

Mobile browsers and cloud gaming market investigation
Apple Response to Statement of Issues

Apple has undeniably been a driving force of innovation for the benefit of developers and users alike in mobile browsers and cloud gaming. With the introduction of the iPhone, Apple pioneered the idea of a desktop-quality web browsing experience on a mobile device. Safari, powered by WebKit, delivered the first full featured, touch-interactive mobile browsing experience. Apple has made significant investments to optimize WebKit for mobile browsing, and contributed these investments to the open-source community, benefiting the whole industry. Apple has consistently offered new features and functionality for WebKit, while maintaining market-leading device performance and robust privacy and security standards. Similarly, Apple has been integral to the development of mobile gaming. When it launched the App Store in 2008, Apple created a groundbreaking distribution model for games. Apple has continued to invest in hardware features, tools and frameworks, discovery, and support for gaming developers that have helped make mobile gaming a popular distribution option for game developers. Apple's focus is to provide the best possible mobile gaming experience, whether through the App Store or via the web, while ensuring robust user protections. Apple's approach to cloud gaming is no different: Apple provides multiple means of bringing cloud games to users, including through its curated App Store model, which offers a safe and trusted platform on which users can rely. The importance of Apple's pro-innovation and pro-competitive actions in these areas cannot be understated.

Having decided to open a phase 2 market investigation into mobile browsers, browser engines and cloud gaming, the CMA is now tasked with carrying out an in-depth assessment of the features of those markets in order to determine if they give rise to an adverse effect on competition. The inquiry will be overseen by independent Inquiry Group ("IG"), and will require the proper investigation of all relevant issues and analysis.

In this respect, Apple stresses that the phase 2 investigation must meaningfully scrutinize the phase 1 evidence and analysis. As discussed in this response, the CMA in the phase 2 investigation cannot close its mind to key issues and consider that the "findings" in the Mobile Ecosystems Market Study ("MEMS") final report can be taken as providing definitive conclusions (as argued in more detail below, Apple has serious concerns that the CMA is treating certain issues as "closed" or "settled" in the Statement of Issues ("SOI")).

In particular, Apple continues to have significant concerns regarding the findings in the MEMS final report, as they rely heavily on partisan submissions by well-resourced Apple critics (which appear to have been taken at face value) despite the provision of objective technical evidence to the contrary as provided by Apple. These detractors account for less than 0.5% of developers in the UK and have well-known vested interests in securing changes to the Apple system. Further, as set out below, in key respects, Apple was not provided with underlying evidence on which the CMA relied, thus further hampering its ability to meaningfully address the "concerns" raised by the CMA.

In light of this, Apple considers that, to be carried out properly, the phase 2 market investigation will require a more balanced approach, involving a fair and unbiased consideration of all relevant facts and evidence, not just the arguments of a limited set of complainants. To that end, Apple is keen to engage further with the CMA during this investigative phase, in particular with respect to the competitive dynamics of the markets at issue, as well as the key privacy, performance and security considerations that appear to have been overlooked in the phase 1 investigation.

As will be clear from the evidence that the CMA already has, and is summarized briefly in this submission, Apple considers that a proper investigation will conclusively demonstrate that the features of mobile browsers, browser engines and cloud gaming do not show an adverse effect on competition (“AEC”).

Whilst Apple’s view is that ultimately the CMA will determine remedies are not required, Apple nonetheless addresses in this submission a number of important concerns raised by the CMA’s consideration of possible remedies in the SOI. In particular, the remedies under consideration would have the effect of asking Apple to fundamentally redesign its products and services to operate in the same way as Android, removing considerable differentiation and competition between Apple and Android, along with the demonstrable value and protection that Apple’s approach provides consumers. Additionally, the potential remedies discussed in the SOI risk disproportionately impacting Apple’s ecosystem and, in the case of cloud gaming, are plainly unreasonable and disproportionate as they incorporate remedies that were proposed to address concerns outside the scope of this market investigation and already determined by the CMA to be best addressed by the upcoming Digital Markets Unit.

A. The Conduct of the Market Investigation

The independent nature of investigations within the two-stage markets regime

1. The two-stage process of “markets work” by the CMA is clearly defined, with a transparent separation between the phase 1 market study and phase 2 market investigation. This separation is particularly important from the perspective of the rights of defence of the parties under investigation.
2. CMA guidance¹ makes it clear that the market investigation “*process is investigative and inquisitorial, not accusatorial. To be required to give evidence in a market investigation or be subject to remedial action following an investigation does not imply that market participants are suspected of wrongdoing*”.² Equally, the guidance makes clear that the CMA “*makes no presumption that there are market features that harm competition*.”³ However, the remedial powers at the end of a market investigation are substantial and highly intrusive. The CMA is obliged “*in particular to have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition and any detrimental effects on customers so far as resulting from the adverse effect on competition*.”⁴ To this end, remedies can encompass measures such as structural separation, divestiture, licensing or assignment of IP rights, conduct requirements and informational remedies.
3. In light of the very significant potential consequences of a market investigation, the regime provides that the market investigation stage is a full and independent review: “*the [CMA] recognizes that market investigations can result in significant interventions in markets and that its investigations must not only be thorough and disciplined but also fair*”.⁵ Further, “*once a reference is received, the [CMA] proceeds wholly independently of the [market study]; a [phase 2] market investigation casts a ‘fresh pair of eyes’ able to look more deeply at new evidence and analysis of the market. Regardless of the views of the [market study], it may conclude that there are no adverse effects in the market*.”⁶
4. The guidance therefore provides for a full investigation of whether any AECs are, in fact, present on the markets that have been referred for consideration.

The framework for the phase 2 investigation

5. CMA guidance is clear that a central, and ongoing, part of a market investigation is the proper consideration of how the markets under investigation function:⁷

To develop robust findings on whether or not features in a market are harming competition, the CC needs to understand how a market operates and reach a view about its performance. A part of its investigation is therefore the collection and analysis of information about the main characteristics of the market referred and the outcomes of the competitive process within that market. The [CMA’s] evaluation of characteristics

¹ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013.

² *Ibid*, para 21.

³ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 155.

⁴ Enterprise Act 2002 s134(6).

⁵ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 42.

⁶ *Ibid*, para 22. See also para 25 emphasising that, following a reference, “*It will also be for the [Inquiry Group] to reach its own conclusions on whether or not there is any AEC*”.

⁷ *Ibid*, paras 97-99.

and outcomes goes on throughout an investigation and continuously informs its assessment of what might be causing any adverse effects in the market.

Reviewing evidence and observations on the main characteristics of the markets that it investigates helps the [CMA] to frame the analysis of market definition and competitive effects, as well as to assess the practicability of remedy options, should an AEC be found.

Any assessment of the working of competition usually begins with an overview of market structure and the possible implications of this structure for the conduct of the firms within the market. The [CMA] studies the profiles and performances of the suppliers (or, where relevant, acquirers) of the goods or services referred for investigation.

6. The guidance goes on to note that, in carrying out its assessment of the characteristics of the market, the phase 2 investigation will consider, alongside market shares:⁸

(a) The nature and characteristics of the products or services included in the terms of reference and of any potential substitutes for these products.

(b) The nature of the customer base—for example, whether customers are businesses or final consumers, the extent of customer segmentation in a market, the demographic profile of the customer base or, where relevant, the extent to which they are informed about the products in the market subject to investigation.

(c) The legal and regulatory framework that applies to the reference market. Laws and regulations can determine the nature of competition within a market and may also be relevant to the CC's consideration of remedies.

(d) Industry practices, for example the way in which products are sold and how prices are set and communicated to customers.

(e) The history of the market, including recent competitive developments such as any recent examples of entry, expansion or exit and any significant changes that are anticipated in the market in the foreseeable future.

7. As the above makes clear, the phase 2 investigation must interrogate the actual conditions of competition within the market as a precursor to assessing whether there are features of the market that harm competition.

8. Importantly, while it may be appropriate for the CMA to seek to rely on *information* gathered in the course of the phase 1 process, in order to 'avoid duplication of effort', the guidance provides no justification for the Inquiry Group at phase 2 to adopt the *analysis and findings* of the CMA at phase 1. To adopt such analysis and findings from the phase 1 process would be contrary to the entire premise of the two-stage process.⁹

The CMA's failure to apply the required framework

9. The SOI purports to give effect to the above by noting in paragraphs 6 and 7 that:

⁸ *Ibid*, paras 101-102.

⁹ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, paragraph 63.

This statement does not represent our emerging or provisional views, findings or conclusions on either the competition issues or remedies, should these be needed. We have yet to determine whether any competition concerns arise in the supply of mobile browsers and mobile browser engines and the distribution of cloud gaming services through app stores on mobile devices in the UK.

The hypotheses set out in this issues statement do not imply any prejudgement of an AEC; they are solely potential hypotheses to be tested. Our investigation is at a very early stage, and the purpose of identifying these hypotheses is to present some early thinking on these issues for comment and to help frame our investigation.

10. However, Apple has serious concerns that, contrary to the intentions expressed in these paragraphs, the SOI is, in fact, treating key issues as effectively “closed” or “settled”, thus predetermining the outcome.

(a) The SOI precludes the required investigation of key issues

11. The SOI indicates that, for both mobile browsers and cloud gaming, the CMA is simply dispensing with the requisite investigative approach and framework set out in the previous section.
12. Principally, the SOI appears to treat certain positions set out in the MEMS final report as constituting settled findings. In some cases, described further below, the MEMS final report does not even purport to make any such ‘finding’, meaning that in those areas it is not only improper but also factually incorrect for the SOI to seek to rely on the MEMS final report in that way.
13. The CMA’s apparent failure to properly revisit certain relevant positions taken within the MEMS is particularly concerning for Apple, as it is clear that in a number of places key underlying positions within the MEMS final report mischaracterise or overstate the evidence. Any adoption of such positions by the Inquiry Group threatens to infect the phase 2 investigation, and undermine the resulting findings and conclusions to Apple’s significant detriment. For example:
14. Paragraph 18 states that *“The Market Study found evidence that the quality of all browsers on Apple devices is limited by the slower pace of development of WebKit, that web developers have cancelled features due to a lack of support by WebKit, and that businesses bear higher costs from having to rely on native apps compared to web apps, and from working with bugs and glitches that are inherent in WebKit.”* While the CMA reports concerns from stakeholders in Chapter 5, the key analysis of that evidence is presented in paragraph 7.54 of the MEMS final report, where the CMA merely reports that it has “heard concerns” from developers, without further interrogating those claims in a balanced way.
15. Paragraph 22 states that *“The Market Study found that the distribution of cloud gaming services appeared to be functioning poorly. In particular, it found that Apple, via its App Store policies and guidelines, in effect obstructs cloud gaming services from being available on iOS devices, in particular because it does not allow a single app to provide a catalogue of games.”* This ‘finding’, which notably does not explicitly appear in the MEMS final report, significantly misrepresents the availability of cloud gaming services on iOS and non-iOS devices, and betrays a clear prejudice in the CMA’s assessment regarding cloud gaming distribution in the market investigation. Further, at a conceptual level, the CMA’s analysis appears to treat Apple’s approach to cloud gaming as forming an entry barrier which automatically leads to a

poorly functioning market. However, that position ignores the CMA's own guidance, which recognises that 'entry barriers may indirectly secure other kinds of benefit' such as limiting entry to persons of 'proven competence...[which] may lead to an improvement in product or service quality.'¹⁰ Indeed, Apple has provided significant evidence showing the various security and privacy benefits to users as a result of its approach. The CMA must take a more balanced approach, applying a more grounded analysis which takes account of the various benefits that Apple's current approach to cloud gaming brings to iOS users, in line with the guidance.

16. Paragraph 31 states that "*The Market Study found evidence that there are indirect network effects in the supply of browser engines, as web developers typically ensure that their websites and web apps are compatible with the most popular browsers, but not other browsers. The Market Study found that indirect network effects create a barrier to expansion by smaller browser vendors, who struggle to differentiate themselves by making new functionality available to web developers as this functionality is less likely to be adopted.*" The analysis of this issue in the MEMS final report at paragraphs 5.76 to 5.81 shows that the CMA merely considered the theoretical possibility that network effects caused by compatibility issues may constrain the incentives of smaller *browser engines* to compete on features, without considering how any such effects may make it more difficult for smaller *browser vendors* to differentiate themselves. The presentation of that analysis in SOI therefore significantly overstates the evidence base developed during the MEMS and its findings. Notably, one of the topics that Apple submitted in its response to the CMA's consultation on the market investigation reference proposal is "the lack of material barriers to new mobile browser entry". Paragraph 31 appears to show that the CMA has already decided to forgo such an investigation in favour of reliance on these unsupported findings.
17. The above examples highlight the need for the CMA in the market investigation phase to engage with Apple with respect to the evidence underpinning the issues covered by the SOI, in order to ensure that a thorough and fair assessment is conducted. As set out above, Apple is deeply concerned that overstated "findings" or "evidence" in the SOI indicate that the CMA does not intend to do so to the requisite degree in the phase 2 investigation.
18. This is particularly important given that much of the evidence and findings in the MEMS final report was driven by complaints from very well-funded detractors, such as Match.com, Epic Games, Microsoft and Meta, whose commercial interests are self-evident and cannot be presumed to align with those of smaller developers or consumers. For example, calls to remove the protections afforded by Guideline 4.9 in respect of cloud gaming are, in reality, no more than a request to allow streaming app developers like Microsoft unrestricted access to the App Store in a way that would bypass the consumer protections and benefits afforded by App Review and iOS, and is allowed for no other type of app. This could not only lead to significant consumer harm, but also risk the App Store losing its reputation as a safe and trusted platform, which is something that benefits all developers, particularly smaller developers. In phase 2 of the market investigation, the CMA cannot simply take such calls at face value, as paragraph 22 of the SOI appears to do.
19. The requirement for a thorough review and investigation of the evidence is also vital because the MEMS final report frequently relied on hypothetical considerations or concerns to the exclusion of positive evidence submitted by Apple, app developers and other interested parties. For example, with respect to mobile browsers, as set out in detail in Apple's response to the CMA's consultation on the market investigation reference proposal, the MEMS final

¹⁰ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, paragraph 364.

report ignored or failed to take properly into account the considerable body of evidence that Apple submitted which together shows that WebKit and the wider iOS ecosystem fosters competition between alternative mobile browsers, as well as from web apps. In particular, the CMA has failed to consider privacy and performance as parameters of competition at the ecosystem level as well as the value consumers place on the market leading privacy features and performance available to all users browsing the web on iOS devices. The CMA also failed to engage properly with the substantial body of objective technical evidence which Apple had submitted, both before and following publication of the CMA's interim report.

20. These failings cannot be repeated in the phase 2 market investigation.
(b) The SOI indicates that the CMA has pre-determined the outcome of its analysis on key issues
21. A natural consequence of the above requirement to investigate issues thoroughly is that the CMA must carry out such investigation with an appropriately open mind. In a number of instances, the SOI indicates that the CMA may be approaching key issues with a pre-determined view.
22. For example, paragraph 52 states *"We propose to focus our investigation on whether Apple's App Store policies effectively ban cloud gaming services from the App Store and whether this weakens competition in the distribution of cloud gaming."* This statement, following the framing at paragraph 49 that *"Apple's control over its mobile ecosystem allows it to set the 'rules of the game' for app developers, who rely on its App Store to reach customers and have limited ability to negotiate over terms, and that App Store policies and guidelines may have had the effect of restricting the emergence of cloud gaming services on iOS devices"*, indicates that the CMA intends to proceed in the phase 2 investigation on the basis of a narrow focus as to Apple's cloud gaming rules, rather than undertaking a fresh assessment of the policies behind such rules, factoring in their pro-competitive effects and justifications and wider benefits for consumers. In particular, in the MEMS final report, the CMA discussed but rejected (without any real consideration) the justifications that Apple had put forward for its cloud gaming rules.¹¹ Apple disagrees with the conclusion reached in the MEMS final report, but in any event the CMA is required in the phase 2 investigation to properly assess and reach its own conclusions on whether there are pro-competitive justifications for Apple's cloud gaming rules.
23. Similarly, paragraph 28 of the SOI states *"These concerns [relating to WebKit] could mean that development and innovation on the web is slower than it might otherwise be. This would mean the loss of new mobile products and services which might otherwise benefit consumers, businesses and the economy. It would also mean that existing products and services are worse quality or more expensive than they otherwise could be. Ultimately, consumers could be losing out on some of the benefits of the world wide web."* This speculative, one-sided framing indicates that the CMA already has pre-determined views as to the potential harm that it is supposed to be investigating afresh.
24. While the CMA and Inquiry Group are entitled to rely on evidence gathering conducted during the MEMS (as noted above), it is vital that the CMA and the Inquiry Group review all relevant *analysis and findings* with a fresh pair of eyes and refrain from pre-judging any issue in this phase 2 market investigation.

¹¹ MEMS final report, paras 6.253 to 6.254.

(c) Requirement to afford Apple due ability to challenge evidence

25. A key concern that Apple has with respect to the conduct of the market investigation in light of the approach in the SOI is that the CMA appears to be willing to rely in the phase 2 investigation on evidence, including third party statements, that Apple has not been given a chance to scrutinize, let alone comment on.
26. For example, paragraph 8 of the SOI states *“In determining the focus of our initial lines of enquiry, we have taken into account the evidence gathered and analysis carried out in the course of the Mobile Ecosystems Market Study (Market Study), comments received in response to the consultation on the Market Study Interim Report and in response to the CMA’s consultation on the scope of the proposed market investigation. In addition, we have had regard to an advisory steer that we have received from the CMA Board.”* [emphasis added] The CMA did not afford Apple any opportunity to review or comment on the evidence or analysis carried out in response to the CMA’s consultation, which took place following the issuance of the MEMS final report. Such evidence seems to underpin concerns that the CMA is now proposing to investigate, such as *“concerns that Apple may restrict the customisability and functionality of in-app browsers through changes that restrict the use of certain implementations”*.
27. Apple’s concerns in this respect are exacerbated by the fact that the CMA was unwilling to provide Apple any of the analysis underlying the various security expert opinions which it cited in support of its findings related to mobile browsers in the MEMS final report. The CMA’s failure to provide such an opportunity significantly undermined Apple’s ability to engage meaningfully with CMA findings and conclusions which rely in part on that evidence. Moreover, Apple considers as a matter of substance that the CMA has placed reliance on expert opinions which may be based on erroneous methodologies or inaccurate, irrelevant and/or partial information.
28. The phase 2 investigation cannot compound these failures. Instead, it must afford Apple the opportunity to test and comment on evidence that the CMA proposes to rely on.

B. The Features of Mobile Browsers, Browser Engines and Cloud Gaming show that there is no Adverse Effect on Competition (“AEC”)The competitive assessment in a phase 2 investigation

29. As set out in the CMA’s guidance, the *“core task [of the phase 2 investigation] is to assess the effects of possible features on competition. In conducting this assessment, the [CMA] will seek to establish whether or not any of the possible features, or any combination of them, can be expected to harm competition...”*¹² The guidance also stresses that, *“[i]n assessing the potential sources of harm, the CC considers aspects of the competitive situation that may, on the other hand, benefit competition and operate to the benefit of customers.”*¹³

Implications for the market investigation

30. Mobile browsers, browser engines and cloud gaming are products and services of a highly technical nature which are deeply embedded components of the wider iOS platform, and

¹² CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 154.

¹³ *Ibid*, para 173.

which require proper investigation. In this respect, Apple stresses that the CMA already has a wealth of evidence and analysis provided by Apple in the context of the MEMS that was not properly considered or reflected in the MEMS final report. This evidence shows clearly that the features of these products and services do not support an AEC finding.

31. On the contrary, a balanced review of the available evidence in fact shows that competition with respect to mobile browsers, browser engines and cloud gaming is robust and that, in particular, Apple's approach provides users with a valuable choice, centered around security, privacy and performance – the principles underpinning Apple's entire business model – between ecosystems, and in fact increases competition.

32. Apple provides below a summary of this evidence.

(a) WebKit pioneered mobile browsing to the benefit of the entire industry

33. As noted in the introductory section, it is undoubted that Apple is a leader in browser/engine innovation and has made a series of transformative contributions to the industry that have led to drastically improved market outcomes for users, developers, and browser vendors.

34. Indeed, Apple pioneered the very idea of a desktop-quality, touch-based web browsing experience on a mobile device via Safari, powered by WebKit. Prior to Safari, mobile browsing meant accessing a completely different, rudimentary, version of the Web.

35. In order to deliver a fully featured, touch-based web experience through a device the size of an iPhone, Apple had to develop the requisite technologies. Desktop-quality browsing technologies existing at that time were optimized for desktop computers and were not designed for the performance constraints and use-case considerations for mobile devices. As a result, Apple needed to adopt a novel approach to all aspects of the mobile browsing experience, including security, performance characteristics, and touch interface in order to unlock the true potential of mobile browsing.

36. The desktop-quality mobile browsing experience was foundational to the iPhone when it first launched, and it continues to be crucially important to the success of the iPhone today. Apple has continued its record of innovation with WebKit and Safari to deliver a robust set of features while maintaining market-leading performance and battery efficiency.

37. Importantly, Apple has consistently worked to develop new features for WebKit that benefit web developers. Apple introduced powerful features and capabilities like HTML canvas element and Touch Events, and has continued adding features like increased support for viewpoint units, the HTML dialog element, and Web App Manifest Icons. Apple has also announced support for Web Push.

38. Further, WebKit empowers developers to build features on top of WebKit to differentiate their browsers. This has fostered competition as developers have implemented numerous new features to differentiate their offering from Safari, such as Brave, which introduced Web Authentication and Global Privacy Control. Another means by which mobile vendors differentiate their offerings is through design application UI features. An example of this is Google Chrome, which is shipped with Voice Search and Translation on iOS.

39. It is clear, therefore, that Apple is responsive to the needs and demands of developers. However, Apple is committed to releasing new features only where they would not compromise device performance, security or privacy.

(b) WebKit and Safari offer real benefits to consumers in terms of “best in class” security and privacy features

40. Apple’s integrated business model offers consumers a clear alternative to the Android system, providing them with a real choice and differentiation on the key features of security and privacy.
41. WebKit and Safari have been leaders in privacy and security features for browsers, since the introduction of Private Browsing mode in 2005. Examples of innovative privacy and security features include:
 - Private Browsing: When a user searches using a Private Browsing window, Safari doesn’t save a list of the web pages visited, add typed information to AutoFill, or store the list of downloads and searches in the Smart Search field (though downloaded items remain on the device). This means that users on a shared device won’t be able to see which sites other users visited, what they searched for, or what they typed into web forms.
 - Intelligent Tracking Prevention: Intelligent Tracking Prevention uses on-device machine learning to block cross-site tracking, while still allowing websites to function normally.
 - Private Click Measurement: Private Click Measurement is an innovative way of doing ad click measurement that prevents cross-site tracking but still enables advertisers to measure the effectiveness of web campaigns.
 - Privacy Report: App Privacy Report provides users with details on how often their apps access their data – such as their location, camera, microphone and more. It also provides information about each app’s network activity and website network activity.
 - iCloud Private Relay: Internet connections set up through Private Relay use anonymous IP addresses that map to the region a user is in, without divulging the user’s exact location or identity. This allows users connect to and browse the web more privately and securely.
 - Lockdown Mode: Lockdown Mode offers an extreme, optional level of security for users who, because of who they are or what they do, may be personally targeted by sophisticated digital threats. Turning on Lockdown Mode further hardens a device’s defenses and limits certain functionalities, including just-in-time (“JIT”) compilation for web browsing, which sharply reduces the attack surface that could be exploited by highly targeted mercenary spyware.
 - Passkeys: Passkeys are a replacement for passwords that are designed to provide websites and apps a passwordless sign-in experience that is both more convenient and more secure. Passkeys are a standards-based technology that, unlike passwords, are resistant to phishing, are always strong, and are designed so that there are no shared secrets.
 - End-to-End Encryption for Passwords and iCloud Keychain: For additional privacy and security, Apple encrypts passwords in iCloud Keychain.

- Advanced Data Protection for iCloud: iOS users can enable Advanced Data Protection, which enables end-to-end encryption of Safari Bookmarks, History, Tab Groups, and iCloud Tabs.
42. These innovations result from robust competition, and have benefited users and prompted an increased focus on similar features from competitors.
 43. As stated above, security and privacy are key competitive differentiators, valued by consumers as they seek to choose what browser to use. Public reviews provide that advantages for iOS devices relative to Android devices are that they offers better app selection and better security and privacy.¹⁴
 44. Consistent with the above, survey data shows that for users, security and privacy is one of the top three reasons for purchasing an iPhone.¹⁵ Further, Apple considers that it is reasonable to expect that the value consumers place on privacy will increase in future as a result of increasingly common privacy initiatives across the industry, which aim to educate and empower users in order to counter invasive practices, many of which currently occur without user knowledge or consent.
 45. WebKit's integration with iOS is a key pillar underlying this, as it allows WebKit to utilize a number of effective security processes, including (1) a more robust sandbox functionality built on a decade's worth of security improvements and knowledge; (2) the ability to ship security updates for WebKit in a single, uniform approach that minimizes security vulnerabilities and prevents a long tail of unpatched apps; and (3) protections against vulnerabilities posed by JIT compilation.
 46. Further, whilst WebKit allows Apple to distribute important security updates to all apps in a single update, other platforms permit apps to embed different versions of their browser engines. As a result, apps may be allowed to continue using outdated embedded browser engine versions many months, or more, after security patches and fixes have been released by the browser engine vendor. For example, even a "dedicated" browser app, like the Samsung browser, which the MEMS final report notes has a 15% share of usage on Android in the UK, at the time of the IR had not updated its embedded browser engine in more than 5 months.¹⁶ The Epic Privacy Browser's Android app had not updated its embedded browser engine in nearly three years; whereas, at the time of Apple's response to the IR on 7 February 2022, its iOS app's browser engine was last updated on January 26, 2022.¹⁷ This kind of fragmented approach to browser security and privacy is far less able to address the security and privacy needs of consumers.
 47. Importantly, Apple provides all browser developers with access to WebKit so that they can leverage Apple's industry-leading privacy and security safeguards and innovations in their offerings, helping to ensure that users are protected no matter what browser they choose to use on their iOS device.

(c) Apple's WebKit requirement drives competition through its open source model

48. WebKit is open source, a vital fact whose significance appears to have effectively been ignored during the MEMS. WebKit began as a volunteer-supported community project, benefitting

¹⁴ [iPhone vs. Android: Which Is Better for You? | Reviews by Wirecutter \(nytimes.com\)](#).

¹⁵ Kantar Comtech GB research CQ1 2021 See, also, <https://www.nytimes.com/wirecutter/reviews/ios-vs-android/>.

¹⁶ Samsung Browser Chromium Release 92.0.4515.166 (last verified 7 February 2022).

¹⁷ Epic Privacy Browser Chromium Release 72.0.3626.121 (last verified 7 February 2022).

from input from a variety of contributors from a range of organisations, and it has been adopted by a range of vendors to render web content. Apple has also expended considerable effort to expand and support the project. With the development of the iPhone in 2007, which revolutionized the industry and enabled unprecedented, desktop-quality mobile browsing, Apple invested in and improved WebKit to the benefit of all browser vendors. Apple does not unilaterally dictate the features supported by the project, nor does it dictate which features ship on third-party ports of WebKit or WebKit-based browsers. WebKit project decisions are made via dialogue, consultation, and establishing a rough consensus for project goals.

(d) Apple's incentives as a device manufacturer preclude the self-preferencing conduct under consideration in the SOI

49. Apple has always been focused on delivering a premium consumer experience out-of-the-box, in line with users' expectations for Apple devices. Indeed, given the primacy of device sales to Apple's business model, it is economically rational for Apple to offer a high-quality and varied app ecosystem – including both integrated Apple apps and third-party apps – in order to maintain and increase the demand for Apple devices.
50. In practice, users are empowered to delete or change certain default settings and pre-installed apps, with users further enabled by various tools that aid switching. Since the release of iOS 10, users have had the ability to delete the limited number of Apple pre-installed apps and since iOS 14 they have also been empowered to change defaults for browser and mail client.

(e) Apple has taken active steps to encourage cloud gaming apps

51. Apple does not prevent cloud gaming apps from appearing on the App Store, or more broadly on iOS and iPadOS devices, nor is it trying to block the emergence of cloud gaming apps. As Apple has previously explained, it has worked hard with developers to specifically address the challenges that cloud gaming presents and, in fact, does allow them to offer cloud gaming services to users on iOS devices.
52. Apple currently provides developers with two options for offering cloud gaming to iPhone users: (i) web apps, which enable developers to take advantage of functionality in WebKit; and (ii) through native apps on the App Store. Developers can offer a single catalogue app that links to the App Store product page of each game included in the service.
53. With respect to web apps, Apple places no additional or special restrictions on cloud gaming web apps, as security or privacy issues are adequately addressed through the safeguards embedded within WebKit. Apple stresses that Facebook, Amazon, Microsoft and Nvidia would not have opted to invest significant resources to develop and offer cloud gaming via web apps unless they considered that the underlying technology and the access to this technology provided by Apple was sufficient to enable them to provide a competitive user experience.
54. As a case in point, since releasing performance enhancements to its web-based Xbox Cloud Gaming app on iOS, Microsoft announced a "significant increase in positive player feedback" and "35% longer play times."¹⁸ Xbox Cloud Gaming is now a thriving service, with Microsoft

¹⁸ Nicole Hilbert and Akshar Pandia, *Available Now: Performance Improvements for iPhone and iPad on Xbox Cloud Gaming*, Microsoft (Mar. 14, 2022), <https://news.xbox.com/en-us/2022/03/14/available-now-performance-improvements-for-iphone-and-ipad-on-xbox-cloud-gaming/>.

recently reporting that 20 million people have streamed games using Xbox Cloud Gaming, a roughly 100% increase in less than 7 months.¹⁹

55. With respect to native cloud gaming apps, Apple's App Store Review Guidelines require that each streaming game be submitted to App Review as an individual app. This approach enables a variety of user protections which are necessary to maintain that curated and trusted App Store ecosystem. As Apple has explained previously, games pose real and novel risks from a security/privacy perspective as compared to traditional media such as movies and music. Games are software that is dynamic, reacting to user input as well as interaction between users, and games can be modified to include objectionable content very rapidly. The nature of games is therefore distinct from content creation apps such as Roblox, which provide users with a standardised and fixed toolkit, which cannot be changed after the App Review process.
56. By reviewing each streaming game, Apple can ensure not only that the relevant consumer information described above is made available, but it can also apply software controls that prompt apps for user permission to share personal information with developers and allow parents to authorize their children's downloads. Such information and control via a product page is especially important for games given they are often targeted at children and children are some of the highest users of game apps.
57. The App Store's curated model, which involves applying the protections described above to all apps including streaming game apps before they are accessed by users, has helped foster trust among users to transact with native apps. This in turn has benefited developers and in particular smaller and less well-known developers. If each streaming game app on the App Store encompassed other streaming games that never go through App Review, those games could bypass all Apple protections completely, meaning that none of the above safeguards would apply and crucially the current high level of trust in the App Store ecosystem would be at threat. As explained above, in each case Apple's approach is consistent with its principles that ensure consumers are protected and its desire to maintain its reputation with consumers as a high-quality, safe and trusted platform.
58. By requiring that each game be submitted as an individual app, the Guidelines also ensure that such apps are discoverable through the main search channels in the App Store and in a manner that makes available the key information relevant to the user decision. Specifically, this approach ensures that each game will have its own App Store product page (which includes the game's age rating, user reviews, and privacy label), can be located in App Store search, and will be eligible for the App Store's charts and editorial sections (including the Today tab and showcases). iOS users trust that they will be able to discover great apps through the App Store and expect that product pages will provide them with the relevant information they need to make effective purchasing decisions, all while enjoying the underlying benefits and protections of the curated model.

(f) Apple's approach provides a real competitive alternative to Android which must be taken into account in determining any AEC
59. In determining whether there is an AEC, the CMA must take a holistic approach. The CMA's own guidance recognizes that the CMA's general discretion in deciding what tasks to prioritise

¹⁹ Tom Warren, *Microsoft Says More Than 20 Million People Have Used Xbox Cloud Gaming*, The Verge (Oct. 25, 2022), <https://www.theverge.com/2022/10/25/23423668/microsoft-xbox-cloud-gaming-20-million-people-streamed>.

in assessing the AEC test is constrained by a need to ‘*focus on the bigger issues.*’²⁰ The caselaw has made clear that in practice this means the ‘*depth and sophistication called for in relation to any particular relevant aspect of the inquiry needs to be tailored to the importance or gravity of the issue within the general context of the [CMA’s] task.*’²¹

60. What is at stake here is not simply intra-brand competition between different browsers/browser engines on iOS devices but the wider platform/inter-brand differentiation between iOS and Android.
61. As set out above, choice, the principles underpinning Apple’s entire business model, including its approach to browsers, browser engines and cloud gaming, center on security, privacy and performance. Apple offers an integrated, curated alternative to Android’s licensed OS. And the evidence shows that this alternative approach is widely valued by consumers. Apple devices are perceived as being of a higher quality than those of other manufacturers, with survey evidence showing that Apple’s brand scored higher than Samsung’s brand on statements such as ‘has products with the latest innovation’ (68% vs 62%) and ‘has products with appealing design’ (64% vs 56%).²²
62. A failure to recognise this competitive differentiation in favour of a narrow focus on individual elements, such as the number of browsers on iOS devices, would effectively ignore this important inter-brand competition and the choice it gives consumers. The harm from doing so is clear – Apple would effectively be forced to adopt Android’s model and consumers that prefer to choose devices on the basis of the overall performance and quality of the platform would lose that choice.
63. The phase 2 investigation must therefore take due account of, and afford sufficient weight to, the overall pro-competitive and pro-consumer benefits of Apple’s approach to privacy, security and performance, not just at it relates specifically to mobile browsers, browser engines and cloud gaming but also as it relates to the wider consumer offering.

(g) Any AEC assessment must take account of the particular benefits that Apple’s approach offers for vulnerable consumers

64. The CMA has an ongoing steer from Government to make markets work well for vulnerable consumers.²³ This is confirmed in the CMA’s latest Annual Plan, which states that “*[w]e are committed to continuing our work to better understand the issues facing consumers, including the vulnerable; to explain our decision-making and how it helps consumers; and to be a more visible, vocal advocate for consumers.*” and refers specifically to “*[t]he most vulnerable in our society, such as those on low incomes; people without access to online services or those who struggle to use them.*”²⁴ [emphasis added]
65. The importance of system design for people with disabilities is recognised by the UK Government, which recommends that app designers use native Android or iOS components

²⁰ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, paragraph 36.

²¹ *Barclays Bank plc v Competition Commission* (2009), CAT 27 (paragraph 21); citing *Tesco v Competition Commission* (2009), CAT 6 (paragraph 139).

²² As recognised in the MEMS final report at para 3.52.

²³ See <https://www.gov.uk/government/publications/consumer-vulnerability-challenges-and-potential-solutions/consumer-vulnerability-challenges-and-potential-solutions>

²⁴ <https://www.gov.uk/government/publications/competition-and-markets-authority-annual-plan-2022-to-2023/annual-plan-2022-to-2023>

when building an app in order to be accessible: “Where possible, use native Android or iOS components to build your app to be accessible. This normally means you get all the in-built accessibility features of the mobile operating system.”²⁵

66. When it comes to accessibility, it is undoubted that Apple’s approach is superior and offers benefits not available on Android. A 2021 WebAIM Screen Reader User Survey²⁶ which measured screen reader use, found that:

(i) 92.3% of the respondents used a screen reader due to a disability.

(ii) Respondents with disabilities used iOS devices at a higher rate than those without disabilities.

(iii) Respondents with a more advanced screen reader and high level of internet proficiency were much more likely to use iOS over Android.

67. The superiority of Apple’s approach for accessibility apps was also highlighted in response to the CMA’s consultation on the market investigation reference proposal. A developer of assistive technology identified clearly both the advantages of the Apple system and the risks to vulnerable consumers of forcing a change to that system:

The advantage of the locked-down nature of iOS is that it is consistent and under greater user control. Apple can mandate that all applications work a certain way, and their assistive technology tools can then work with the applications more effectively. For example, a blind person using the VoiceOver program to make their iPhone talk will only ever encounter web content on iOS displayed by the Safari engine because Apple forbids all other browser engines on iOS (for example, Google Chrome). That means that VoiceOver can do a better job than (say) a similar program on Android or Windows because the web content is consistently presented: if a button is always a button then VoiceOver can always say "button" and the blind user can use the webpage. If a different browser engine comes along and displays something that looks like a button but is, under the hood, something quite different, then the blind VoiceOver user might hear not "button" but "picture" or "link" or nothing at all. The consistency of iOS is beneficial to assistive technology and assistive technology users with disabilities.

Over the last twenty years many (perhaps most) users have moved to reliable, locked-down iOS from more open platforms like Windows, which they would not have done if the locked-down iOS was inferior. Android, of course, provides a much less locked-down environment, and excellent Android hardware is available: but hardly any of it is used in assistive technology (outside dedicated hardware) because having a more open environment in no ways assists disabled people. But it does mean that the market has provided a more open alternative: if a more open alternative was better for people with disabilities then Android might have been the leading platform for people with disabilities - but it is not better, and locked-down iOS has remained the leading platform for people with disabilities.

68. This response succinctly demonstrates the important competitive choice that Apple’s approach, including the WebKit requirement, not just for consumers who value privacy, security and performance, but for vulnerable consumers who rely on assistive technology and who have actively chosen Apple’s platform. It also succinctly demonstrates the harm that

²⁵ <https://accessibility.blog.gov.uk/2021/05/04/making-great-accessible-mobile-apps/>

²⁶ <https://webaim.org/projects/screenreadersurvey9/#mobile>

could arise for such consumers were the CMA to force Apple to change this approach in the name of increased intra-brand competition and become another version of Android. As noted further below, the CMA must take adequate account of how relevant customer benefits such as those described above are adversely impacted in further assessing the appropriateness of its proposed remedies.

69. In determining where there is an AEC, the CMA must take account of this competitive choice and the benefits that Apple provides to vulnerable consumers in particular.

C. Remedies proposed in the SOI are Inappropriate and Disproportionate

Remedies assessment in a phase 2 investigation

70. As recognised in the CMA guidance, “[the Enterprise Act 2022] requires the [CMA], in considering [remedies], ‘in particular to have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition and any detrimental effects on customers so far as resulting from the adverse effect on competition’. To fulfil this requirement, the [CMA] will consider how comprehensively possible remedy options address the AEC and/or its detrimental effects and whether they are effective and proportionate.”²⁷ There are thus three equally important elements to any consideration of remedies – (i) comprehensiveness; (ii) effectiveness; and (iii) proportionality.
71. The guidance further explains that “[i]n considering the reasonableness of different remedy options the CC will have regard to their proportionality ... In making an assessment of proportionality, the CC is guided by the following principles. A proportionate remedy is one that: (a) is effective in achieving its legitimate aim; (b) is no more onerous than needed to achieve its aim; (c) is the least onerous if there is a choice between several effective measures; and (d) does not produce disadvantages which are disproportionate to the aim.”²⁸
72. The judgment of the Competition Appeal Tribunal in *Tesco PLC v. Competition Commission* provides a “useful summary of the proportionality principles [...]: By virtue of that principle, the lawfulness of the prohibition of an economic activity is subject to the condition that the prohibitory measures are appropriate and necessary in order to achieve the objectives legitimately pursued by the legislation in question; when there is a choice between several appropriate measures recourse must be had to the least onerous, and the disadvantages caused must not be disproportionate to the aims pursued.”²⁹
73. The guidance goes on to note that phase 2 market investigation will consider the potential effects of remedies, positive as well as negative, including for the businesses that are subject to them.³⁰ It further states that, in deciding the question of remedies, the CMA may in particular “have regard to the effect of any action on any relevant customer benefits of the feature or features of the market concerned.”³¹

Implications for the market investigation

²⁷ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 329.

²⁸ *Ibid*, paras 324 and 344.

²⁹ Case 1104/6/8/08, *Tesco PLS v Competition Commission*, [2009] CAT 6, para. 136.

³⁰ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 348.

³¹ CC3 (Revised) Guidelines for market investigations: Their role, procedures, assessment and remedies, April 2013, para 355.

74. The potential remedies discussion in the SOI raises very significant concerns that the CMA's approach to remedies is unreasonable and disproportionate.
- (a) The SOI fails to consider whether remedies could disproportionately impact Apple's ecosystem*
75. As the guidance and case law above clearly state, remedies will be disproportionate (and thus unacceptable) if they go further than necessary to achieve their legitimate aim, produce disadvantages which are disproportionate to that aim, or are more onerous than other alternative remedies that would be effective.
76. The discussion of remedies in the SOI provides no indication that the CMA has given any consideration to these essential requirements. On the contrary, following a brief mention of the requirement for proportionality at paragraph 55, the CMA's discussion of remedies go on to "*consider measures which may be effective in increasing competition within the markets for mobile browser and browser engines*" and cloud gaming with no consideration or recognition of the potential for such remedies to have negative unintended impacts on other parts of the business (the reference at paragraph 85 appears to be aimed at mitigating unintended distortions of competition arising from the remedies, rather than unintended consequences for the Apple system). Indeed, far from recognising that potential remedies should be as narrowly tailored as possible, the SOI explicitly "*welcome[s] views on any other potential measures/remedies we have not set out above, including structural, with evidence on why they would be effective.*"³²
77. The CMA fails to even consider the possibility that the purported issues it has identified are not competition-related, which means that remedies intended to 'increase competition' in this case may be neither necessary nor appropriate. This contrasts to the more balanced approach which the CMA took in its music and streaming market study, where despite identifying that the market was characterised by significant concentration and a number of other issues, the CMA ultimately determined that competition remedies would not be effective. That position appears to have been driven by overriding indicia showing generally positive outcomes for consumers, including high levels of innovation. The present markets demonstrate a number of the same characteristics, including in particular positive outcomes for users as reflected in high satisfaction rates, which suggests that the CMA should not close its mind to the possibility that any issues it identifies may not be addressed by the standard 'competition toolkit.'
78. As Apple submitted on multiple occasions during the MEMS, the CMA must be cognisant of the fact that, to the extent it alters or removes elements of the platform, this could have a significantly negative impact on the overall platform, which currently drives user engagement and developer success. In particular, Apple's business is structured in a cross-functional way to maximize innovation, efficiency, and productivity, with different functions all working together cohesively and operational units being shared with multiple business groups. This specialized organisational structure makes it particularly likely that remedies imposed to address one specific element of browser engine competition, for example, could have a significant impact on other areas of Apple's business, and in turn, on the platform that benefits users and developers.
79. Indeed, taking a piecemeal approach to remedies, asking whether individual remedies could be imposed with "adequate safeguards" in order to foster competition within browser engines

³² Sol, para 86.

or cloud gaming specifically, runs counter to the CMA's own recognition that remedies which are designed to "allow more choice or competition within an ecosystem could in principle result in weaker protection for the security of users' mobile devices. This may be a particular concern where security is optimised across the ecosystem, and where changes in one part of the ecosystem could therefore have an adverse effect on the integrity of the system more generally."³³ This important consideration, which was raised by the CMA in its MEMS interim report, appears to have been wholly forgotten by the time of the final report and SOI.

(b) Proposed remedies in the context of cloud gaming are plainly unreasonable and disproportionate

80. The CMA's market investigation is bounded by the Terms of Reference, which set out the markets that have been referred for consideration, in this case: "the supply of mobile browsers and mobile browser engines" and "the distribution of cloud gaming services through app stores on mobile devices (and the supply of related ancillary goods and services)".
81. In the CMA's decision to open the market investigation, it explained that it did not intend to expand the scope of the investigation beyond mobile browsers, browser engines and cloud gaming because "a targeted investigation will be more manageable to deliver results in a timely manner".³⁴ The Board Advisory Steer also specifies that "the MIR has been scoped with the intention of enabling any required targeted action in relation to mobile browsers and cloud gaming, with a focus on specific discrete issues".³⁵
82. In this vein, the MEMS final report, the CMA stated that "the interventions we have considered as part of this market study could be implemented effectively through a market investigation, and without the need for a wider package of complementary interventions in connected markets".³⁶
83. Apple is therefore particularly concerned by some of the remedy options that the CMA is now considering in relation to cloud gaming, which appear to fall outside the underlying basis for the market investigation. Specifically, the SOI proposes remedy options under the pretext of addressing cloud gaming concerns that, on their face, appear to be designed for the purpose of addressing concerns which the CMA identified relating to app distribution generally in the MEMS final report. Paragraphs para. 82(d) and (f) suggest potential remedies requiring Apple to enable sideloading of native apps on iOS and the installation of alternative app stores on iOS.
84. Such potential remedies are conspicuously absent from the CMA's consultation on the market investigation reference proposal and its Reference decision, both of which contained identical lists of potential remedies that did not include either of these draconian possibilities.³⁷
85. Further, it is without doubt that these remedies are aimed, not at cloud gaming, but at wider concerns identified in the MEMS final report with app distribution, for which the CMA considered that alternative actors/action was better placed to address those concerns. In this respect, as can be seen from Table 8.1 of the MEMS final report, the CMA considered that "requirements to allow third-party app stores and sideloading, subject to appropriate safeguards" would most appropriately be for the Digital Markets Unit to address.

³³ MEMS interim report, para 7.27.

³⁴ Reference Decision, para 4.4.

³⁵ Board Advisory Steer, para 10.

³⁶ MEMS final report, para 9.15.

³⁷ See Consultation at para 2.37 and Reference Decision at para 3.28.

86. It is therefore plainly inappropriate and unreasonable for the CMA to now attempt to shoehorn these remedies into its consideration of cloud gaming. Such an approach appears to be an effort by the CMA to circumvent the requirements of the markets regime by attempting to address concerns identified in the phase 1 market study in relation to the distribution of native apps through the mechanism of a phase 2 market investigation for which app distribution is out of scope.

(c) The consideration of remedies in the SOI expands, without reason or justification, the potential scope of remedies identified in the MEMS final report.

87. As Apple has previously submitted, the CMA should be mindful of the potential downsides and difficulties in attempting to substitute a regulator's judgment for that of the business with respect to individual commercial issues. This is particularly clear in relation to possible remedies, where the SOI appears to expand the remedies previously considered with respect to browsers and browser engines, without any consideration or consultation as to why that might be appropriate.

88. For example, at paragraph 61, the SOI notes that "*it could also be effective to mandate access to certain functionality for alternative browser engines on its devices to ensure that competing engines start from a level playing field*". Such a possibility was considered in the MEMS final report with respect to mobile browsers, but not browser engines. The CMA's consideration of an intervention to enable third party browser engines to access iOS in the MEMS final report did not discuss in meaningful detail the consequences or implications of mandating access to certain functionality. Similarly, at paragraph 63, the SOI raises "potential options" of (a) requiring equality of functionality/access with the operating systems' browser engine; and (b) granting alternative browser engines access to certain APIs or functionality on the operating system. Neither were meaningfully assessed as potential remedies for browser engines in the MEMS final report, nor were their risks fully vetted.

89. This expansion of remedies, without consideration or reasoning, highlights the risks of a regulator simply considering that possible action may be a good idea, without having carried out the necessary technical consideration of risks and trade-offs. Apple recognises that the SOI is far from setting out a definitive view on potential remedies, but nonetheless considers that it is important to set out from the start the risks that the CMA is running with this type of approach.

(d) The CMA's proposed remedies would effectively turn Apple into a clone of Android

90. As discussed above, Apple's approach offers a real and valued competitive alternative to Android. This is true for consumers generally who value device performance; for those consumers who particularly value security and data privacy; and for vulnerable consumers who rely on assistive apps and a consistency of experience to allow them to properly access the functionality that mobile devices can bring. In line with its guidance, the CMA must have regard to the adverse impact of each of the significant relevant customer benefits outlined above in further considering the appropriateness of those remedies.

91. Even the briefest review of the possible remedies discussed in the Statement Issues shows that the effect of these would be to remove that differentiation. Apple would be required to (i) remove the WebKit requirement (and thus prevent uniform updates of apps rendering web content, as Android does); and (ii) enable sideloading and alternative apps stores (as Android does) and thus degrade the robust user protections of Apple's curated model.

92. The effect of such remedies is obvious – Apple would be turned into another version of Android, losing the very basis on which it can provide a real alternative to Android that offers demonstrable value for consumers. Wider consumer choice would thus be reduced through these remedies.
