU) 2022/1925 and the information provided by Apple.
- (17) Based on the information at its disposal, the Commission finds that it is appropriate for Apple to be designated as a gatekeeper in relation to the iPadOS CPS pursuant to Article 3(8) of Regulation (EU) 2022/1925, and for the operating system iPadOS to be listed in the Designation Decision pursuant to Article 3(9) of that Regulation as a CPS which individually is an important gateway for business users to reach end users pursuant to Article 3(1)(b) of that Regulation.
- (18) This finding is based on the facts that, as explained below, (i) iPadOS is a CPS (Section 4.2.1) and that the Commission's market investigation yielded indications that Apple meets the requirements of Article 3(1) of Regulation (EU) 2022/1925 in relation to iPadOS, since (ii) Apple has a significant impact on the internal market (Section 4.2.2); (iii) iPadOS is an important gateway for business users to reach end users (Section 4.2.3); and (iv) Apple's position in relation to iPadOS is durable and entrenched (Section 4.2.4).

4.2.1. CPS qualification and delineation

- (19) iPadOS is Apple's proprietary operating system for its iPad line of tablet computers. iPadOS was split from iOS, Apple's operating system for iPhones, in 2019.
- (20) In its notification, Apple submitted that iPadOS constitutes an operating system CPS within the meaning of Article 2, point (10), of Regulation (EU) 2022/1925.
- (21) In the Designation Decision, the Commission found that iPadOS qualifies as an operating system pursuant to Article 2, point (10), of Regulation (EU) 2022/1925, since it is a system software that controls the basic functions of iPad devices and enables software applications to run on those devices. The Commission also found, in line with Apple's view, that iPadOS constitutes a distinct CPS within the meaning of Article 2, point (2), subpoint (f), of that Regulation, which is separate from iOS, macOS, watchOS and tvOS.¹⁰
- (22) For the reasons set out in the Designation Decision, the Commission considers that iPadOS qualifies as an operating system pursuant to Article 2, point (10), of Regulation (EU) 2022/1925 and constitutes a distinct CPS within the meaning of Article 2, point (2), subpoint (f), of that Regulation. In particular, in that decision the Commission considered that the purpose of an operating system should be assessed from a technological perspective, taking into account that an operating system is intrinsically linked to the hardware or software whose basic functions the operating system is specifically designed to control and on which that operating system is

¹⁰ Designation Decision, recitals (81)-(82) [5348-1]; decision to open a market investigation, recital (2) [ID 8-1].

intended to enable the functioning of applications. Moreover, the Commission considered that iPadOS is used for different purposes by both end users and business users compared to other Apple operating systems (i.e., iOS, macOS, watchOS, and tvOS), in accordance with the principles set out in Regulation (EU) 2022/1925, and in particular, Section D, paragraph 2 of the Annex thereto.

4.2.2. *Significant impact on the internal market within the meaning of Article 3(1)(a) of Regulation (EU) 2022/1925*

- (23) According to Article 3(2)(a) of Regulation (EU) 2022/1925, an undertaking is presumed to have a significant impact on the internal market within the meaning of Article 3(1)(a) where it achieves an annual Union turnover equal to or above EUR 7.5 billion in each of the last three financial years, or where its average market capitalisation or its equivalent fair market value amounted to at least EUR 75 billion in the last financial year, and it provides the same CPS in at least three Member States.
- (24) Apple meets all of the above thresholds. It reported a Union-wide turnover of USD [...] (approx. EUR [...]), USD [...] (approx. EUR [...]), and USD [...] (approx. [...]) over the last three financial years (2020, 2021, and 2022, respectively).¹¹ Further, Apple reported an average market capitalisation of approximately EUR 2.6 trillion in 2022.¹² Apple also offers its products and services, including the iPadOS CPS, in every Member State.
- (25) In light of the above, the Commission takes the view that Apple has a significant impact on the internal market within the meaning of Article 3(1)(a) of Regulation (EU) 2022/1925 in relation to iPadOS.

4.2.3. *Important gateway for business users to reach end users within the meaning of Article 3(1)(b) of Regulation (EU) 2022/1925*

- (26) In the course of the market investigation, the Commission has sought to assess whether and to what extent iPadOS constitutes an important gateway for business users to reach end users within the meaning of Article 3(1)(b) of Regulation (EU) 2022/1925, taking into account the following elements pursuant to Article 3(8), second subparagraph, of that Regulation: the number of end users and business users of iPadOS, the degree of iPadOS' business user and end user lock-in, the network effects exhibited by iPadOS, and the scale effects from which Apple benefits in relation to iPadOS.
- (27) The Commission has found that iPadOS displays characteristics of an important gateway pursuant to Article 3(1)(b) of Regulation (EU) 2022/1925. This is because iPadOS has a high number of business and end users, is commercially important for business users as it is a gateway to a customer base with a high willingness to pay, presents lock-in effects with respect to both end and business users, and benefits from network effects and economies of scale.

4.2.3.1. Number of business users and end users

- (28) According to Article 3(8), second subparagraph, point (b), of Regulation (EU) 2022/1925, the number of business users and end users may be taken into account,

¹¹ Apple's response of 17 November 2023 to the European Commission's RFI 2 of 15 September 2023 (hereinafter referred to as "Apple's response to RFI 2"), Table 1 [ID 5293-1].

¹² Form GD, Table 39 [ID 5336-1].

insofar as relevant, when assessing whether an undertaking providing CPSs meets the requirements of Article 3(1) of that Regulation.

- (29) The Commission finds that iPadOS has a significant number of end users and business users, which reflects its importance as a gateway for business users to reach end users.
- (30) **First**, according to Apple, iPadOS had [...] yearly active business users in the Union during the financial year 2022 – an [...] since 2020. This number exceeds the quantitative threshold of 10 000 yearly active business users established in the Union, set out in Article 3(2)(b) of Regulation (EU) 2022/1925.¹³
- (31) In addition, according to Apple, more than [1-1.5] million applications in total were made available on iPadOS in the Union by those business users in 2022.¹⁴ This is to be added to the applications developed for iOS but which can often run in Compatibility Mode on iPadOS. This number is roughly comparable to the number of applications available on Android for tablet users (over 1.3 million)¹⁵ and is particularly significant when put in relation to the number of applications available for customers to access via a Fire Tablet in the Amazon AppStore, which were less than one million at the end of 2022.¹⁶
- (32) **Second**, according to Apple, iPadOS had more than [...] monthly active end users in the Union during the financial year 2022, which [...] the threshold of 45 million monthly active end users established or located in the Union, set out in Article 3(2)(b) of Regulation (EU) 2022/1925. Moreover, this number exhibited a growing trend from 2020 to 2022.¹⁷
- (33) **Third**, the number of end users of iPadOS is not only significant in absolute terms, but also in relative terms compared to those of other operating systems for tablets. Apart from the Android operating system, the number of monthly active iPadOS end users significantly exceeds the number of monthly active end users of each other operating system for tablets, such as Fire OS for Fire Tablets, which had approximately [0-5 million] monthly active end users in 2021 in the Union.¹⁸ Indeed, iPadOS is one of only two widespread operating systems for tablets in the Union, the other being Android (by Alphabet) with roughly the same number of end users.¹⁹
- (34) According to the data submitted by Apple shown in Table 1 below, approximately [30-40%] of the tablets sold in the Union in 2022 were iPads and therefore running on iPadOS. Tablets with Android have a similar share, while tablets running on other operating systems have significantly lower shares of less than 8% each. On a global level, which is particularly relevant for the scale effects (as discussed in Section

¹³ Apple's response to RFI 2, Table 3 [ID 5293-1].

¹⁴ Apple's response to RFI 2, Table 6 [ID 5293-1].

¹⁵ See https://www.android.com/intl/en_nz/tablets/, last accessed 15 November 2023 [ID 5367-1].

¹⁶ Amazon's response of 10 October 2023 to the European commission's RFI of 25 September 2023 (hereinafter referred to as "Amazon's response to RFI"), Question 12 [ID 5223-1].

¹⁷ Apple's response to RFI 2, Table 3 [ID 5293-1].

¹⁸ Amazon's response to RFI, Question 6 [ID 5223-1].

¹⁹ Statista Study, 'Tablet operating system quarterly market share in Europe from 2013 to 2023', June 2023: in Q1 2023 in Europe, Apple's operating system for tablets held approx. 49% of market shares, while Google's Android operating system for tablets held approx. 50.8% [ID 5219-1]. See also Microsoft's response of 6 October 2023 to the European commission's RFI of 25 September 2023 (hereinafter referred to as "Microsoft's response to RFI"), Question 5: "*The only two real tablet OSs are iOS and Android, with a combined share of more than 99%*" [ID 4950-1].

4.2.3.5. below), the share of tablets running on iPadOS among the tablets sold is even higher than the corresponding share in the Union. Moreover, it is higher than the share of tablets running on Android on a global level.²⁰

Table 1 – Shares of operating systems for tablets sold in the Union (volume)

Operating system provider	2020	2021	2022
<i>Apple</i>	[20-30] %	[30-40] %	[30-40] %
Alphabet	[40-50] %	[40-50] %	[40-50] %
Amazon	[5-10] %	[5-10] %	[5-10] %
Huawei	[10-20] %	[5-10] %	[0-5] %
Microsoft	[0-5] %	[0-5] %	[0-5] %
Others	[5-10] %	[5-10] %	[5-10] %

Source: Apple's reply to RFI 2, Table 2. [...].

- (35) Importantly, as illustrated in Table 1 above, the proportion of iPadOS tablets among the tablets sold in the Union has grown significantly, by [10 – 15 percentage points], between 2020 and 2022. This illustrates the position of iPadOS as a major platform intermediating between an increasing number of business and end users.
- (36) Therefore, the Commission considers that the significant number of iPadOS end users and business users is an indication of iPadOS' importance as a gateway for business users to reach end users.

4.2.3.2. End user lock-in

- (37) End user lock-in is mentioned in Article 3(8), second subparagraph, point (e), of Regulation (EU) 2022/1925 as one of the elements that may be taken into account, insofar as relevant, for the purpose of assessing whether a CPS constitutes an important gateway for business users to reach end users pursuant to Article 3(1)(b) of that Regulation.
- (38) The Commission considers that iPadOS is characterised by effects of end user lock-in. This is because, as explained below, iPadOS leverages Apple's large ecosystem, which discourages end user switching and because tablet owners tend to own and stick to one brand of operating system with relatively long replacement cycles. This in turn draws business users to be present on iPadOS to reach this pool of end users.
- (39) **First**, iPadOS is part of an integrated ecosystem built around and exclusively open to Apple's operating systems powering not only iPads, but also a wide range of other Apple devices, such as iPhone, Mac, Apple TV, and Apple Watch. These devices and their respective operating systems then seamlessly connect with any additional Apple products, such as TV and monitor screens, speakers, earphones, and keyboards. Indeed, Apple's ecosystem is designed to combine all Apple products and

²⁰ Apple's response to RFI 2, Table 2 [ID 5293-1].

services so as to provide end users with a seamless experience across Apple devices. Thus, where end users of a device based on iPadOS consider acquiring a new and/or different device, they are likely to purchase again an Apple product and stay within Apple's integrated ecosystem. In this context, the industry association Open Web Advocacy noted that *“Apple’s iPad is designed to work seamlessly with other Apple products [meaning] that if a user owns an iPad, they are more likely to purchase other Apple products to ensure compatibility.”*²¹

- (40) Apple offers numerous advantages for connectivity and interoperability across its products and services, which has the effect of locking users into its ecosystem. By way of illustration, Steve Jobs already suggested in 2010 to *“tie all of [Apple] products together, so [Apple] further lock[s] customers into [its] ecosystem”*.²²
- (41) For example, iCloud *“is the service from Apple that securely stores your photos, files, notes, passwords, and other data in the cloud and keeps it up to date across all [users’] devices, automatically.”*²³ The Continuity features enable integration of applications across devices.²⁴ For example, thanks to Continuity, users can wirelessly send documents or photos to nearby Apple devices or even move Safari tabs across their Apple devices. Apple promotes the ease with which users can use the same applications across all its operating systems, described by the slogan *“All your devices. One seamless experience”*.²⁵ As a result, Apple creates a dynamic of keeping users within its ecosystem, which strengthens the position of iPadOS.
- (42) In addition, Apple has developed a number of applications that, through their integration into the Apple ecosystem of operating systems, enhance end user “lock in” effects, including with respect to iPadOS. iMessage, Apple Music, Apple TV or Find my Friends are just a few examples. These services create an environment where end users can access content or interact with friends seamlessly and without interruption (for example, due to lack of data synchronisation) on whichever device running an Apple proprietary operating system they are using. This contributes to users’ long-term engagement and brand loyalty, increases the value of Apple devices, including the iPad running on iPadOS and therefore add to the unwillingness of users to switch to devices based on another operating system.
- (43) Apple’s promotion of continuity between its operating systems and other services appears to be one of the main reasons for end users to purchase an Apple product,

²¹ Open Web Advocacy’s response of 13 November 2023 to the European commission’s RFI of 10 November 2023 (hereinafter referred to as “OWA’s response to RFI”), Section 3.5.1. [ID 5227-1].

²² Don Reisinger, “Steve Jobs wanted to ‘further lock customers’ into Apple’s ecosystem”, published on CNET on 2 April 2014, available at <https://www.cnet.com/tech/tech-industry/steve-jobs-wanted-to-further-lock-customers-into-apples-ecosystem/>, last accessed 29 November 2023 [ID 5346-1].

²³ See [Introduction to iCloud - Apple Support](#), last accessed 13 November 2023 [ID 5343-1].

²⁴ According to Apple Support, [...] *“When you sign in to your Apple ID on all of your devices, you can use these Continuity features to move seamlessly between your devices”*. Continuity involves several features, such as: AirDrop (*“Wirelessly send documents, photos, videos, websites, map locations, and more to a nearby iPhone, iPad, or Mac”*), iPhone Cellular Calls (*“Make and receive calls from your Mac or iPad when those devices are on the same network as your iPhone”*), Handoff (*“Start work on one device, then switch to another nearby device and pick Up Where you left off”*). For more features, please refer to [“Work seamlessly across all your devices” - Apple Support](#), last accessed 13 November 2023 [ID 5344-1].

²⁵ Please refer to <https://www.apple.com/macOS/continuity/>, last accessed 15 November 2023 [ID 5368-1].

such as iPadOS, and reduces the ability and incentive of end users to switch to other operating systems.

- (44) **Second**, in addition to iPadOS end users being incentivised to stay within the Apple ecosystem to benefit from a seamless experience across Apple devices, they are less likely to switch to tablets operated by other operating systems due to their lack of or limited interoperability with Apple’s products and services.
- (45) Many of Apple’s services and products do not interoperate at all or as seamlessly with tablets operated by non-Apple operating systems for tablets as they do with iPadOS. Thus, if an end user of an iPad would want to switch to a tablet operated by another operating system than iPadOS, they would either lose access to their Apple products and services (because they would not interoperate at all with third party operating systems) or experience a degraded version of them (if they do interoperate but not as seamlessly).
- (46) For example, reports highlight that services such as Apple’s cloud storage service iCloud, Apple’s messaging service iMessage or Apple’s data sharing service AirDrop either work exclusively or with full functionality only on Apple’s operating systems such as iPadOS.²⁶ Similarly, Apple’s peripherals such as AirPods, HomePods and AirTags integrate easily and with full functionality when used with iPadOS, while they do not function as well or with as many features when used with other operating systems for tablets.²⁷
- (47) In addition, transferring data from an iPad to a tablet not powered by iPadOS can be burdensome, when compared to transferring data from iPadOS to iPadOS on a new iPad. This deters end users from switching from iPad to a tablet operated by another operating system than iPadOS. According to the findings in the CMA Mobile Ecosystems Market Study, although *“users [switching from iOS to Android] prefer to transfer their data wirelessly or from cloud backups, [...] there are limitations to the data that can be transferred via wifi and cloud options”* because *“Apple does not offer necessary APIs to enable third-party direct wifi switching options to transfer some of the data that can instead be transferred via cable options”*.²⁸
- (48) The transfer of data from iPadOS to Android via cable faces a number of obstacles. For instance, users that do not have a Lightning to USB-C cable or a Lightning to

²⁶ For iCloud, see <https://mobiletrans.wondershare.com/android-tips/access-icloud-from-android.html>, last accessed 23 November 2023 [ID 5374-1]; For iMessage, see <https://www.spikenow.com/blog/tips-tricks/imessage-for-android/#:~:text=One%20of%20the%20key%20differences,Macs%2C%20iPhones%2C%20and%20iPads,> last accessed 1 December 2023 [ID 5369-1]; For AirDrop, see <https://www.androidauthority.com/how-to-airdrop-on-android-3324604/>, last accessed 23 November 2023 [ID 5371-1].

²⁷ For AirPods, see <https://www.soundguys.com/dont-use-airpods-android-20767/>, last accessed 23 November 2023 [ID 5375-1]; for HomePods, see <https://financialpost.com/technology/personal-tech/apple-homepod-review-if-youre-deep-into-the-apple-ecosystem-this-is-the-smart-speaker-for-you>, last accessed 23 November 2023 [ID 5370-1]; for AirTags, see <https://www.tile.com/blog/does-airtag-work-with-android>, last accessed 23 November 2023 [ID 5372-1].

²⁸ CMA Mobile Ecosystems Market Study, Appendix D, paragraph 35 [ID 5373-1]. Although this finding relates to switching from iOS to Android, it applies similarly to switching from any Apple operating system, including iPadOS, to most of the non-Apple operating systems as this finding pertains to the barriers created by the Apple ecosystem, in general. See also the Australian Competition & Consumer Commission, Digital platforms services inquiry, Interim report no. 7, September 2023 (hereinafter referred as “ACCC Ecosystems Report”), page 142 [ID 5347-1].

USB cable with an OTG adapter will be unable to copy their data through this method.²⁹ These cables are not delivered together with each iPad or tablet. Moreover, copying data via a cable drains devices' battery power, and they cannot be charged during the copying process.³⁰

- (49) These findings are confirmed by Open Web Advocacy, which stated in the market investigation that iCloud users face difficulties when switching from an iPad to an Android tablet because *“if [they] switch to an Android tablet [they] must typically manually copy [their] data across”* and *“[t]his issue is compounded by the fact that total user data may be greater than the space on iPad or Android tablet[i.e.], if a user has a lot of photos, videos, or music files, they may not be able to transfer all of [their] data to the new device.”*³¹ Thus, the approximately [...] iCloud+ subscribers who used iCloud on an iPad at least once in the financial year 2022 – nearly [...] of yearly active iPadOS end users in the Union³² – will find it more difficult to transfer their data to an Android tablet, but not to transfer their data to another Apple device.
- (50) **Third**, the lock-in effects exhibited by iPadOS and described above are also manifested by the fact that a significant number of iPadOS end users also use other Apple operating system.
- (51) As shown in Table 2 below, [...] of yearly active iPadOS end users are also yearly active end users of at least one other Apple operating system. Although the data provided does not allow the drawing of conclusions on the extent to which iPadOS end users are simultaneously end users of two or more Apple operating systems and which ones, it can be inferred from the sum of the number of iPadOS end users among other Apple operating system's end users – which exceeds the total number of iPadOS end users by almost [...] – that an important portion of them are end users of two or more Apple operating systems in addition to iPadOS.

Table 2 – Number of yearly active Union end users of one Apple operating system who are also yearly active Union end users of another Apple operating system in 2022

²⁹ CMA Mobile Ecosystems Market Study, Appendix D, paragraph 36 [ID 5373-1] in relation to iOS. However, this finding is applicable to data transfer from iPadOS to Android as iPhone and iPad have similar connectors and the cables are not delivered together with each iPad or tablet. This only applies to users of iPad of the 9th generation (which is still being shipped by Apple) or before since the iPad of the 10th generation (released in October 2022) only uses USB-C connectors.

³⁰ CMA Mobile Ecosystems Market Study, Appendix D, paragraph 36 [ID 5373-1].

³¹ OWA's response to RFI, Section 3.5.3. [ID 5227-1].

³² Apple's response to RFI 2, paragraph 5.2 [ID 5293-1]. iCloud+ is the premium subscription that expands the iCloud service with features like iCloud Private Relay, Hide My Email, HomeKit Secure Video support, and extra data storage. iCloud is the basic service provided to all iPadOS end users and which includes free data storage up to 5GB.

	Yearly active end users in the Union	iOS	iPadOS	macOS	watchOS	tvOS	No other Apple OS
iOS	[...]		[...]	[...]	[...]	[...]	[...]
iPadOS	[...]	[...]		[...]	[...]	[...]	[...]
macOS	[...]	[...]	[...]		[...]	[...]	[...]
watchOS	[...]	[...]	[...]	[...]		[...]	[...]
tvOS	[...]	[...]	[...]	[...]	[...]		[...]

Source: Apple's response to RFI 2, Table 4 [ID 5293-1].

Note: The second column from the left indicates the total number of yearly active end users in the Union for each Apple operating system listed in the first column. The other columns indicate, among the total number of yearly active end users for each Apple operating system, the total number of yearly active end users of another Apple operating system. The data is expressed in millions with a precision of 0.1 million.

- (52) Moreover, iPadOS end users constitute a significant portion of end users of the other Apple operating systems, respectively [...], [...], and [...] of macOS, watchOS, and tvOS end users. Thus, many of the iPadOS end users are significantly intertwined with the Apple ecosystem.
- (53) Furthermore, Table 2 also shows that, in addition to the [...] of iPadOS end users who are also end users of another Apple operating system, this proportion is [...] for iOS, [...] for macOS, [...] for watchOS, and [...] for tvOS end users. Thus, only a limited number of yearly active end users of an Apple operating system – with the exception of iOS – is not also an end user of another Apple operating system.
- (54) Therefore, a significant proportion of end users of Apple operating systems are integrated into the Apple ecosystem through the use of multiple Apple operating systems. For the reasons set out above, not only iPadOS end users are disincentivised to switch to a tablet operated by another operating system outside of this ecosystem because it would not work as seamlessly with their Apple products, but other Apple operating systems' end users who are considering buying a tablet would likely choose iPadOS over another operating system for tablet to complement their Apple devices' ecosystem.
- (55) This observation is also made by the consumer association BEUC: “[u]sers of one Apple product can in practice be “locked in” to the Apple ecosystem, including tablets. Choosing an OS can amount to an ecosystem choice and this may influence a consumer’s choice of other devices.”³³
- (56) **Fourth**, the lock-in effects of iPadOS end users are reinforced by the fact that the majority of end users use only one single brand of tablet with one single type of operating system over a significant period of time, thus offering limited opportunities to competitors to convince end users to switch away from iPadOS.

³³ BEUC's response of 10 October 2023 to the European commission's RFI of 29 September 2023 (hereinafter referred to as “BEUC's response to RFI”), Question 10 [ID 4955-56].

- (57) According to market reports [...] regarding the tablet sector in France and Germany, between [60-70]% and [60-70]% of households in those Member States only own one tablet device, [20-30]% of them own two tablet devices, and only [10-20]% of this pool own more than two tablet devices.³⁴
- (58) Those end users also tend to hold onto their tablet devices for a significant period of time. In that regard, [...] reports that the ownership of a tablet device lasts on average between [50-60] months in France and [30-40] months in Germany, with ownership of an iPad lasting longer than ownership of tablets powered by Android ([60-70] months for iPads against [50-60] for Android tablets in France, and [30-40] months against [30-40] in Germany).³⁵
- (59) Although the degree of multibrand ownership is not precisely known among the households who own more than one tablet device, [...] reports provide compelling data about the degree of multibrand ownership among the owner of a smartphone who also own a tablet device. In that regard the reports indicate that [50-60]% of iOS end users own a tablet device, among which [70-80]% own an iPad and only [10-20]% own a Samsung tablet. In comparison, slightly less than [50-60]% of Samsung mobile device owners own a tablet device, among which only approximately [50-60]% own a Samsung tablet and [10-20]% own an iPad.³⁶
- (60) The combination of a low rate of multiple tablet ownership with lengthy tablet replacement cycles is indicative of the lock-in of most end users of operating systems for tablets within a single brand of operating systems.
- (61) **Fifth**, the lock-in effect faced by iPadOS end users is reinforced by brand loyalty for iPadOS. This limits the prospects of end users replacing an iPad with a tablet operated by another brand of operating system.
- (62) According to [...], the brand loyalty in operating system for tablets of French and German end users who previously owned a tablet and acquired another tablet is [...]. For instance, more than [80-90]% of iPadOS end users were loyal to the brand, similar to [70-80]% for Android end users.³⁷
- (63) In addition, [...] surveyed a panel of owners of a tablet device who were planning to replace or repurchase a tablet device within the next 6 months and asked them to rank the top three brands they were considering for their purchase. Apple was considered by [40-50]% of them, a [...] to Samsung which was considered by [50-60]% of them, but [...] of the other tablet brands such as Huawei, Lenovo, or Amazon, which are individually considered by [...] than [20-30]% of end users.³⁸ Thus, iPadOS benefits from a strong brand attractiveness among end users of operating systems for tablets, and is unlikely to be challenged in the near future by other brands of operating system for tablets besides Samsung.

³⁴ Apple's response to RFI 2, Annexes 8 and 14, p. 12 [IDs 5279-1 and 5285-1]. The reports cover each quarter of the financial years 2021 and the first quarter of the financial year 2022.

³⁵ Apple's response to RFI 2, Annexes 8 and 14, p. 6 [IDs 5279-1 and 5285-1]. The reports cover the first quarter of the financial year 2022.

³⁶ Apple's response to RFI 2, Annexes 8 and 14, pages 16-17 [IDs 5279-1 and 5285-1]. The reports cover the first quarter of the financial year 2022.

³⁷ Apple's response to RFI 2, Annexes 8 and 14, p. 44 [IDs 5279-1 and 5285-1]. The reports cover the first quarter of the financial year 2022.

³⁸ Apple's response to RFI 2, Annexes 8 and 14, p. 66 [IDs 5279-1 and 5285-1]. The reports cover the first quarter of the financial year 2022.

- (64) Moreover, when the panel is limited to iPadOS end users, more than [80-90]% of them considered purchasing an iPad again, which evidences the loyalty of iPadOS end users to the Apple brand.³⁹
- (65) Therefore, it appears very likely that end users of iPadOS will remain loyal to iPadOS rather than switching to another brand. This comes in addition to the fact that many iPadOS end users are already end users of another Apple operating system, especially iOS, as explained in paragraph 54, which in itself increases the likelihood that they will direct their purchase of other devices towards Apple products.
- (66) Therefore, the Commission considers that Apple benefits from end user lock-in effects in relation to iPadOS.

4.2.3.3. Business user lock-in

- (67) Business user lock-in is mentioned in Article 3(8), second subparagraph, point (e), of Regulation (EU) 2022/1925 as an element that may be taken into account, insofar as it is relevant, for the purposes of assessing whether a CPS constitutes an important gateway for business users to reach end users pursuant to Article 3(1)(b) of that Regulation.
- (68) The Commission considers that many business users are locked into iPadOS due to its large and commercially attractive user base, its importance for certain use cases, and costly switching and multi-homing, in particular considering Apple's proprietary programming tools and languages.
- (69) **First**, the Commission's market investigation showed that iPadOS plays an important commercial role for application developers and providers of smart devices. iPadOS provides access to a large and commercially attractive user base which can therefore only be reached through iPadOS.
- (70) **In the first place**, many business users explained that iPadOS constitutes a commercially important gateway for their products and services. A majority of developers and suppliers of smart devices who participated in the market investigation stated that they find it important for the commercial success of their tablet applications and products to be available on/through iPadOS.⁴⁰ Consequently, a majority of responding developers of applications for tablets would never consider not making their application available on iPadOS.⁴¹
- (71) In particular, one developer explained: *"Due to Apple's dominance in the tablet market, iPadOS is not a service that can be ignored by app operators – especially app operators like Reddit with users that seek to access their app via tablets (and iPads in particular). iPadOS is an important gateway for [the developer], as a business user, to reach these end users, just as it is an important gateway for any other app provider with tablet end users."*⁴² Another developer concluded that *"they have too many users to not answer [i.e., to not make available an application on*

³⁹ Apple's response to RFI 2, Annexes 8 and 14, p. 66 [IDs 5279-1 and 5285-1]. The reports cover the first quarter of the financial year 2022.

⁴⁰ Replies to question D.1 of the RFI sent to developers [ID 5380-1] and replies to question D.1 of the RFI sent to providers of accessories and smart devices [ID 5382-1]. Whenever replies to RFIs are presented in a consolidated manner in this decision, respondents who replied 'I don't know' or 'Not applicable' are excluded.

⁴¹ Replies to question C.5 of the RFI sent to developers [ID 5380-1].

⁴² Reply to RFI to Developers, Reddit, Question E.1 [ID 4009-1].

iPadOS].”⁴³ A further developer confirmed: “iPad has 50% market share in Europe for tablets and therefore being able to provide our services on iPad is critical to commercial success.” and “All of our tablet relevant products must be available on iPad OS due to the 50% market share that it has.”⁴⁴

- (72) **In the second place**, many business users, in particular developers, generate a significant part of their revenue from applications on iPadOS. Approximately a third of developers who replied to the Commission’s market investigation generate more than 80% of their revenue from tablet applications via iPadOS.⁴⁵ One developer explained: “Availability of [the developer’s] tablet applications on iPadOS is deemed to be of utmost importance for their commercial success. The percentage of revenue generated from devices running iPadOS holds significant relevance for our company.”⁴⁶ For some developers, iPadOS is commercially crucial for their entire business. For example, one developer of applications for children replied: “We generate about 40% of our company revenue from iPad OS.”⁴⁷ This indicates that iPadOS is an entry gate to a significant source of revenue for some developers.
- (73) **In the third place**, the commercial importance of iPadOS for developers is reflected by the high spending of end users of iPadOS.
- (74) Generally, the business users of Apple’s mobile operating systems are able to generate higher revenue per user than those of other mobile operating systems, such as Android. According to reports, iOS users – who represent approximately [...] of iPadOS users as indicated in Table 2 – spend 2.5 times more on in-app purchases than Android users.⁴⁸ The percentage of users who make in-app purchases on iOS is also 50% higher than Android. This is important for developers since only about 5% of applications users make purchases.⁴⁹ Other reports confirm that Apple end users spend on average more per year through Apple’s in-app purchase system than Android end users spend through Google Play’s billing system.⁵⁰ Another report found that although the Google Play Store has more users and more than twice the amount of downloaded applications than Apple’s App Store, the Apple App Store generated twice the amount of revenue compared with the Play Store, and as a result brought substantially more revenues for the business users of Apple’s mobile operating systems than of those of Android mobile operating systems⁵¹
- (75) The above is consistent with the finding that end users of iPadOS specifically appear to be higher app and in-app spenders than users of other operating systems for

⁴³ Reply to RFI to Developers, Video LAN, Question E.1 [ID 3114-1].

⁴⁴ Reply to RFI to Providers of accessories and smart devices, Telefonica, Questions D.2 and D.4 [ID 4899-1].

⁴⁵ Replies to question D.3 of the eRFI sent to developers. [ID 5380-1].

⁴⁶ Reply to RFI to Developers, Wildlife Studios, Question D.2 [ID 4742-1].

⁴⁷ Reply to RFI to Developers, Bimi Boo Kids Learning Games for Toddlers, Question D.2 [ID 1265-1].

⁴⁸ According to AppsFlyer, a mobile attribution and marketing analytics platform measuring more than 4 billion USD in mobile ad spent annually, The State of In-App Spending, page 5 (https://cdn2.hubspot.net/hubfs/597489/IAP_Guide/The_State_of_In-App_Spending_AppsFlyer.pdf, last accessed 8 November 2023. [ID 5206-1].

⁴⁹ According to AppsFlyer, a mobile attribution and marketing analytics platform measuring more than 4 billion USD in mobile ad spent annually, The State of In-App Spending, page 5 (https://cdn2.hubspot.net/hubfs/597489/IAP_Guide/The_State_of_In-App_Spending_AppsFlyer.pdf, last accessed 8 November 2023 [ID 5206-1].

⁵⁰ CMA Mobile Ecosystems Market Study, para. 4.171 [ID 5181-1].

⁵¹ Dutch Competition Authority, Market Study into mobile app stores (hereinafter referred to as “ACM Market Study”), page 52 [ID 5184-1]. The report covers the first half of 2018.

tablets, leading to higher revenues for business users. Market studies [...] confirm that the household income of iPad owners is significantly higher than that of other tablet owners.⁵² During the course of the market investigation, developers and suppliers of smart devices submitted that iPadOS users tend to have higher spending power than users of other operating systems for tablets. A developer stated: *“As a single developer, I need to focus on the highest-paying users. These are definitely to be found on the iPadOS platform in the tablet sector.”*⁵³ Another developer replied: *“In terms of attractiveness for application developers, iOS and iPadOS have historically been attractive to application developers due to a large user base and a reputation for users being willing to pay for applications.”*⁵⁴

- (76) **Second**, iPadOS appears to be a “must have” platform for certain groups of application developers and smart devices providers. As outlined in the following paragraphs, developers who replied to the Commission’s market investigation explained that iPadOS is more frequently used for certain activities or use cases, which further increases the dependence of business users on iPadOS developing applications in those areas.
- (77) One of the use cases for which iPadOS appears to be an important platform is gaming. [...], based on the time spent by end users on applications in the Union, [...] is among the top three use cases of iPadOS⁵⁵ which is consistent with the fact that approximately 76% of the consumer spending on iPadOS came from games.⁵⁶ One market investigation respondent noted that *“[t]he availability of our tablet applications on iPadOS is of paramount importance for their commercial success. Given our understanding that tablets often serve as an extension of users’ mobile phones, it’s crucial for us to provide a consistent and seamless gaming experience across devices. Many of our players transition between their mobile phones and tablets, expecting the same quality and gameplay experience. By ensuring our games are available and optimized for iPadOS, we cater to this user behavior, enhancing player engagement and retention. Neglecting this platform would risk alienating a significant portion of our user base and, consequently, impact our sales and revenue potential.”*⁵⁷ In other words, foregoing iPadOS end users would deprive some business users from a significant pool of end users and often important revenue.
- (78) Another use case for which iPadOS emerges as an important gateway are work-related activities such as note taking and word processing. One developer stated: *“So, professionally, ipad is much more important and present than Android. People who uses their tablet for work strongly tend to be an iPad owner.”*⁵⁸ In the same vein, another application developer explained that *“many apps are only available for iPadOS, especially the apps that are used in school and work.”*⁵⁹ Apple itself seeks to further develop and promote the use of iPads and iPadOS for work and enterprise purposes. According to public sources, Apple teamed up with IBM to launch a range

⁵² See, for example, Apple’s response to RFI 2, Annexes 8 and 14, pages 40 and 41 [IDs 5279-1 and 5285-1].

⁵³ Reply to RFI to Developers, C&P Apps, Questions E.1 [ID 1240-1].

⁵⁴ Reply to RFI to OEMs, Xiaomi, Question 10 [ID 5215-2].

⁵⁵ Form GD, Figure 1 [ID 5336-1].

⁵⁶ Estimates for Q1 2020 globally, see <https://sensortower.com/blog/ipad-app-revenue-downloads-covid-19-impact>, last accessed on 3 November 2023 [ID 5381-1].

⁵⁷ Reply to RFI to Developers, Good Job Games, Question D.2 [ID 3189-1].

⁵⁸ Reply to RFI to Developers, F Closs Servicos Em Tecnologia da Informacao, Question E.1 [ID 3811-1].

⁵⁹ Reply to RFI to Developers, C&P Apps, Question E.1 [ID 1240-1].

of business-focused applications for iPads, and the company has also been working with Cisco and SAP to ensure iPads work well in enterprises.⁶⁰

- (79) Business users highlighted a number of other use cases for which iPadOS appears to be very important if not a “must-have” access point. One smart devices provider reported that “[f]or applications where screen size or resolution matters, accessibility on iPadOS is critical.” and “[m]ost [of our] Pilot aviation mobile application users are iPadOS tablet users.”⁶¹ Another developer expressed a similar view: “My apps are only for Apple devices. iPadOS is best suited for musical instrument apps. Also it would be too much work to also support other systems”.⁶²
- (80) As a result, many business users have limited choice to reach end users other than offering their applications on iPadOS. They become locked into iPadOS not only because of its large and commercially attractive user base but also the particular importance of iPadOS in certain market segments.
- (81) **Third**, even if developers were able to effectively reach a significant number of commercially attractive end users via operating systems other than iPadOS, this would require significant time and investment.
- (82) Developing applications for an operating system or adapting an existing application to an operating system requires significant resources. Generally, every brand of operating system for tablets is different and its tools for development are created for its particular characteristics. For example, the user interface, application programming interfaces, development and deployment tools, applications store rules and requirements, features and functionalities of each brand of operating system for tablets may differ. Most developers use Apple’s software development kit Xcode and Apple’s application programming interfaces when developing their applications for iPadOS. Applications written with these tools and languages cannot be used on non-Apple operating systems.
- (83) During the course of the market investigation, many developers highlighted Apple’s specific programming requirements for iPadOS applications and subsequent difficulties and effort in making these applications available on non-Apple operating systems. A developer confirmed: “To adapt an iPadOS app for non-Apple platforms requires significant commitments of money, time, and engineers with different expertise. Apple’s programming code can only be used on Apple platforms. To develop a program on a non-Apple OS, the engineer generally must start from scratch.”⁶³ A second developer stated: “Adapting iPadOS to Android Tablets - this requires complete re-write of the app for the Android platform, and therefore the work is expensive and takes a long time.”⁶⁴ Another developer replied: “Adapting tablet applications from Apple operating system (e.g. iPadOS) to another operating system (e.g. Google Android for tablets) may amount to redeveloping an entire application.”⁶⁵ Finally, another developer stated: “To develop applications for iPadOS I’m forced to use Xcode as the development environment and use the iPadOS

⁶⁰ See <https://www.theverge.com/2016/8/8/12401772/apple-ipad-business-governments-sales>, last accessed 8 November 2023 [ID 5379-1].

⁶¹ Reply to RFI to Providers of accessories and smart devices, Garmin, Questions D.2 and D.4 [ID 4405-1].

⁶² Reply to RFI to Developers, Markus Sigg, Question C.1 [ID 3832-1].

⁶³ Reply to RFI to Developers, Grammarly, Question C.9 [ID 4840-1].

⁶⁴ Reply to RFI to Developers, Lightricks Ltd., Question C.9 [ID 4152-1].

⁶⁵ Reply to RFI to Developers, Nordvpn, Question C.1 [ID 4697-1]

built-in frameworks. Those frameworks would not be available on other tablet operating systems and it would be too much work for me to develop my applications also for other operating systems.”⁶⁶

- (84) Consequently, for some developers, multi-homing is expensive and time-intensive. Not every application developer can afford this.⁶⁷ Often, adapting an application to another operating system requires a complete re-write of the application.⁶⁸ Multi-homing therefore tends to be a viable option mainly for larger developers, whose applications are already successful and generate enough profits to fund this process.⁶⁹
- (85) Conversely, some small developers, start-ups and providers of niche products are only able to focus on a single operating system for tablets. As explained by a market investigation respondent: “[t]he developer kit (SDK) for iPadOS is specific to Apple’s platforms. I cannot afford the time/money/efforts to develop for other platforms.”⁷⁰ A similar view was expressed by another respondent: “[t]he complexity of developing a standalone application for other systems makes it almost impossible for a small studio. Are there challenges working with Apple? For sure. However, it is still worth dedicating the efforts to the Apple ecosystem.”⁷¹
- (86) A majority of developers responding to the Commission’s market investigation explained that they make their applications available on a maximum of two operating systems for tablets.⁷² While developers of the most popular applications are usually present on both Android and iPadOS,⁷³ there are some developers that offer their products only on iPadOS.⁷⁴
- (87) **Fourth**, Apple appears to be taking a number of initiatives to enhance its ecosystem, which reinforces the business user lock-in effects across its different operating systems, in particular iPadOS and iOS. In particular, Apple ensures that it is relatively easy for developers and suppliers of smart devices to make their application or product accessible through iPadOS if it is already accessible through iOS, thereby creating a positive loop between both parts of Apple’s ecosystem.
- (88) Apple encourages developers to publish their applications on iOS, iPadOS and Apple’s other operating systems in its developer’s guidelines.⁷⁵ To that aim, Apple applies similar tools, rules, and policies for application development across iOS, iPadOS and Apple’s other operating systems. The programming is done with the same tools and in the same environment (e.g., Xcode, Swift, and other software development kits (“SDK”s)) – all provided by Apple. Moreover, Apple’s App Store Review Guidelines and processes are the same for iOS, iPadOS and Apple’s other operating systems. Business users submit and distribute their applications through the same App Store for all Apple operating systems, including iPadOS. Indeed, Apple

⁶⁶ Reply to RFI to Developers, C&P Apps, Question C.1 [ID 1240-1].

⁶⁷ ACM Market Study, Section 3.4.1.1 [ID 5184-1].

⁶⁸ CMA Mobile Ecosystems Market Study, para. 4.154. [ID 5181-1]

⁶⁹ See ACM Market Study, Section 3.4.1.1., p. 52 [ID 5184-1]; ACCC Market Study, p. 34 [ID 5347-1].

⁷⁰ Reply to RFI to Developers, Vincent Tourraine, Question C.4 [ID 4059-1].

⁷¹ Reply to RFI to Developers, Wzp Solutions Lda, Question E.1 [ID 3138-1].

⁷² Reply to RFI to Developers, Question B.6 [ID 5380-1].

⁷³ Reply to RFI to Developers, Question B.6 [ID 5380-1].

⁷⁴ Reply to RFI to Developers, Question B.6 [ID 5380-1].

⁷⁵ See App Store Review Guidelines, Article 2.4.1: “To ensure people get the most out of your app, iPhone apps should run on iPad whenever possible. We encourage you to consider building universal apps so customers can use them on all of their devices”. The Guidelines are available at this link: App Store Review Guidelines - Apple Developer, last accessed on 3 November 2023 [ID 5378-1].

applies the same App Store Review Guidelines for applications on all its operating systems.⁷⁶ While there are some differences between the development and publication environments for iPadOS and other operating systems, the synergies are substantial.

- (89) In addition, Apple obliges business users to support numerous features specific to Apple's ecosystem, thereby incentivising the development of applications for multiple Apple devices but at the same time increasing the barriers to adapt or develop applications for non-Apple operating systems. One developer explained that *"Apple provides an interconnected environment across the applications on Apple's own platforms -macOS, iPadOS, iOS- facilitating communication and better user experiences amongst them. Some notable functionalities are: (i) users authentication utilizing another Apple device (e.g. users can log in expeditiously instead of typing the password), (ii) flawless synchronization of iMessages across all Apple devices; and (iii) wireless file sharing capability via AirDrop between all Apple's own platforms. However, none of these functionalities are allowed with devices and platforms outside Apple's ecosystem. So while this integrated approach improves the user experience within Apple's own ecosystem, it also creates barriers to interacting with non-Apple platforms and devices."*⁷⁷
- (90) The market investigation revealed that, as a result of this strategy, adapting applications from iOS to iPadOS takes less time, costs less, and requires less programming changes and less technical expertise compared to adapting an iPadOS application to Android or another brand of operating system.⁷⁸ For instance, one app developer explained that *"Apple only requires the development and submission of one version of the app, which is then duplicated across iOS and iPadOS."*⁷⁹ A similar view was shared by another respondent: *"[t]here is not really an increased workload in development to adapt for iPadOS compare to the base phone iOS app, beside visual layout fine tuning."*⁸⁰
- (91) Therefore, the Commission finds that iPadOS presents lock-in effects for business users because of its large and commercially attractive user base, its importance for certain use cases, and costly switching and multi-homing.

4.2.3.4. Network effects

- (92) According to Article 3(8), second subparagraph, point (c), of Regulation (EU) 2022/1925, network effects are among the elements which may be taken into account, insofar as relevant, when assessing whether a service constitutes an important gateway for business users to reach end users pursuant to Article 3(1)(b) of that Regulation.
- (93) The Commission finds that iPadOS exhibits strong network effects. This is because it benefits from the positive feedback loop stemming from the increasing end user base drawn to the Apple OS ecosystem and the ensuing concentration of business users to reach this valuable customer population. This market dynamic is also evidenced by

⁷⁶ See <https://developer.apple.com/app-store/review/guidelines/>, last accessed on 3 November 2023 [ID 5378-1].

⁷⁷ Reply to RFI to Developers, Nordvpn, Question C.15 [ID 4697-1].

⁷⁸ Reply to RFI to Developers, Question C.8 [ID 5380-1].

⁷⁹ Reply to RFI to Developers, Mozilla Question B.5 [ID 4826-1].

⁸⁰ Reply to RFI to Providers of accessories and smart devices, Groupe SEB, Question C.2 [ID 3923-1].

the lack of success of competing operating systems, other than Android OS, to successfully and sustainably establish themselves with users of tablets.

- (94) **First**, as discussed in Section 4.2.3.3, above, some developers' resources are limited and they concentrate on offering applications on operating systems for tablets with the largest user base to spread their upfront costs and achieve higher profits. This triggers network effects, as more applications are available on these operating systems, which in turn increases their value for end users and attracts more consumers. The fact that end users tend to choose the operating system with the highest number of applications then reinforces the incentive of application developers to focus on those operating systems, thereby closing the loop of network effects. The network effects in the mobile operating systems sector are widely recognised in the market enquiries⁸¹ and antitrust decisions⁸² by various competition authorities and were also supported by the findings in the Commission's market investigation in this case. Specifically, most suppliers of operating systems for tablets who participated in the market investigation pointed to network effects as the barrier to enter and develop an operating system.⁸³ In addition, a majority of developers⁸⁴ and suppliers of smart devices⁸⁵ referred to access to consumer base as one of the main factors for choosing one operating system for tablets over another.
- (95) The market investigation confirmed that iPadOS specifically benefits from such network effects. As explained in Section 4.2.3.3. above, a majority of small developers which cannot offer their products on all operating systems for tablets mostly decide to build applications for iPadOS and Android OS, and would never consider not making their application available on iPadOS.⁸⁶ One respondent explained that it had decided to prioritise iPadOS over Microsoft OS *"because we had not enough paying users to justify the costs of development and maintenance on this specific environment. Apple users tend to be better subscribers (because of Apple's payment system but also because they usually have a better buying power) than Android ones (depending on the price of the devices)"*.⁸⁷
- (96) As a result, and as evidenced in Section 4.2.3.1. above, more than [1-1.5 million] applications were available for iPadOS in the Union in 2022,⁸⁸ making iPadOS an extremely attractive platform for end users. This contributes to the value of iPadOS and leads to attracting new end and business users, as demonstrated by Table 3, below.

Table 3 - Number of end users and business users of and apps available on iPadOS in the Union for the last three years

⁸¹ See Subcommittee on Antitrust, Commercial and Administrative Law of the Committee of the Judiciary, Investigation of competition in digital markets, October 2020, page 104 [ID 5180-1]; ACCC Market study, page 27 [ID 5183-1]; CMA Mobile Ecosystems Market Study, paragraph 3.55 [ID 5181-1].

⁸² Commission decision in Case AT.40099, Google Android, paragraphs 464 and 469.

⁸³ Alphabet's response of 18 October 2023 to the European Commission's RFI of 25 September 2023, paragraph 8 [ID 5225-1]; Microsoft's response to RFI, question 7.b [ID 4950-1].

⁸⁴ Reply to RFI to Developers, Question C.7 [ID 5380-1].

⁸⁵ Reply to RFI to Providers of accessories and smart devices, question C.6 [ID 5382-1].

⁸⁶ Reply to RFI to Developers, Question C.5 [ID 5380-1].

⁸⁷ Reply to RFI to Developers, Cafeyn Group, Question C.7 [ID 3899-1].

⁸⁸ Apple's response to RFI 2, Table 6 [ID 5293-1].

Year	Average monthly active iPadOS end users in the Union	Yearly active iPadOS business users in the Union	Apps available on iPadOS in the Union
2022	[<45 million]	[>10 000]	[1-1.5 million]
2021	[<45 million]	[>10 000]	[1-1.5 million]
2020	[<45 million]	[>10 000]	[1-1.5 million]

Source: Apple's response to RFI 2, Table 3.

- (97) **Second**, Apple and Alphabet appear to benefit from the dynamics where developers focus on iPadOS and Android and do not go the trouble and expense of supporting smaller operating systems.⁸⁹ Several mobile operating systems have struggled over the years to achieve a scale comparable to that of iPadOS, becoming victims of network effects which the large tablet OS providers enjoy.
- (98) For instance, Microsoft's mobile operating system reportedly failed because, in the absence of standardized programming languages, developers did not want to invest in making their applications available for other operating systems than those provided by Apple and Alphabet. Therefore, Microsoft's mobile operating system did not feature a sufficient number of applications to attract users, and network effects could not be activated.⁹⁰ According to Microsoft, "*the lack of available applications was the primary reason for the failure of Microsoft's mobile/tablet operating system*".⁹¹ Similarly, Amazon's operating system for tablets, smart TVs and smart devices, Fire OS, has been struggling to attract end and business users and has only managed to reach a limited scale over the years, as described in Section 4.2.3.1. above,⁹² notwithstanding substantial investments by Amazon.⁹³
- (99) If large companies with significant experience and user bases in their sectors, such as Microsoft and Amazon, have not succeeded in providing successful alternative operating systems for tablets, it follows that it would be all the more difficult for smaller players to be able to do so.⁹⁴ Indeed, Original Equipment Manufacturers ("OEMs") explained in the market investigation that it is doubtful that a new operating system for tablets will emerge given the barriers to entry created, inter alia,

⁸⁹ Epic Games v. Apple Inc., page 94 [ID 5199-1].

⁹⁰ ACM Market Study, page 36 [ID 5184-1].

⁹¹ Microsoft's response to RFI, question 7.b [ID 4950-1].

⁹² According to Statcounter, the tablets sold in Europe in 2023 with Amazon Fire operating system were less than 5% (available at the following link [Tablet Vendor Market Share Europe | Statcounter Global Stats](#), last accessed on 13 November 2023 [ID 5207-1]. The data provided by Apple show that, during the last three calendar years, the tablets sold in the European Union featuring Amazon Fire operating system were less than [...] (see Apple's response to RFI 2, Table 2) [ID 5293-1].

⁹³ In the context of the market study on mobile ecosystems, Amazon declared to the CMA that "*it invested significant time and resources in the development of Fire OS, the devices that run it, and the apps that run on it*". Similarly, Huawei declared that "*there are barriers to entry and expansion in the provision of mobile operating systems, including the need for long-term technical efforts and substantial financial investment*" (CMA Mobile Ecosystems Market Study, footnote 189 [ID 5181-1]).

⁹⁴ As recently acknowledged by the CMA, "*it is difficult for a new OS to gain traction as they cannot attract one set of customers without the other and this also makes it even more difficult to achieve scale and overcome barriers due to economies of scale*" (see CMA Mobile Ecosystems Market Study, Appendix L, paragraph 22 [ID 5198-1]).

by network effects. According to one OEM, “[d]evelopment of an original solution [for operating systems for tablets] would also encounter reputational and brand-effect barriers since network effects require a critical end user base to allow commercial users to be able to recoup investment made in offering their products and even financing its free use – in particular, application developers would have to bear the costs of implementing changes in their applications to ensure seamless use on the new operating system, since they are usually designed to offer seamless interface with iOS and Android, and they will not be able to attract enough users at the beginning due to brand effect and therefore have enough subscriptions or advertisers to make the development of applications profitable.”⁹⁵

- (100) **Third**, iPadOS network effects are strengthened through its close integration with other products and services belonging to Apple’s ecosystem. As explained in Sections 4.2.3.2 and 4.2.3.3 above, iPadOS end and business users benefit from the Apple ecosystem through a seamless user and development experience across its devices and services, and cross-platform features such as iCloud⁹⁶ or Continuity.⁹⁷
- (101) This creates network effects also within Apple’s ecosystem.⁹⁸ As explained by one developer: “we focus only on iPadOS as we are able to leverage the same platform and libraries we use for our other apps”.⁹⁹
- (102) This combination of network effects within Apple’s ecosystem and specifically in relation to iPadOS, increases the number of business users, applications available on iPadOS and the number of end users, thus further strengthening the network effects.
- (103) Therefore, the Commission considers that iPadOS benefits from network effects.

4.2.3.5. Scale effects

- (104) According to Article 3(8), second subparagraph, point (d), of Regulation (EU) 2022/1925, scale effects may be taken into account, insofar as relevant, when assessing whether a service constitutes an important gateway for business users to reach end users pursuant to Article 3(1)(b) of that Regulation.
- (105) The Commission finds that Apple benefits from strong economies of scale and that providing or launching a new operating system, generally and specifically for tablets,

⁹⁵ Reply to RFI to OEMs, Xiaomi, Question 6 [ID 5215-2].

⁹⁶ According to iCloud User Guide: “iCloud is the service from Apple that securely stores your photos, files, notes, passwords, and other data in the cloud and keeps it up to date across all your devices, automatically. iCloud also makes it easy to share photos, files, notes, and more with friends and family. You can also back up your iPhone, iPad, or iPod touch using iCloud”. See Introduction to iCloud - Apple Support, last accessed 13 November 2023 [ID 5343-1].

⁹⁷ According to Apple Support, “When you sign in to your Apple ID on all of your devices, you can use these Continuity features to move seamlessly between your devices”. Continuity involves several features, such as: AirDrop (“Wirelessly send documents, photos, videos, websites, map locations, and more to a nearby iPhone, iPad, or Mac”), iPhone Cellular Calls (“Make and receive calls from your Mac or iPad when those devices are on the same network as your iPhone”), Handoff (“Start work on one device, then switch to another nearby device and pick up where you left off”). For more features, please refer to Work seamlessly across all your devices - Apple Support, last accessed 13 November 2023 [ID 5344-1].

⁹⁸ As recently acknowledged by the Australian Competition & Consumer Commission, “digital platform services providers may be able to make use of network effects when launching interconnected services” and “these network effects could become self-reinforcing” (see ACCC Ecosystems Report, page 116) [ID 5347-1].

⁹⁹ Reply to RFI to Developers, Mochi Development, Inc., Question C.1 [ID 3224-1].

entails very high development and other upfront costs which could present a significant obstacle for new and smaller operators.

- (106) **First**, there are significant economies of scale in providing an operating system for tablets. Apple’s mobile ecosystem is a high up-front and fixed cost business and Apple appears to make significant profit margins on incremental sales of devices which run iPadOS and services that run on iPadOS.¹⁰⁰ Moreover, recent studies showed such economies of scale for mobile operating systems, including operating systems for tablets, and found that Apple benefits from material barriers to entry and expansion faced by potential rival providers.¹⁰¹
- (107) **Second**, the Commission’s market investigation highlighted that developing an operating system for tablets requires fixed cost up-front investment, thus confirming earlier findings of the Commission.¹⁰² According to one provider, developing an operating system for tablets can require financial investments amounting to “*at least hundreds of millions*”.¹⁰³ OEMs of tablets explained that the development of an operating system for tablets takes an “*enormous magnitude of resources and expertise*”¹⁰⁴ and would therefore not be cost efficient from a business point of view.¹⁰⁵ According to one OEM of tablets, the cost of developing its own proprietary operating system for tablets would render its tablets “*unaffordable to our core consumers*”.¹⁰⁶
- (108) Therefore, the Commission considers that iPadOS benefits from strong economies of scale and that the development of a new operating system for tablets would require significant time and resources.
- 4.2.4. *Entrenched and durable position within the meaning of Article 3(1)(c) of Regulation (EU) 2022/1925*
- (109) The Commission finds that Apple, with regard to the operation of iPadOS, enjoys an entrenched and durable position within the meaning of Article 3(1)(c) of Regulation (EU) 2022/1925. This assessment is based on the following elements listed in Article 3(8), second subparagraph, of Regulation (EU) 2022/1925, : the number of business users and end users and their evolution over time, network effects, scale effects as well as the lock-in effects regarding end users and business users over the last years.
- (110) **First**, iPadOS has been one of the two leading operating systems for tablets in the Union for more than 10 years. The number of end users and business users as well as

¹⁰⁰ ACCC Market study, page 43 [5183-1].

¹⁰¹ See ACCC Market study, page 28 [5183-1]; CMA Mobile Ecosystems Market Study, paragraph 3.131 [ID 5181-1] and CMA Mobile Ecosystems Market Study, Appendix L, paragraph 22 [ID 5198-1]. The market studies covered tablets: see ACCC Market study [5183-1], page. 11, CMA Mobile Ecosystems Market Study, paragraph 2.1 [ID 5181-1], and CMA Mobile Ecosystems Market Study, Appendix L, paragraph 17 [ID 5198-1].

¹⁰² It is a “*costly and time-consuming process*”, Commission decision in Case AT.40099, Google Android, paragraph 462.

¹⁰³ Microsoft’s response to RFI, question 7.b [ID 4950-1].

¹⁰⁴ Reply to RFI to OEMs, Dell, Question 6 [ID 4947-1].

¹⁰⁵ One OEM explained that “It takes tremendous engineering resources to develop our own tablet operating system. The engineering effort and time are beyond ASUS capabilities and it is not cost efficient from business point of view.” (see reply to RFI to OEMs, Asus, question 6 [ID 3271-3]). Another OEM estimated substantial costs possibly amounting to several million euros and several years to develop an operating system for tablets (see reply to RFI to OEMs, Xiaomi, question 6 [ID 5215-2]).

¹⁰⁶ Samsung’s response of 10 October 2023 to the European commission’s RFI of 25 September 2023, Question 6 [ID 5295-2].

the position of iPadOS powered tablets sold and used in the Union have consistently remained high in the past 10 years. [...]. However, according to a market intelligence provider, the market share of iPads and therefore iPadOS among the tablets used in Europe has consistently and always remained above 45% since 2012.¹⁰⁷

- (111) **Second**, the end user and business user numbers and relative significance of iPadOS have substantially grown over the past years. Between 2020 and 2022, the number of monthly active end users of iPadOS in the Union increased from [...] to [...], i.e., by [...], and the number of monthly active business users in the EU, increased from [...] to [...], i.e., by [...].¹⁰⁸ In relative terms, the proportion of iPadOS powered tablets sold in the Union increased from [...] to [...] between 2020 and 2022.¹⁰⁹ Thus, iPadOS has become even more widespread over the last years and is used by more business users and end users in the Union – both in absolute and relative terms.
- (112) **Third**, it is expected that the number of end users and business users of iPadOS, and therefore its importance as a CPS, will continue to grow. Several market intelligence providers estimate the value of tablets sales to grow in the coming years, both globally and in the Union.¹¹⁰ In light of the growth of the number of iPadOS powered tablets sold in the Union, it can be expected that the end user and business user numbers and importance of iPadOS will also increase. In addition, according to media reports, Apple plans to update its entire iPad line-up during 2024.¹¹¹ Such an update of all iPad devices would likely lead to an increase in popularity and sales of iPads and therefore the number iPadOS end users.
- (113) **Fourth**, it also appears highly unlikely that any existing or new services would threaten the position of iPadOS in the coming years. As explained, iPadOS benefits from significant lock-in effects of its end users and business users (see Sections 4.2.3.2 and 4.2.3.3 above) as well as network effects and economies of scale (see Sections 4.2.3.4 and 4.2.3.5 above) and the Commission’s market investigation did not provide any indication that these effects would decrease in the near future. All these effects make the entrance of a new operating system for tablets very difficult, expensive, and unlikely. The very limited success of Microsoft’s and Amazon’s mobile operating system underlines these difficulties (see paragraph 98 above).
- (114) In light of the above, the Commission finds that Apple enjoys an entrenched and durable position with regard to the operation of iPadOS within the meaning of Article 3(1)(c) of Regulation (EU) 2022/1925.

5. CONCLUSION

- (115) In light of the considerations set out above, the Commission closes the market investigation opened pursuant to Article 17(1) of Regulation (EU) 2022/1925 into Apple’s operating system CPS iPadOS and finds that this CPS should be listed

¹⁰⁷ Statcounter, Tablet Vendor Market Share Europe, August 2012 - October 2023, see <https://gs.statcounter.com/vendor-market-share/tablet/europe/#monthly-201208-202310>, last accessed on 7 November 2023 [ID 5207-1].

¹⁰⁸ Apple’s response to RFI 2, question 3 [ID 5293-1].

¹⁰⁹ Apple’s response to RFI 2, question 2 [ID 5293-1].

¹¹⁰ According to Maximise Market Research the global tablet market is expected to grow by 3.4% annually between 2022 and 2029 (see <https://www.maximizemarketresearch.com/market-report/global-tablet-market/115033/>, accessed on 7 November 2023) [ID 5208-1].

¹¹¹ See <https://www.bloomberg.com/news/newsletters/2023-11-05/apple-vision-pro-plan-includes-launching-initially-just-at-apple-stores-in-2024>, last accessed on 7 November 2023 [ID 5209-1].

pursuant to Article 3(9) of that Regulation in the Designation Decision as a CPS which individually is an important gateway for business users to reach end users within the meaning of Article 3(1)(b) of that Regulation.

- (116) Consequently, the Commission concludes that the Designation Decision should be amended accordingly.

HAS ADOPTED THIS DECISION:

Article 1

In Article 2 of Commission Decision C(2023)6100 of 5 September 2023 designating Apple as a gatekeeper pursuant to Article 3 of Regulation (EU) 2022/1925 of the European Parliament and of the Council on contestable and fair markets in the digital sector, the following point is added:

‘(d) Apple’s operating system iPadOS’.

Article 2

This Decision is addressed to Apple Inc., One Apple Park Way, Cupertino, CA 95014, California, United States of America.

Done at Brussels, 29.4.2024

For the Commission

(Signed)

Margrethe VESTAGER

Executive Vice-President