Appendix A: Terms of reference

1. In exercise of its duty under section 33(1) of the Enterprise Act 2002 (the **Act**) the Competition and Markets Authority (**CMA**) believes that it is or may be the case that:

    (a) arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation, in that:

        (i) enterprises carried on by Adobe Inc. will cease to be distinct from enterprises carried on by Figma, Inc.; and

        (ii) the condition specified in section 23(2)(b) of the Act is satisfied; and

    (b) the creation of that situation may be expected to result in a substantial lessening of competition within a market or markets in the United Kingdom for goods or services, including in the supply of:

        (i) screen design software; and

        (ii) several types of creative design software, namely vector editing, raster editing, video editing, and motion design.

2. Therefore, in exercise of its duty under section 33(1) of the Act, the CMA hereby makes a reference to its chair for the constitution of a group under Schedule 4 to the Enterprise and Regulatory Reform Act 2013 in order that the group may investigate and report, within a period ending on 27 December 2023, on the following questions in accordance with section 36(1) of the Act:

    (a) whether arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and

    (b) if so, whether the creation of that situation may be expected to result in a substantial lessening of competition within any market or markets in the United Kingdom for goods or services.

Sorcha O'Carroll
Senior Director, Mergers
Competition and Markets Authority
13 July 2023

Appendix B: Conduct of inquiry

1.   On 13 July 2023, the CMA referred the anticipated acquisition by Adobe Inc. (**Adobe**) of Figma, Inc. (**Figma**) (the **Parties**) for an in-depth phase 2 inquiry.

2.   We published the biographies of the members of the Inquiry Group conducting the phase 2 inquiry on our inquiry webpage on 13 July 2023.

3.   The original administrative timetable for the phase 2 inquiry was published on the inquiry webpage on 21 July 2023. At the commencement of the inquiry, the statutory deadline was 27 December 2023, but this was subsequently extended to 31 December 2023 as a result of the failure by Figma to comply with the requirements of a notice issued on 1 August 2023 under section 109 of the Act to provide certain documents and information. On 16 August 2023 the Inquiry Group decided pursuant to section 39(4) of the Act that the reference period should be extended until Figma complies with the requirements of the section 109 notice, or the CMA publishes its decision to cancel the extension. A notice of extension was published on the inquiry webpage on 17 August 2023. Following receipt of the outstanding documents and information, we re-started the statutory timetable on 21 August 2023 and a notice of termination of the extension was published on the inquiry webpage the same day. On 21 August 2023, a revised version of the administrative timetable was also published on the inquiry webpage.

4.   On 23 October 2023, the Inquiry Group decided to extend the reference period by eight weeks under section 39(3) of the Act to 25 February 2024. In taking this decision, the Inquiry Group had regard to the complexity of this case and the need to carefully consider the Parties' detailed submissions received in response to the annotated issues statement and working papers. As noted in our issues statement, an important aspect of competition in this case is competition in innovation, specifically competition in product development between firms. This dynamic competition involves efforts or investments aimed at protecting or expanding a firm's market position and profits in the future. As such, the competitive assessment needs to consider, amongst other matters, the Parties' growth strategies, including innovations, investments and product development and how such matters impact the Parties' abilities and incentives to enter or expand in the relevant markets. The Parties have made a number of detailed arguments on these points (including technical submissions and additional econometric analysis). It is necessary to allow sufficient time for the Inquiry Group to take full and proper account of these submissions (in addition to all other relevant evidence) in order to reach a fully reasoned final decision in the statutory timeframe. A notice of extension was published on the inquiry webpage on 25 October

2023. A revised version of the administrative timetable was also published on the inquiry webpage on 25 October 2023.

5.   We invited a wide range of interested parties to comment on the Merger. These included the Parties' competitors and customers. Evidence was obtained from third parties using questionnaires and written requests. A number of them also provided us with information through video conference calls as well as by responding to supplementary written questions. Evidence submitted during our phase 1 investigation has also been considered in phase 2.

6.   The CMA received confidentiality waivers from the Parties to share information with other competition authorities, including the European Commission, the DOJ (US), the JFTC (Japan), and the KFTC (Korea). We have received a number of submissions from the Parties to other authorities, most notably depositions from key Adobe and Figma executives provided to the DOJ and considered these in our analysis. Throughout the inquiry the CMA has consulted with the other authorities investigating this Merger. On 17 November 2023, the European Commission announced it had sent a Statement of Objection to the Parties.

7.   We received a number of submissions from the Parties as well as responses to information requests, including a substantial volume of internal documents.

8.   On 26 July 2023, we published an issues statement on the inquiry webpage setting out the areas on which we envisaged the phase 2 inquiry would focus. A non-confidential version of the Parties' joint response to the issues statement was published on our inquiry webpage on 28 September 2023. A non-confidential version of the Parties' submission entitled 'Appraisal of evidence for the theories of harm being assessed during the phase 2 review' was also published on our inquiry webpage on 28 September 2023.

9.   On 26 and 27 July 2023, members of the Inquiry Group, accompanied by CMA staff, attended technical demonstrations/teach-ins via video conference, separately with each Party and its advisers. On 2 and 3 August 2023 members of the Inquiry Group, accompanied by CMA staff, attended site visits with each Party and its advisers.

10.   We held separate main party hearings with each of the Parties on 4 October 2023 and 5 October 2023.

11.   Prior to the hearings, we sent the Parties a number of working papers for comments. The Parties were also sent an annotated issues statement which outlined our emerging thinking prior to their respective hearings. The Parties

provided comments on our annotated issues statement and working papers on 13 October 2023.

12.   A non-confidential version of our provisional findings report has been published on the inquiry webpage. As we have provisionally concluded that the Merger constitutes arrangements in progress or contemplation which, if carried into effect, will result in the creation of an RMS, and that the creation of that RMS may be expected to result in SLCs by reference to certain markets investigated by the Inquiry Group, a notice of possible remedies (the **Remedies Notice**) has also been published on the inquiry webpage. Interested parties are invited to comment on both of these documents.

13.   We would like to thank all those who have assisted in our inquiry so far.

Appendix C: Assessment of the Parties' switching and customer growth analysis

Individual level switching analysis

Parties' analysis

1.   The Parties submitted analysis produced by CRA on individual level switching. This analysis included the following papers:

      (a) The CRA 'Analysis of Switching between Figma Design and Adobe XD' dated 11 September 2023 including;

            (i)   A summary note describing the methodology and key results;[1] and

            (ii) Annex 1 containing a spreadsheet with more detailed results;[2]

      (b) The CRA 'Analysis of Figma Design and Adobe XD usage', submitted in response to Working Papers, which included the same individual level switching analysis as above, and additional analysis of the use of Figma Design and Adobe XD at the organisation level (discussed in the next section).[3]

      (c) CRA's presentation of this analysis on 7 November 2023, including a slide deck with additional robustness checks.[4]

2.   The Parties submitted that this analysis shows that [✄]% of users that stopped using Figma Design switched to Adobe XD, and that [✄]% of users that stopped using Adobe XD switched to Figma Design. The Parties submitted that this demonstrates that Adobe XD was a *de minimis* constraint on Figma Design even before investment in Adobe XD was reduced in October 2021.[5] The Parties also submitted that this is consistent with Adobe XD and Figma Design being used for different use cases.[6]

3.   CRA's analysis uses email address matching to identify customers who switched from Adobe XD to Figma Design and vice-versa.

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[1] Parties', Submission to the CMA.
[2] Parties', Submission to the CMA.
[3] Parties' response to working papers.
[4] Parties', Submission to the CMA.
[5] Parties' response to working papers.
[6] Parties' response to TOH 1 working paper.

4.   The analysis uses data from [✂]. This [✂]. It includes information on [✂]. For Figma, the analysis uses [✂]. It includes information on [✂].

5.   CRA's methodology is described below for users switching from Figma Design to Adobe XD. The same methodology is applied in reverse for users switching from Adobe XD to Figma Design.

   (a) First, the number of users that used Figma Design for the last time in each of the five quarters from Q1 2021 to Q1 2022 was identified. These users were split further based on the number of consecutive months they had used Figma Design prior to their last usage.

   (b) Second, to determine which of the customers that stopped using Figma Design switched to XD, these users' email addresses were matched with the Adobe XD dataset, allowing them to be split into three categories:

      (i)   Category 1: users that were not in the Adobe XD dataset at all, and therefore could not have switched to Adobe XD (with the same email address);

      (ii) Category 2: users that had used Adobe XD, but only prior to their last usage of Figma Design, and therefore could not have switched to Adobe XD (with the same email address); or

      (iii) Category 3: the remaining users, labelled as 'potential' switchers.

   (c) Finally, switchers from Figma Design to Adobe XD were identified as users in Category 3 who first started using Adobe XD within three months either side of their last usage of Figma Design (**first condition**) and used Adobe XD for at least six of the twelve months following their last usage of Figma Design (**second condition**). This is labelled as Scenario 1.

6.   Some sensitivity analyses were conducted relaxing the above conditions:

   (a) Scenario 2 – the second condition is relaxed, such that switchers must have used Adobe XD for at least **four** of the twelve months following their last usage of Figma Design;

   (b) Scenario 3 – the second condition is relaxed, such that switchers must have used Adobe XD for at least **two** of the twelve months following their last usage of Figma Design; and

   (c) Scenario 4 – the first condition is removed entirely.

7.   In the Parties' response to working papers, the analysis included an additional assessment showing that the number of switchers from Adobe XD to Figma

Design (and vice-versa) relative to the change in Figma Design's user volumes, which they submitted was [✄].[7]

8. The Parties also submitted individual switching analysis using the same methodology restricted to email addresses belonging to the largest overlapping corporate email domains in terms of Figma Design and Adobe XD users in January 2023 ([✄]). In this analysis the rate of switching from Figma Design to Adobe XD is [✄]% under Scenario 1, and [✄]% under Scenario 4. The rate of switching from Adobe XD to Figma Design is [✄]% under Scenario 1, and [✄]% under Scenario 4. The Parties submitted that it was '[✄]'.[8]

Our assessment

9. We have several concerns with the Parties' switching analysis. On this basis, our view is that the analysis does not provide support for the Parties' argument that Adobe XD does not constrain Figma Design.

Conceptual issues

10. Conceptually, switching ratios capture the frequency with which customers of each of the Parties switch to the other Party in the ordinary course of business, out of the total number of each Party's customers who switch to an alternative. High switching rates between the Parties, relative to the switching rates between the Parties and alternative competitors, can be evidence of closer competition between the Parties than between the Parties and alternative competitors.

11. The analysis submitted does not provide a relative comparison of switching rates between the Parties and alternative competitors. Estimates of the rate of switching to alternative competitors would provide context to the results and allow us to assess whether the low switching rates between the Parties reflect a limited constraint on one another, or, on the contrary, are indicative of low switching rates in the market generally.

12. We note that in software markets, switching costs are generally high, including due to steep learning curves and customer stickiness to the tool adopted. In the market for all-in-one product design software, the evidence we collected shows that switching costs are high, as set out in paragraphs 8.22 to 8.28. High switching costs lead to lower levels of switching relative to other markets, so low switching rates are not unexpected. On the contrary,

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[7] Parties' response to working papers.
[8] Parties', Submission to the CMA.

competition to acquire new customers is particularly important in markets characterised by switching costs and in growing markets, as it is the case for all-in-one product design software. This competition is not captured by a switching analysis.

13. The Parties have submitted that the market for all-in-one interactive product design software is growing significantly. Adobe projected that product design is a fast market growing category, with a total addressable market of around USD [✂] billion by 2025.[9] Adobe's growth projections for Figma estimate that Figma's ARR would [✂] from USD [✂] million in 2022 to USD [✂] million in 2025.[10] This is supported by evidence from the Parties' internal documents, which highlight the importance of winning [✂].[11]

14. Regarding the Parties' submission that the number of switchers from Adobe XD to Figma Design (and vice-versa) [✂],[12] we do not think that this demonstrates that Adobe XD is a weak competitive constraint on Figma Design. In fact, this metric is consistent with a significant proportion of Figma Design's recent growth being from new users (as opposed to customer switching from competitors). This metric does not provide any indication of the nature of competition for these new users, ie who Figma competed with and how.

Issues with the methodology for estimating switching ratios

15. Considering the Parties' methodology and assumptions in more detail, we have identified a number of limitations which may cause the switching rates to be underestimated.

16. As noted above, switching rates are estimated as the ratio between users who left Figma Design and joined Adobe XD (based on email matching) and the total number of Figma Design users that have left Figma.

17. First, the analysis uses as the denominator the total number of users that stopped using Figma Design (based on the email address no longer corresponding to an active account). This overestimates the population of interest, which would be users who stopped using Figma Design to move to a competing product. For example, a user may have stopped using Figma Design on a given email address because they retired, changed profession,

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[9] Adobe Internal Document.
[10] Adobe Internal Document.
[11] For example, see Adobe Internal Documents.
[12] Parties' response to working papers.

finished education, or took an extended period of leave. The analysis makes no attempt to adjust the denominator to account for this.

18. Second, email address matching is an imperfect method for identifying switching customers. Email addresses may no longer be associated to an active account because the user has changed job or finished education. These email addresses are included in the denominator even though the user may have continued to use Figma Design on another email address, for example by moving to a new company but continuing to use Figma Design on a new work email address. In addition, individuals may use multiple email addresses and therefore may access Figma Design and Adobe XD using different email addresses. Switching behaviour from these individuals could be missed by this email matching methodology.

19. With respect to email matching the Parties submitted that the [✁], and therefore that email matching is robust and '[✁]'.[13] In our view, however, the accuracy of email matching for estimating overlaps in product use at a given point in time, is not indicative of its accuracy for estimating switching between products, which requires tracking the product use associated with an email address over time. Changes in an individual's email address as described in the previous paragraph will affect the accuracy of switching estimates based on email address matching but would not create an issue for overlap estimates.

20. Third, the denominator may include users who only used Figma Design as reviewers for a short period of time and infrequently. For example, someone reviewing a time limited project as little as once a month would be included as a Figma Design user. These users would be included in the denominator but would not be expected to switch to a competitor.

21. Finally, the condition that switchers must have started using Adobe XD within three months either side of their last usage of Figma Design is likely to exclude some users who switch more gradually. Third-party evidence suggests that users are more likely to shift usage from one software tool to another gradually over time, and are therefore unlikely to try a new tool and completely switch within three months.[14] This condition is removed under sensitivity analysis in scenario 4 and leads to significant increases in the estimated switching rates from Adobe XD to Figma Design, for example from

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[13] Parties, Submission to the CMA.
[14] For example, third-party evidence indicated that organisations switch away from software products gradually because they may have projects started on that software that they still need to work on, because their clients have a preference for certain software, or because there are certain tasks that they prefer to use that software for, see paragraph 8.103.

[✂]% to [✂]% in 2021 Q4 (although due to the reasons set out above this is still likely to significantly understate the extent of switching).

22. Regarding the individual switching analysis restricted to email addresses belonging to the largest overlapping corporate email domains in terms of Figma Design and Adobe XD users, we note that this analysis largely suffers from the same limitations as the broader individual switching analysis and will also be skewed towards larger customers. Although individual users within these corporate email domains may be unlikely to use different email addresses to access Adobe XD and Figma Design at a point in time, restricting the analysis to these users does not address our concerns around the denominator resulting from users stopping using Figma Design but not switching to a competitor, or changing email address, or the impact of switching gradually. The conceptual issues outlined in the previous section also still apply.

Inconsistency with other evidence sources and submissions

23. Putting aside the fact that low switching rates are to be expected in this market and may not necessarily imply a lack of competitive interaction, the very low switching rates estimated by the Parties appear inconsistent with other evidence sources and submissions from the Parties received by the CMA:

     (a) **Internal document evidence**: Adobe's internal documents show significant concern about losing customers to Figma Design, as set out at paragraph 8.117. In addition, internal documents do demonstrate some instances of customers switching.

     (b) **Third-party evidence:** Third-party evidence indicates that some customers have switched from Adobe XD to Figma Design (some described having switched to Figma Design within the last two to three years).[15] In addition, some large customers ([✂] and [✂]) considered Figma Design and Adobe XD to be alternatives and described switching to Figma Design recently.[16]

     (c) **Parties' submissions**: The Parties' submissions have consistently stated that Adobe XD lost customers to Figma Design. For example, the

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[15] Third-party responses to the CMA's phase 2 large and mid-sized customer questionnaire, [✂], [✂], [✂], [✂], and [✂].
[16] Third-party call transcripts: [✂]; and [✂].

response to the TOH1 working paper states that major customers including [✂].[17]

24. This evidence suggests that the Parties' switching analysis significantly underestimates the switching from Adobe XD to Figma Design due to the methodological issues discussed above. It is also likely that these same methodological issues cause the Parties' analysis to significantly underestimate switching from Figma Design to Adobe XD.

Organisation level customer growth analysis

Parties' submissions

25. The Parties submitted additional analysis of the use of Figma Design and Adobe XD at the organisation level, finding that:[18]

    (a) Figma Design's user base at '[✂]' is generally [✂] than Adobe XD's user base.

    (b) Since October 2021 (when Adobe resources were switched away from Adobe XD) only [✂] of analysed organisations grew their usage of Adobe XD whilst reducing their usage of Figma Design, and [✂] grew their usage of Figma Design more than their usage of Adobe XD.

26. First, focusing on five organisations highlighted in the CMA's working papers as continuing to use Adobe XD ([✂], [✂], [✂], [✂], and [✂]), the Parties' analysis shows that whilst the number of users of both Adobe XD and Figma Design has grown between [✂] and [✂], the number of Figma Design users at each organisation has [✂] than the number of Adobe XD users.

27. Second, the analysis looks at 'overlapping' corporate organisations based on email domains that had at least one Figma Design user and at least one Adobe XD user in January 2023. Of the [✂] domains where this was the case, an assessment was completed to determine the change in active users of Figma Design and Adobe XD between [✂] and [✂]. This assessment was completed on the [✂] corporate domains in terms of Figma Design and Adobe XD users [✂], and also on two broader set of domains.

28. The analysis of top corporate domains found:

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[17] Parties' response to TOH 1 working paper.
[18] Parties' response to working papers.

(a) For the [✄] domains based on Figma Design users: the change in Figma Design users ranged from [✄] to [✄], whilst the change in Adobe XD users ranged from [✄] to [✄]. Considering paid users of both products,[19] the change in Figma Design users ranged from [✄] to [✄], whilst the change in Adobe XD users ranged from [✄] to [✄].

(b) For the [✄] domains based on Adobe XD users – the change in Figma Design users ranged from [✄] to [✄], whilst the change in Adobe XD users ranged from [✄] to [✄]. Considering paid users of both products, the change in Figma Design users ranged from [✄] to [✄], whilst the change in Adobe XD users ranged from [✄] to [✄].

29. For the broader lists of corporate domains, the Parties' analysis showed that for the [✄] of organisations, use of Figma Design increased by more than use of Adobe XD.

Our assessment

30. Whilst the Parties' analysis demonstrates that Figma Design is more successful and is growing faster than Adobe XD, this does not necessarily indicate that Adobe XD is a 'very weak constraint on Figma Design' as submitted by the Parties.[20]

31. In the context of a growing market with competition for new customers (or for new users within existing organisational customers), it is not necessary for an organisation to reduce its use of Figma Design whilst increasing its use of Adobe XD for Adobe XD to impose a competitive constraint on Figma Design. The presence of Adobe XD may limit the increase in use of Figma Design in an organisation. In many of the organisations analysed, use of Adobe XD increased at the same time as use of Figma Design (albeit at a slower rate), which may indicate a constraining effect on Figma Design's growth. We also note that at the time that the Merger was first contemplated Adobe XD had [✄] million active monthly users[21] which could potentially be using Figma Design, therefore regardless of the relative growth levels, Figma would still have an incentive to compete to win these potential customers.

32. As with the individual level switching analysis, there is no comparison of the organisation level usage of alternative competitors. It is therefore not possible to assess the competitive constraint that Adobe XD imposes on Figma Design relative to alternative competitors. Whilst we acknowledge that Adobe XD is

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[19] Figma's data does not directly record a field identifying 'paid users'. In CRA's analysis, Figma's paid users correspond to users who had rights to edit a team file under a paid plan.
[20] Parties' response to working papers.
[21] Adobe Internal Document.

weaker than Figma Design, even a weak constraint from Adobe XD may be significant, and consequently its removal may significantly reduce competition, if there are only few constraints on Figma Design. We also note that Adobe was investing in Project Spice to improve the competitiveness of its product design offering relative to Figma Design (see paragraphs 8.136 to 8.182).

Provisional assessment of the Parties' switching and customer growth analyses

33.   Our provisional view is that, given the conceptual and methodological concerns with this analysis set out above, the Parties' switching analysis does not provide support for the Parties' argument that Adobe XD does not constrain Figma Design. The conceptual concerns mean that, in our view, the estimated switching ratios between the Parties are not informative of the extent of competition between the Parties (eg in the absence of switching ratio estimates for competitors). Our concerns with CRA's methodology mean that, in our view, the estimated switching ratios are likely to materially underestimate the extent of switching between the Parties. This is consistent with our consideration of other evidence sources, which indicate that (i) low switching rates are to be expected in the market for all-in-one product design software; and (ii) to the extent that customers switch, there is a significant degree of switching from Adobe XD to Figma Design. While the extent of switching from Figma Design to Adobe XD is likely to be lower, the Parties' analysis does not provide a robust estimate of the degree of switching. Furthermore, as discussed in Chapter 8, Adobe was investing heavily in Project Spice and the constraint exerted on Figma Design by Adobe's future developments is not captured in this analysis.

34.   Our provisional view on the Parties' growth analysis is that it shows that Figma Design is growing significantly faster than Adobe XD indicating that Adobe XD is less successful than Figma Design in winning new customers. However, this does not mean that Figma Design is not constrained by Adobe XD. As discussed in Chapter 8, Adobe XD is one of only two significant competitive constraints faced by Figma Design. Further, as with the switching analysis, this analysis does not capture the competitive impact of Adobe's ongoing investments in Project Spice.

Appendix D: Parties' technical arguments

Introduction

1.   The Parties have submitted a number of arguments, in particular in relation to the technical challenges that faced Project Spice and the technical ability of Figma to develop vector and raster editing software. In this appendix we first set out some background information, including how software is written and delivered over the world wide web ('the web'), and an introduction to some of the technical concepts relied on by the Parties in their submissions. We then set out the Parties' submissions and our assessment of those submissions. Finally, we set out our provisional conclusions.

2.   This appendix supplements and should be read in conjunction with the main Provisional Findings, in particular Chapters 8 and 9.

Relevant technology

3.   The technical arguments considered in this paper relate to the ability of the Parties to develop new products or expand the offering of current products on the web. Therefore, in order to assess the technical aspects of the Merger, it is important to first consider the wider context of how software is written and delivered over the web, and how web technology has evolved over time.

4.   In particular, we have focused on four key developments that provide important background for considering the Parties' technical ability to develop products or expand their current offerings. These are:

    (a) web versus desktop software, and web standards;

    (b) WebGL and WebGPU;

    (c) WebAssembly (WASM); and

    (d) Google's Project Fugu.

Web software

5.   Before the web emerged, computer software was usually written to run on a specific type of computer system. For example, the first version of Photoshop was written specifically for the Apple Macintosh and was later 'ported' to run on Windows.[1] At the time the programmers optimised some parts of the first

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[1] 'The Evolution Of Photoshop: 25 Years In The Making', accessed by the CMA on 23 November 2023.

version of Photoshop with the specific hardware components of the Macintosh computer in mind. Software like Photoshop, that is written to run on a specific type of computer system, is called 'native' software.

6.   In contrast, web technology is 'cross-platform', meaning most web technology is device agnostic and in general software does not need to be ported or rewritten to run on different types of computer system (like Windows or Mac). The functioning of the web therefore depends on standardisation, agreements, and 'backwards compatibility'.[2] For example, web developers usually ensure the technology they use to develop their websites or web content will be supported by the web browser that their users have (eg Microsoft Edge).[3] Sometimes even standardised web specifications are implemented slightly differently by different web browsers, which can be challenging for web developers.

7.   Nevertheless, in some ways the web also offers benefits. It is cross-platform by default, can uniquely interconnect different applications, and simplify software updates. This means that it can also be easier to develop software for the web than for specific platforms.[4,5]

Web standards, including WebGPU

8.   'Web standards' are formal specifications that describe how web content or web software can be delivered to users. They allow web developers to create web content or web software that they know will be presented correctly by compatible web browsers. Web standards also allow the developers of web browsers to innovate and develop new technology, which in turn allows developers of software on the web to take advantage of these technologies and build rich and interactive web sites and web apps. There are various organisations involved in developing web standards, such as browser developers and non-profit standards bodies.

9.   Many web standards define a web Application Programming Interface (**API**). In general, an API allows system-to-system communication, but the term '**web API**' is usually specifically associated with web standards. Once a web browser (such as Google Chrome) adopts a web standard for a web API, any web developer writing a web application can develop application functionality that relies on the functionality exposed by that API and be confident that the

[2] 'Mozilla Developer Network: The web and web standards', accessed by the CMA on 23 November 2023.
[3] 'Introduction to cross-browser testing - Learn web development | MDN', accessed by the CMA on 23 November 2023.
[4] 'Microsoft Learn - Overview of Progressive Web Apps (PWAs)', accessed by the CMA on 23 November 2023.
[5] Ian Sommerville, *Software Engineering* (9th edn, Pearson Education Inc.), page 13.

web application will work for any user of the web application using that web browser.

10. Some examples of common web APIs are APIs allowing web developers to write applications that manipulate web pages, draw and manipulate graphics, or access devices (like the camera and microphone) via the user's web browser.[6] For example, the '**WebGL**' (Web Graphics Library) standard allows web developers to develop web software containing interactive 3D graphics in a similar way to the way such graphics are developed for desktop computers.[7] Figma currently uses WebGL in Figma Design.[8]

11. The '**WebGPU**' standard succeeds WebGL and aims to 'expose the capabilities of GPU hardware (Graphical Processing Unit, a type of computer hardware responsible for graphics) for the web'.[9] WebGPU was initially designed in 2017. Although it is still formally a draft web standard, WebGPU became available in Google Chrome and Microsoft Edge in April 2023.[10] As one online news source reported, 'Google has just unveiled a huge improvement for browser games – WebGPU. The new [web] API might revolutionize the idea of playing games in the browser, and it won't be limited to just Google Chrome'.[11] An academic paper published in April 2023 suggested similarly that for certain types of high-performance web software 'WebGPU is probably the most promising API on the horizon'.[12]

12. Nevertheless, a guide from Google explains that WebGL and WebGPU 'share many core concepts' and that 'although the two languages are different, the underlying concepts are mostly the same'.[13]

WebAssembly (WASM)

13. A relatively recent web standard, which has been developed by W3C since 2017, is WebAssembly (**WASM**). WASM allows web developers to write software using a language that closely corresponds to the underlying hardware. The name refers to 'assembly language' which is the original type of 'non-web' language used by programmers to write software that runs directly with computer hardware. Web software written in WASM can run

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[6] 'Introduction to web APIs - Learn web development | MDN', accessed by the CMA on 23 November 2023.
[7] 'WebGL Overview - The Khronos Group Inc', accessed by the CMA on 23 November 2023.
[8] Parties', Submission to the CMA.
[9] 'Chrome ships WebGPU - Chrome for Developers', accessed by the CMA on 23 November 2023.
[10] 'Chrome ships WebGPU - Chrome for Developers', accessed by the CMA on 23 November 2023.
[11] 'Google's WebGPU is a serious boost to browser gaming | Digital Trends', accessed by the CMA on 23 November 2023.
[12] Thomas Steiner, 'The Capable Web' (2023), accessed by the CMA on 23 November 2023.
[13] 'From WebGL to WebGPU - Chrome for Developers', accessed by the CMA on 23 November 2023.

faster than using traditional methods. For example, Amazon has adopted WASM to improve the performance of the Prime Video app.[14]

14. Both Adobe and Figma use WASM in Illustrator Web and Photoshop Web and Figma Design, respectively.[15]

Google's Project Fugu

15. Through 'Project Fugu' Google aims to drive innovation and standardisation in web technology, with the aim of enabling web apps to deliver the same functionality as native apps. In Google's words, Project Fugu 'has the objective of making it possible for web apps to do anything platform-specific (native) apps can'.[16]

16. Google is the main contributor to the open-source Chromium browser engine, which is used by many popular web browsers including Google Chrome and Microsoft Edge.[17] Many of Google's other services, like Drive, Docs, and Maps are web applications.[18] We consider that, in general, Google has strong incentives to advance web technology. For example, given its position in search, Google has an incentive to ensure that web software (as opposed to desktop software) remains an attractive and useful ecosystem for users, so that users continue to use Google Search to find websites, which in turn also supports Google's search advertising model.[19]

17. Developments in web technology made as part of Project Fugu, including new web standards and associated web APIs, were used by Adobe to develop the web versions of Illustrator and Photoshop (ie Illustrator Web and Photoshop Web).

Summary on how web technology has developed

18. In general, we consider that web technology is constantly evolving and the gaps in capability between web applications and native software are narrowing over time.[20] We consider that the development of Illustrator and

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[14] 'How Prime Video updates its app for more than 8,000 device types - Amazon Science', accessed by the CMA on 23 November 2023.
[15] Adobe, Submission to the CMA; and 'Figma is powered by WebAssembly | Figma Blog', accessed by the CMA on 23 November 2023.
[16] 'A new home for the Project Fugu API Showcase - Chrome for Developers', accessed by the CMA on 23 November 2023.
[17] 'Chromium Blog: Intent to Explain: Demystifying the Blink Shipping Process', accessed by the CMA on 23 November 2023.
[18] 'Browse all of Google's products and services - Google', accessed by the CMA on 23 November 2023.
[19] 'Google Search sends more traffic to the open web every year', accessed by the CMA on 23 November 2023.
[20] We note that in a 'teach in', [✂] (Adobe, Chief Technology Officer, Digital Media) stated 'the trajectory definitely has been more and more capability in web apps and certainly we look forward … for places where we can take advantage of that'.

Photoshop shows that by leveraging new standards and APIs, possibly with the support of a browser developer like Google, certain technical challenges can be overcome.

TOH1: Technical challenges in developing product design software

19. As discussed in paragraph 8.166, the Parties submitted that Project Spice faced several technical challenges that made its execution unfeasible. They stated that the vision of bringing Adobe's 'flagship'[21] products to a web-based infinite canvas proved challenging due to both the memory constraints faced by web applications and the difficulties [✂]. They submitted that it was also dependent on other projects ([✂]) which faced delays themselves.[22]

20. Specifically, in relation to Horizon, the Parties submitted that [✂].[23]

21. The Parties also contrasted the delays of Project Spice with the development of Adobe Express. They submitted that Adobe Express did not involve the '[✂]'.[24]The Parties also submitted that it does not have the ability to 're-enter' product design for the following reasons:

    (a) Adobe lacks expertise to develop a competitive product design tool and has already missed the market for product design, with Adobe failing to find the right product market fit for Adobe XD, despite its best efforts to do so over a period of more than eight years. A competitive product design tool requires key capabilities that are not areas of strength or expertise for Adobe, including live co-editing at scale and the growing importance of design-to-code features.[25]

    (b) Adobe's [✂] path to re-entering the product design space organically absent the Merger would require building a new product design tool from scratch, and that any [✂] would be reasonably expected [✂]. By the time Adobe had built a competitive product design tool, Figma and other existing product design players would have innovated further, and Adobe's product would struggle to find commercial relevance.[26]

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[21] The Parties did not state explicitly which products were 'flagship' products, however, for the purposes of this appendix we assume that the Parties are referring to Adobe Illustrator, Adobe Photoshop, Adobe Premiere Pro, and Adobe After Effects, since these were the applications that Project Spice was intended to be integrated with.
[22] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraphs B4.56 to B4.66.
[23] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraphs B4.63.
[24] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph B5.15.
[25] Adobe, Submission to the CMA.
[26] Adobe, Submission to the CMA.

(c) Adobe's strength in creative tooling is not an advantage for re-entry into product design, and other companies with experience developing web-based products are better placed to enter.[27]

22. Additionally, the Parties submitted that Adobe's development of limited web-based creative tools does not give it an ability or incentive to develop product design capabilities for the web.[28] The Parties also submitted that Adobe's prior work on Adobe XD, prior work on Project Spice, and its efforts to develop Adobe Express and Horizon, do not provide a path to a web-based product design offering.[29]

23. In this section we present our assessment of the Parties' arguments in relation to the technical challenges facing the development of Project Spice and in developing web-based product design software identified by the Parties. In this section we consider the following:

(a) Technical challenges and delays faced by Adobe when developing Project Spice;

(b) Project Spice's reliance on the development of other software being concurrently developed by Adobe; and

(c) Adobe's experience with Adobe XD, Adobe Express, Horizon, and Project Spice and whether these provide aid in any potential future development of a web-based product design offering.

Challenges and delays faced by Project Spice

24. First, as discussed in paragraph 8.167 we have not seen substantial contemporaneous evidence that senior decision makers considered the technical challenges with Project Spice as critical or likely to lead to the project's cancellation, or that there were significant discussions about cancelling Project Spice. Given this lack of contemporaneous evidence and the evidence indicating that Spice was in fact cancelled as a consequence of the Merger (as discussed in paragraph 6.75), we do not consider that these technical issues and delays resulted in the cancellation of Project Spice. However, in any event we have further considered the impact these technical challenges may have had on the development of Project Spice.

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[27] Adobe, Submission to the CMA.
[28] Parties', Submission to the CMA.
[29] Parties', Submission to the CMA.

25.   Second, in relation to the Parties' submissions on the technical challenges of integrating Adobe's flagship products into Project Spice, we note that these may not be necessary integrations for product design functionality.

26.   There are some technical challenges that would need to be overcome in order to seamlessly integrate Project Spice with Adobe's existing applications. For example, it seems possible that while Adobe was able to port its flagship[30] desktop software to the web, using WASM, it may have still encountered some challenges integrating this software with web applications written specifically for the web, such as Project Spice or Adobe Express.

27.   However, we also note that the Parties have submitted that 'early on in the project [Spice]', Adobe was seeking to address these challenges [✂].[31] As discussed in Chapter 8, Adobe's internal documents show that Adobe was continuing to work towards a roadmap of developing a product design tool up until at least the end of July 2022 (see paragraphs 8.156 to 8.164), therefore, we do not consider that the challenges faced in relation to the integration of these flagship products led Adobe to abandon its plans to develop a product design tool through Project Spice.

28.   There are some aspects of Project Spice that may have led to some degree of technical challenge, [✂]. However, Adobe may be well placed to overcome such challenges by leveraging ongoing improvements in web technology. We note that Adobe was able to adopt advanced web technology in order to overcome similar challenges in the development of Illustrator Web and Photoshop Web (as noted in paragraph 17). Furthermore, none of the internal documents highlighted by the Parties (as described in paragraph 8.166) as evidence of technical challenges discuss issues with integrating creative design functionality [✂].

Project Spice's reliance on the development of other software being concurrently developed by Adobe

29.   Similarly, to challenges faced by Project Spice itself and as noted in paragraph 8.167, we have not seen substantial contemporaneous evidence that senior decision makers considered issues and delays with [✂] upon which Project Spice was dependent as critical or likely to lead to the cancellation of Project Spice. Therefore, we do not consider that these issues and delays resulted in the cancellation of Project Spice. However, in any

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[30] As noted above, we are referring to Adobe Illustrator, Adobe Photoshop, Adobe Premiere Pro, and Adobe After Effects as Adobe's 'flagship' products in this context.
[31] Parties', Submission to the CMA.

event we have further considered the impact that these dependencies may have had on the development of Project Spice.

30.   The Parties explained that Horizon provides [✂].[32]

31.   In relation to the Parties' submission that integrating [✂] with both Adobe Express and Project Spice we note that although integrating [✂] with two or more applications concurrently involves a degree of technical challenge and engineering resource, we consider that Adobe could have anticipated these challenges and some internal documents indicate that Adobe considered itself to be successfully meeting this challenge. For example, emails from November 2021 including [✂] (Adobe, VP of Experience Design and Collaboration), [✂] (Adobe, VP of CC Web App) and other staff from Adobe states that [✂].[33]

32.   Further, we note internal documents suggest that Adobe planned to develop [✂] into a platform that could underpin a wide range of tools. We consider this would give Adobe even more reason to anticipate potential challenges of integrating with multiple tools. For example, one document [✂].[34] Another internal document outlines Adobe's product strategy for vector graphics functionality in [✂].[35] It states that Adobe [✂].[36] It also states that the target use case categories of [✂] vector functionality is marketing design, brand design, and [✂].

33.   With respect to Spaces, the Parties explained that [✂]. [✂].[37]

34.   As discussed in paragraph 8.116 the Parties have provided evidence to support their submission that [✂] was a high priority for Adobe. One internal chat from May 2022, [✂] (Adobe, VP of CC Web App) notes to [✂] (Adobe, Senior Director of Product Management) that [✂].[38] However, the Parties have not submitted any evidence that indicates that challenges with delivering [✂] were likely to lead to the cancellation of Project Spice.

35.   [✂] (Adobe, VP of CC Web App) described [✂] in his deposition to the DOJ stating that '[✂]'.[39] We have not seen any contemporaneous internal documentary evidence that indicated that challenges with delivering [✂] were likely to lead to the cancellation of Project Spice. Furthermore, none of the internal documents highlighted by the Parties (as described in

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[32] Adobe response to the CMA's request for information; and Adobe Internal Document.
[33] Adobe Internal Document.
[34] Adobe Internal Document.
[35] Adobe Internal Document.
[36] Adobe Internal Document
[37] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph B4.60.
[38]. Adobe Internal Document.
[39] Adobe, Submission to the CMA.

paragraph 8.116) as examples of technical challenges discuss issues related to [✂].

Adobe's experience with Adobe XD, Adobe Express, Horizon, and Project Spice supporting future product design developments

36.   As set out in paragraph 8.190, we note that the Parties' argument that Adobe would face challenges if it were to restart Project Spice is predicated on the assumption that Adobe would have cancelled Project Spice absent the Merger. This assumption is inconsistent with our findings on the counterfactual.

37.   In this context, the question we need to answer when determining the counterfactual is not what would have happened if the Merger does not now proceed or what situation would exist if the Merger were blocked by the CMA. Instead, we are required to determine what the most likely conditions of competition would have been absent the Merger.[40] As set out in Chapter 6, our provisional view is that the decision to cancel Project Spice was a consequence of the Merger, such that Adobe would have continued to compete, including through its innovation efforts, in all-in-one product design software, whether by way of Adobe XD, Project Spice, or in other organic or inorganic ways. In other words, in the counterfactual Project Spice was not cancelled. Accordingly, any issues that may exist today in relation to the restarting of Project Spice are not relevant when it comes to the assessment of the impact of the Merger on competition as assessed against the counterfactual.

38.   Notwithstanding the above, we consider the Parties' technical arguments in this section. Additionally, we consider whether Adobe's prior experience with Adobe XD, Adobe Express, Project Spice, and Horizon would have put it in a strong position to compete closely with Figma through product innovation absent the Merger and provide context for the substantial documentary evidence discussed in Chapter 8 that indicates that Adobe competes closely with Figma in this space.

39.   The Parties submitted that Adobe Express does not '[✂]'.[41] They submitted that this is because '[✂]'.[42] They compared this with Adobe XD and Figma in which [✂].[43]

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[40] CMA129, paragraph 3.13.
[41] Parties', Submission to the CMA.
[42] Parties' technical briefing recording.
[43] Parties' technical briefing recording.

40. The Parties submitted that even if Adobe were to develop product design software, '[✂]'.[44] Moreover, that product design is a '[✂]'.[45]

41. When comparing Adobe Express and Project Spice, [✂] (Adobe, VP of CC Web App) stated that 'Express is not a creative tool' and that it was an '[✂]' tool rather than a '[✂]'.[46] This contrasts with the Parties' description of Adobe Express as 'a new template-based content creation app'[47] and it is unclear whether this distinction is significant in view of the technical development of either type of software.

42. For example, we note that Adobe Express, which is also built on Horizon, nevertheless appears to have some fundamental functional commonalities with basic product design software. For example, Adobe Express allows the user to place, select, move, resize, align, and distribute simple vector graphics inside a canvas.[48] It also allows the user to place and manipulate text inside the canvas, modifying the font, font style, font size, outline colour, and opacity.[49] It also (like Figma) contains the ability to save and load documents to the cloud. We consider that this is also supported by Adobe's internal documentation for the vector functionality in [✂], which describes '[✂]', including [✂]. In the document, these building blocks include [✂].[50]

43. It is possible that there may be code or documentation that could be reused or adapted from Adobe Express, were Adobe to develop new product design software. The Parties provided a list of functionalities that are common between Project Spice, Adobe Express, and Adobe XD.[51] It is unclear why, Adobe could not 'lift and shift' feature specifications and development other than code either from Adobe XD to Project Spice or from Project Spice to the development of new web-based product design software.

44. In relation to reusing software code in particular, we consider that Adobe is very likely to follow the best practice of software development by developing code that is maintainable and reusable and implementing processes that are 'reuse oriented'.[52] We recognise that, in the majority of software projects, as the Parties submitted, there are of course difficulties transplanting and integrating code from one project to another, especially for different use cases. However, we consider that given the apparent commonalities in

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[44] Parties' technical briefing recording.
[45] Parties' technical briefing recording.
[46] Parties' technical briefing recording.
[47] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph A1.16.
[48] Adobe teach-in.
[49] Adobe teach-in.
[50] Adobe Internal Document.
[51] Adobe response to the CMA's RFI.
[52] Ian Sommerville, *Software Engineering* (9th edn, Pearson Education Inc.), pages 35-36.

function between Adobe Express and Project Spice, and the absence of evidence to the contrary, it is probable that Adobe would be able to adapt at least some code or libraries developed as part of Adobe Express towards web-based product design software.

45. As discussed previously, even where Adobe cannot directly [✂], we consider that it could leverage knowledge and experience other than code gained from Project Spice, Adobe Express, and Adobe XD. In fact, the Parties acknowledged that such knowledge and experience had been previously leveraged, and features '[✂]' from Adobe XD to Project Spice.[53] Adobe internal documents indicate that the '[✂]' of Adobe XD engineers were considered to be a benefit for the delivery of Project Spice,[54] and that these engineers '[✂]'.[55] Another internal document shows that some features in Project Spice would be '[✂]', indicating that Adobe's experience with Adobe XD would help it to improve features for Project Spice.[56]

46. We consider that that from a technical perspective, engineering staff from either Horizon or Adobe Express, which both involve web software, could be well placed to contribute to product design software compared to engineers from other units within Adobe. In fact, the Parties submitted that [✂] would be [✂].[57] Further we note that, when Project Spice was cancelled many of the engineers were moved to Adobe Express, and therefore, may be able to transfer back to working on developing a product design tool bringing with them their previous experience from working on Project Spice. We consider that this indicates that, given its prior experience of developing Adobe XD, Horizon, Project Spice and Adobe Express, Adobe was well placed to a develop web-based product design tool even if prioritising Adobe Express would have caused some limited delays to the Project Spice timeline.

Provisional conclusions on TOH1

47. While it is clear that Adobe, like all technology firms developing new products, was facing some technical challenges both in developing Spice, and other related software (such as Horizon), the Parties have not provided substantial contemporaneous evidence that senior decision makers considered these issues as critical or likely to lead to the cancellation of Project Spice, or that there were significant discussions about cancelling Project Spice.

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[53] Parties technical briefing recording.
[54] Adobe Internal Document.
[55] Adobe Internal Document.
[56] Adobe Internal Document.
[57] Adobe response to the CMA's RFI.

48. Additionally, it appears Adobe's experience in developing Adobe XD, Adobe Express, and Horizon is likely to have left Adobe well placed to innovate further and compete closely with Figma in the all-in-one product design software market.

49. Therefore, we do not consider the Parties' technical arguments to support the Parties' submission that Project Spice would have been cancelled absent the Merger.

TOH2: Technical challenges in developing vector and raster creative design software

50. In this section we discuss the Parties' submissions on the technical challenges in developing vector editing and raster editing software.

51. First, we present and assess the Parties' submissions with regards to Figma developing this type of software. We then focus on the technical aspects of the way Adobe may have developed creative design features, for example in Project Spice, in response to a perceived threat from Figma.

Challenges faced by Figma in developing creative design software

52. In this first section we discuss the Parties' submissions on the technical challenges for Figma to develop vector editing and raster editing software.

    (a) We first consider and assess factors applying to both types of software.

    (b) We then turn to assessing their submission on vector-specific challenges, followed by their submission on raster-specific challenges.

Factors applying to both vector and raster editing software

   Parties' submissions

53. The Parties submitted that the following two factors would affect Figma's ability to develop its vector and raster editing functionality:

    (a) **Figma Design's limitations.** The primary technical challenge for Figma to enter into creative tools would be [✂] time and resources it would take for Figma.[58] Specifically, the Parties submitted the following:

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[58] Parties, Submission to the CMA.

- Some plugins '[✂]' are already available, but [✂].[59]

- [✂] Figma would find it very challenging to develop sufficient multiplayer functionality to work with the more complex assets used for creative design;[60] [✂];[61] and

- [✂].[62]

(b) [✂]. According to the Parties, [✂].[63] [✂].[64] The Parties also submitted that, [✂].[65]

Our assessment

- *Figma Design's limitations*

54. We assessed the Parties' submissions set out above on Figma Design's limitations that may prevent the development of sufficiently attractive vector and raster editing functionality.

55. As set out in paragraph 9.117, we consider that Figma Design contains limited vector and very limited raster editing functionality today. Further, we consider that Figma's extensions, which include its 'plugin' ecosystem, currently allows third parties to enhance the availability of vector and raster functionality within Figma Design, without any additional investment from Figma. For example, an Adobe internal document states that Figma's plugin ecosystem contains '[✂]'.[66] Recent changes Figma has made to extension monetisation might also encourage further plugin development in future, as discussed in paragraphs 9.229 and 9.235.

56. As one particular example, we considered the Photopea plugin. The evidence shows that the current functionality afforded by the Photopea plugin provides raster editing functionality sufficient for at least some users.

(a) An internal presentation from Adobe states that '[✂]'.[67] Adobe also appears [✂].[68]

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[59] Parties, Submission to the CMA.
[60] Parties', Submission to the CMA.
[61] Parties', Submission to the CMA.
[62] Parties', Submission to the CMA.
[63] Parties', Submission to the CMA.
[64] Figma's response to the CMA's RFI.
[65] Parties', Submission to the CMA.
[66] Adobe Internal Document.
[67] Adobe Internal Document.
[68] Adobe Internal Document.

(b) Figma's plugin site states that there have been 120,000 users of the Photopea plugin since its release in October 2022.[69] We note that the plugin provides many of the features of Photopea web application.

57.   We consider that the Photopea plugin demonstrates that it is technically possible to offer vector and raster editing functionalities within Figma. For example, Figma could acquire an existing plugin or other extension with raster editing functionality, like Photopea, and integrate this further with Figma Design.

58.   The Parties submitted that there are limitations to plugins in general, which Figma might have to overcome to further improve their performance. The Parties submitted that this limitation stems from the [✂].[70] We consider that, Figma may have potential solutions to this problem. As [✂] (Figma, VP of Product) testified, some parts of plugins '[✂]'.[71]

59.   We believe that the functional capability currently afforded by Figma's existing plugins shows that Figma can either develop its own plugins or other extensions with vector and raster editing functionality, integrate an acquired plugin or other extension, or to some extent integrate with Figma Design other functionality it could acquire. We consider that were Figma to acquire and integrate plugins or other extensions in its own software, there may be less requirement for security related performance limitations.

60.   The Parties submitted that Figma's brand is based on the idea that everything in Figma can be edited simultaneously by multiple users, but that Figma would face serious challenges to bringing multiplayer functionality to creative tools in the browser.[72]

61.   We note that Illustrator Web and Photoshop Web do not have an advanced multiplayer functionality.[73] Moreover, Figma has a track record in taking an incremental approach to developing functionality over time. For example, when it launched Figma Design, the software did not have the full functionality it has now, as set out in paragraphs 9.229 and 9.235. For this reason, we consider that developing a fully-fledged multiplayer solution may not be necessary for any initial product development.

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[69] 'Photopea | Figma Community', accessed by the CMA on 23 November 2023.
[70] Parties', Submission to the CMA.
[71] Figma, Submission to the CMA.
[72] Parties', Submission to the CMA.
[73] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C5.10(c).

62. There is some evidence that adding more advanced collaboration functionality would be complex, particularly in raster editing, were it is required.[74] Nevertheless, the evidence shows that Figma already has a solid base for the development of collaborative creative functionality and that this base is comparatively strong to others who might develop web-based creative design functionality:

   (a) Figma's existing implementation appears to be the state of the art within product design software. For example, the Parties submitted that Figma has '[✀]'.[75]

   (b) Post-Merger, the Parties appear to be planning to leverage Figma's multiplayer expertise and codebase for Adobe's own vector and raster editing software. A Figma internal document states that the Parties would [✀].[76]

   (c) This is also consistent with the Parties' stated Merger rationale. The Parties set out to the CMA on 8 June 2023 that for Adobe and its customers, the Merger would 'create an opportunity to redefine creativity by accelerating development of web-based, multiplayer apps for core creative professionals'.[77]

63. We therefore consider the evidence does not show that these challenges prevent Figma from adapting its existing solution to develop additional vector and raster editing functionality, such as through an incremental approach, with more extensive collaboration built in later.

64. Finally, the Parties submitted that Figma does not have the technology or expertise to keep up with innovations in AI happening in creative tools, and in terms of advanced features would be far behind other professional creative tools.[78]

65. The Parties submitted no evidence that vector and raster creative design software developed by Figma would need AI functionality, particularly for an initial offering. However, there is some evidence that Figma could introduce it were AI functionality to become necessary. In particular, Figma already has staff working on the development of AI and it has recently acquired AI startups.[79] Figma also recently announced advanced AI features within

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[74] Ulrike Bath, Sumit Shekhar, Julian Egbert et al., 'CERVI: collaborative edition of raster and video images' (2022) Vis Comput 38, 4057–4070, accessed 23 November 2023, page 4058.
[75] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C3.24(b).
[76] Figma Internal Document.
[77] Parties' response to the phase 1 Issues Letter.
[78] Parties', Submission to the CMA.
[79] Figma site visit.

FigJam.[80] To do this, it entered into an agreement with OpenAI which allowed it to integrate OpenAI's existing 'large language model' within FigJam.[81]

66.   In conclusion, we consider that there are some cross-cutting challenges in developing vector and raster editing. However, limitations to extensions, challenges with multiplayer technology and challenges incorporating IA would not present insurmountable challenges, particularly were Figma to adopt an incremental approach to product development.

- *Lack of sufficiently standardised advanced web technologies*

67.   New advanced web technology that narrows the gap between web and desktop applications has the potential to allow Figma to overcome some technical challenges. The Parties submitted that these technologies are only available for a subset of browsers.[82] For example, the Parties submitted that Safari is an extremely popular browser that does not support all of the same modern APIs as Chromium-based browsers.[83]

68.   We note that Illustrator Web and Photoshop Web are also currently only available for a subset of browsers.[84] Therefore, this limitation does not necessarily put potential vector and raster editing functionality within Figma Design at a disadvantage (in comparison Illustrator Web and Photoshop Web).

69.   Moreover, Figma's track record shows that it is prepared to adopt new technology and adapt or modify its architecture. For example, Figma blogged in 2020 that it had recently adopted a relatively recent API, the Indexed Database API, in its autosave functionality.[85] It also blogged in 2018 that it 'dropped our initial plan to rewrite our whole server' using a new language but that it had still 'chose[n] to focus solely on the performance-sensitive part instead'.[86]

70.   Internal document evidence shows that Figma is not only able to adopt new web technology but also affect the advancement of new web technology. Figma appears to engage in [✂].[87] For example, notes from a meeting with

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[80] 'Introducing AI to FigJam | Figma Blog', accessed by the CMA on 20 November 2023.
[81] 'Use AI tools in Figma - Figma Learn - Help Center', accessed by the CMA on 23 November 2023.
[82] Parties', Submission to the CMA.
[83] Parties', Submission to the CMA.
[84] Illustrator Web and Photoshop Web are currently only available on Google Chrome and Microsoft Edge. See 'Common questions | Photoshop on the web', accessed by the CMA on 23 November 2023. See also 'Illustrator on the web (beta) FAQ', accessed by the CMA on 23 November 2023.
[85] 'Behind the feature: The hidden challenges of autosave | Figma Blog', accessed by the CMA on 23 November 2023; and Figma response to RFI.
[86] 'How Mozilla's new language dramatically improved our server-side performance | Figma Blog', accessed by the CMA on 23 November 2023.
[87] Figma Internal Document.

[✂].[88] In particular, these notes appear to contain [✂].[89] Notes from a later meeting in 2022 between Figma and [✂].[90]

71.   In summary, we recognise that adopting new web technology requires material software engineering effort, and not all technology is adopted by all browsers. However, it seems that Figma has been able to adopt new technology in the past and we have not identified any insurmountable barriers to it doing so in future.

Challenges specific to developing vector functionality

72.   The Parties submitted a range of technical challenges associated with Figma Design's vector editing capabilities.

   Parties' submissions

73.   The Parties submitted that there are challenges that stem from the current architecture of Figma Design. Figma has [✂].[91]

74.   The Parties also submitted that there are also challenges that stem from Figma's proprietary vector editing functionality, called vector networks,[92] including the following:

   (a) Figma's implementation is relatively rudimentary, and it cannot match the sophistication of vector editing features in other tools.[93]

   (b) [✂].[94] As a result, [✂].[95]

   (c) Figma's implementation of [✂].[96] They also submitted that [✂].[97]

   Our assessment

75.   We first assess the potential challenges associated with Figma's architecture. We then discuss the potential challenges linked to Figma's current vector editing implementation.

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[88] Figma Internal Document.
[89] Figma Internal Document.
[90] Figma Internal Document.
[91] Parties, Submission to the CMA.
[92] See paragraphs 79 to 82 below for details of Figma's vector networks.
[93] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C3.9(b), footnote 307.
[94] Parties, Submission to the CMA.
[95] Parties, Submission to the CMA.
[96] Parties, Submission to the CMA.
[97] Parties, Submission to the CMA.

- *Figma Design's architecture*

76. We consider that from a technical perspective Figma Design is fundamentally a form of vector-based software. This is because its core functionality allows the user to place and manipulate geometric shapes on a two-dimensional canvas, which are represented mathematically in software by their various attributes. We consider this is also true for other product design software, such as PenPot.[98] However, relative to other software developers which do not have a web-based architecture that supports editing vector graphics, Figma is particularly well placed to develop further vector functionality.

77. Adobe's internal documents also suggest that Figma has a solid foundation to build from in order to develop more advanced vector editing functionality. An internal document shows that Adobe perceived Figma Design to have '[✄]'.[99]

78. In summary, we consider that Figma Design may provide a suitable foundation upon which Figma can develop further its existing vector editing functionality (including vector networks). This provides context for our further assessment.

- *Implementation of vector networks and Boolean operations*

79. As discussed above, Figma Design already includes some vector editing functionality. We first provide further details of its implementation and then assess challenges raised by the Parties on this implementation.

80. Figma Design currently implements a proprietary system of vector editing functionality known as 'vector networks'. Most vector editing software, such as Illustrator, allow the user to construct 'paths' using a so-called pen tool that comprise a linear sequence of 'anchor points'.[100] Paths can be 'open', meaning they appear to the user as a line with a start and end, or 'closed', meaning they have a clear interior and exterior. The interior of closed paths can be filled, for example with a colour. Paths can be 'split', which produces new endpoints, or 'joined' by connecting two existing endpoints.[101] As Evan Wallace (Figma, co-founder and former Chief Technology Officer) wrote in

[98] 'GitHub - penpot/penpot: Penpot - The Open-Source design & prototyping platform', accessed by the CMA on 23 November 2023.
[99] Adobe Internal Document.
[100] Conrad Chavez and Andrew Faulkner, 'Vector Drawing Techniques' (2019), accessed by the CMA on 23 November 2023.
[101] 'How to edit and reshape paths in Illustrator', accessed by the CMA on 23 November 2023.

2016, 'You can think of a path as a sequence of instructions that a device like a pen plotter might follow. Put the pen down, drag it around, and lift it up'.[102]

81.   Figma's implementation instead uses vector networks. The significant difference is that to the Figma Design user two 'paths' can be 'joined' at points other than their endpoints. This results in a network-like object.[103] As Evan Wallace (Figma, co-founder and former Chief Technology Officer) wrote, 'Splitting and recombining geometry is much more natural with vector networks. Delete anything, anywhere. Connect anything to anything else… This isn't the case for paths because it's impossible to use paths to represent attaching three lines together at a single point'.[104]

82.   Figma Design also currently implements 'Boolean operations',[105] which is an industry-standard tool that allows both simple shapes and vector networks to be combined in order to produce more complex vector graphics. These operations are non-destructive by default, meaning that even after a user combines two or more objects they can still be modified independently.[106]

83.   The Parties submitted that Figma only provides '[✂]' vector editing capabilities for product design.[107] We identified evidence that suggests Figma's implementation may be in fact more intuitive and more attractive than a conventional path-based tool.

        (a) Internal documents from Adobe appear to show that Adobe was aiming to [✂] within the vector editing functionality of Project Spice.[108]

        (b) Figma historically marketed vector networks as a feature of Figma Design's ability to be used as a 'graphic design tool'. Figma stated that vector networks are an improvement over a path-based tool, in that 'vector networks give a whole new dimension to vector manipulation'.[109]

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[102] 'Introducing Vector Networks. Before I co-founded Figma my background... | by Evan Wallace | Figma Design | Medium', accessed by the CMA on 23 November 2023.
[103] The technical differences between paths and Figma's vector networks are explained in more detail in a blog post from Alex Harri Jónsson, a professional software engineer who does not appear to be otherwise associated with Figma. See 'The Engineering behind Figma's Vector Networks | by Alex Harri Jónsson | Medium', accessed by the CMA on 23 November 2023.
[104] 'Introducing Vector Networks. Before I co-founded Figma my background... | by Evan Wallace | Figma Design | Medium', accessed by the CMA on 23 November 2023.
[105] Boolean operations mean the ability to 'union', 'subtract', 'intersect', 'exclude' simple shapes or vector networks.
[106] 'Boolean Operations – Figma Learn - Help Center', accessed by the CMA on 23 November 2023.
[107] Parties', Submission to the CMA.
[108] Adobe Internal Document.
[109] 'Free Graphic Designing Software | Figma', accessed by the CMA on 23 November 2023.

(c) We also identified third-party evidence that for at least some designers, Figma's implementation is more intuitive.[110]

84. As set out in paragraph 74(b) above, the Parties submitted that [✂].[111]

85. In general, the Parties have not submitted evidence that these challenges prevent Figma from developing incremental vector functionality. We consider it is possible that Figma's implementation may lead to some technical challenges in developing more advanced functionality. For example, Alex Harri Jónsson (an industry commentator who does not appear to be associated with Figma) stated that it may be mathematically difficult for software using this implementation to identify the correct interior of a vector network, for example to be filled with colour.[112] In contrast, we consider that this task is straightforward in software in which the pen tool is based on conventional paths.

86. However, there is evidence that these challenges may be surmountable even on Figma's current 'evolutionary branch', given the right resources. For example, Alex Harri Jónsson explains one possible solution to the problem described above, based on previous research in graph theory.[113] Existing open-source code, libraries, or academic research on vector editing software may also provide solutions which are applicable to vector networks.[114] Figma's approach to solving complex challenges associated with vector in the past [✂],[115] which still appears a viable approach given the financial resources available to Figma, as set out in paragraphs 9.305 to 9.311). The Parties have not provided any evidence that shows Figma could not overcome these challenges.

87. Figma's current implementation appears to be an extension of the path system used both in other vector editing software, such as Illustrator[116] and Inkscape,[117] and the industry-standard Scalable Vector Graphics format. It seems that every path-based vector graphic is essentially also a simple vector

[110] 'Vector Networks Like Figma Has - Adobe Illustrator', accessed by the CMA on 23 November 2023; and 'The Engineering behind Figma's Vector Networks | by Alex Harri Jónsson | Medium', accessed by the CMA on 23 November 2023.
[111] Parties', Submission to the CMA.
[112] As explained by Alex Harri Jónsson in his blog post. See 'Photopea 4.6 - Open Figma Files!', accessed by the CMA on 23 November 2023.
[113] David Eberly, 'Constructing a Cycle Basis for a Planar Graph' (2020), accessed by the CMA on 23 November 2023, page 1.
[114] Boris Dalstein, Rémi Ronfard, Michiel van de Panne, 'Vector Graphics Complexes' (2014) hal-00983262, accessed by the CMA on 23 November 2023. This academic paper discusses a solution similar to Figma's vector networks.
[115] Figma, Submission to the CMA.
[116] 'Learn how to create and modify paths and shapes in Adobe Illustrator.', accessed by the CMA on 23 November 2023.
[117] 'Inkscape tutorial: Advanced | Inkscape', accessed by the CMA on 23 November 2023.

network graphic.[118] We also consider that Figma's ability to import and export industry-standard Scalable Vector Graphics files, and the existence of third-party tools that can convert between vector networks and conventional formats,[119] also shows that there is a baseline of interoperability between vector networks and simpler path-based systems.

88.   Figma may also be able to use conventional paths in some form, for example by taking a hybrid approach, in order to mitigate challenges to do with vector networks. In doing so it may be able to draw upon its expertise in its more complex branch of the 'evolutionary tree'. It may also be able to draw upon a variety of open-source projects and libraries involving vector editing, including Inkscape[120] and Skia, developed by Google.[121]

89.   The Parties have not provided evidence showing that the costs of developing vector networks along the same branch of the 'evolutionary tree', or of switching to vector paths for some or all functionality, outweigh the potential benefits.

90.   We consider that the issues identified in relation to Figma Design's Boolean operations functionality are similar to those discussed earlier in relation to vector networks. While there may be some bugs, the evidence suggests Figma was able to achieve the current level of functionality in Boolean operations by using a single contractor.[122] This shows that existing limitations may be overcome with relatively limited further investments.

91.   In summary, while Figma's unique implementation of vector editing may lead to novel challenges, the Parties have not provided sufficient evidence that these are insurmountable challenges in the short to medium term and that the costs of overcoming these challenges would outweigh the potential benefits.

Challenges specific to developing raster functionality

92.   We discuss challenges specifically associated with building more advanced raster editing functionality below. First, we briefly summarise the Parties' submission. Then we present our assessment.

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[118] We note that, in conversation with Olof Mases (Adobe, VP of CC Web App) an Adobe staff engineer appeared to reach the same conclusion. See Adobe Internal Document
[119] See 'Photopea 4.6 - Open Figma Files!', accessed by the CMA on 23 November 2023.
[120] 'Inkscape / inkscape GitHub', accessed by the CMA on 23 November 2023.
[121] 'GitHub - google/skia: Skia is a complete 2D graphic library for drawing Text, Geometries, and Images.', accessed by the CMA on 23 November 2023.
[122] Figma, Submission to the CMA.

Parties' submissions

93. The Parties submitted that there are specific technical challenges for Figma to develop raster editing functionality for professional users, including limitations of browser memory, bandwidth, [✕].[123]

94. The Parties also submitted that even if Figma were to build out functionality incrementally, there are in general '[✕]' challenges [✕] Figma's existing architecture, [✕] Figma's existing architecture [✕].[124]

Our assessment

95. As discussed in paragraph 9.117, we consider that Figma has very limited raster editing functionality. In particular, [✕],[125] which is a feature of some raster editing software such as Photoshop and Affinity Photo.[126] We considered to what extent this starting point affect the technical challenges Figma would face in developing raster editing software.

96. We consider that some types of more advanced raster editing software are inherently more demanding in terms of the computing resources required, compared to current product design software like Figma. This is based for example on the larger file sizes involved in high quality raster graphics compared to vector graphics. Furthermore, given Figma's architecture is vector-based (as set out in paragraph 76), we consider that its starting point is less well suited to building its own more advanced raster editing functionality than it is for vector editing.

97. However, there is evidence that some of Figma's existing functionality could be adapted to a more advanced raster editing product. A Figma internal document written by [✕] (Figma, Chief Technology Officer), in the context of [✕], provided a contemporaneous assessment responsive to the challenges of getting raster editing onto the Figma platform. This document indicates that much functionality, [✕].[127] [✕].

98. The Parties submitted that this document contained '[✕]'.[128] We consider that it is nevertheless informative of Figma's view of its ability to integrate vector and raster functionality into its platform, although are mindful of the context around its production and have also considered other evidence below.

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[123] Parties', Submission to the CMA.
[124] Parties', Submission to the CMA.
[125] Parties', Submission to the CMA.
[126] 'Affinity - Professional Creative Software', accessed by the CMA on 23 November 2023.
[127] Figma Internal Document.
[128] Figma response to the CMA's RFI.

99. We also note that senior staff within Figma considered that it could overcome some of these challenges, perhaps by taking an incremental approach, as discussed further in paragraphs 9.307 and 9.330. [✂] (Figma, Chief Product Officer) email to [✂] (Figma, Head of Corporate Development & Strategy) in May 2022 refers to a '[✂]'.[129] An October 2021 offsite document above states that Figma should build vector and raster '[✂]'.[130] As discussed previously in paragraphs 55 to 59, Figma may be able to integrate more advanced raster editing functionality obtained through acquisition, [✂].

100. We also identified evidence that Figma had previously internally developed some web-based raster editing functionality. Specifically, Figma had developed a set of individual raster editing tools that were not yet 'stitched together'. These tools allowed users to overlay and blend images, the ability to recolour parts of images, the ability to change contrasts and reduce the appearance of red eyes in photos, a 'cloning tool', and a 'brush tool'.[131]

101. As also discussed earlier, in paragraphs 67 to 71, advanced web technology may mean that Figma is able to overcome some technical challenges. In the context of raster editing, there are some technologies, such as WebGPU,[132] that appear to provide particular opportunities for developing raster editing technologies that already make sense for Figma to adopt. One Figma internal document from 2020 states that [✂].[133]

102. In summary, we have not identified insurmountable barriers to developing its vector and raster editing functionality, nor to adopting specific technologies (such as WebGPU) that may help Figma overcome challenges specifically associated with web-based raster editing on a faster timescale.

Challenges faced by Adobe in developing creative design software

103. This section focuses on the technical aspects of the way Adobe may have developed creative design features, for example in Project Spice, in response to a perceived threat from Figma (see Chapter 8). After briefly summarising the Parties' submissions, we present our assessment.

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[129] Figma Internal Document
[130] Figma Internal Document.
[131] 'Dylan Field pitches seed-stage Figma to Daniel Gross - YouTube', accessed by the CMA on 23 November 2023.
[132] The experimental 'WebGPU' web API allows web applications to directly interact with the graphics hardware on the user's computer (see paragraphs 8 to 12).
[133] Figma Internal Document.

104.   The Parties submitted that Adobe's [✂].[134] As discussed in Chapter 8, the Parties submitted that, due to technical challenges, Adobe [✂].[135] Adobe submitted that while [✂].[136]

Our assessment

105.   We consider that Adobe's internal documents show that Adobe intended to include vector and raster editing functionality in Project Spice, as discussed in paragraph 9.214. Moreover, that these documents indicate Adobe believed it was possible to do so and had allocated a substantial amount of internal resources (including engineers from Illustrator).

106.   We further consider that Adobe has been able to develop the web versions of Illustrator and Photoshop in such a way that they include a material proportion of the functionality of their desktop counterparts, and as set out in paragraph 9.292, over a period of only around one year and less than four years respectively.

107.   We also identified some documents that address technical challenges specifically and that suggest that Adobe considered that it could overcome them. For example:

   (a) One Adobe internal document states that [✂].[137] We consider that in this way Horizon would have allowed Project Spice to include significant elements of creative design functionality.

   (b) Another Adobe internal document states that [✂].[138] We consider similar approaches may have accelerated its development of Project Spice's creative functionality.

108.   In the round, it seems unlikely that the technical challenges would be insurmountable and preclude Adobe from developing creative design functionality in Project Spice.

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[134] Parties', Submission to the CMA.
[135] Parties', Submission to the CMA.
[136] Adobe's response to the CMA's RFI.
[137] Adobe Internal Document.
[138] Adobe Internal Document.

Provisional conclusions on TOH2

109. We provisionally conclude that the technical limitations identified by the Parties to Figma developing its vector and raster editing functionality are likely to be surmountable in the medium term, given the right resources.

110. Figma Design itself, and its extension system, already supports some vector editing and raster editing functionality. This could be further enhanced through new third-party extensions which have been emerging, and Figma could seek to accelerate this further. Were Figma to seek to integrate its own extensions with its own platform, performance limitations currently imposed for security reasons may not be needed.

111. We consider that Figma itself would not face insurmountable barriers to developing vector editing functionality in future and is particularly well placed to do so. Figma Design is already a vector-based web platform, and evidence shows its implementation of vector editing is already attractive for some users today. Were Figma to develop more advanced vector editing functionalities, this implementation may need revisiting. However, the Parties have not provided evidence that these challenges cannot be overcome, and we identified some evidence that they can, particularly given the resources available to Figma.

112. We consider that there are more significant challenges for Figma to developing web-based raster editing functionality, however again they do not appear insurmountable. Figma's executives believed they could develop Figma's raster editing functionality, as set out in paragraph 9.307, and some of Figma's existing web-based architecture would be largely compatible with adding raster editing today.

113. There is no evidence to support the Parties' view that Figma would need to develop both advanced multiplayer collaborative functionality and AI-based features to be competitive in the market for vector and raster editing software. In particular, Adobe's Photoshop Web and Illustrator Web do not currently have advanced multiplayer functionality. Figma appears well placed to develop both multiplayer functionality and AI-based features, given that it has industry leading expertise in the former and is already dedicating resources to the latter.

114. Further, we consider that new web technology and web APIs may have the potential to help Figma overcome some of these technical challenges. We also consider that Figma could also make certain trade-offs in the short term in order to do so, for example in relation to browser compatibility, and that it could develop its vector and raster editing functionality in stages. We also

consider that Figma could develop its vector or raster editing offering through acquisition, and the evidence in paragraph 9.288 shows Figma made steps in this direction.

115. We consider that Adobe had plans to integrate substantial creative editing functionality into Project Spice, and that it would have been able to do so.

116. We have taken all of the above evidence on technical challenges into account, together with wider business and strategic incentives, in the competitive assessment.

Appendix E: Response to Parties' submissions on TOH1 documents

Adobe documents

[✂]

Figma documents

[✂]

Appendix F: Further assessment of TOH2(a) and TOH2(b) competitive constraints

Introduction

1.   In this appendix, we provide an assessment of further competitors named by the Parties in the context of Theory of Harm 2(a) and Theory of Harm 2(b), beyond those discussed in Chapter 9.

2.   As set out in paragraph 9.331, the Parties identified more than 45 competitors in vector editing and more than 65 in raster editing. We have undertaken an assessment to identify the most relevant set of competitors.

3.   We have reviewed key decision-making documents identified by the Parties,[1] and other available evidence including alternatives identified in the responses to our customer questionnaires. Based on our review, we have identified five competitors for vector editing and seven competitors for raster editing which each appear to exercise a meaningful competitive constraint on Adobe for professional and/or product design use cases.[2] We discuss these competitors in Chapter 9. We provide our assessment of the remaining competitors in this appendix.

Parties' submissions

4.   The Parties submitted that Adobe has a wide set of competitors who 'are constantly innovating and improving their features',[3] and grouped these competitors into five categories, as follows:

   (a) Companies offering a suite of creative design software, which include Affinity (vector editing, raster editing, and page layout software), Canva (raster editing, video editing, and other software), Corel (vector editing, raster editing, and other software), Picsart (raster editing, video editing, and other software), Pixlr (raster editing, video editing and motion design software), and VSCO (raster editing and video editing software);[4]

   (b) Additional companies for specific asset creation software which include:[5]

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[1] Adobe response to phase 1 s109 notice. These documents are the Digital Media annual strategy plans, Quarterly Business Reviews (**QBR**), Annual Business Strategy (**ABS**), Annual Marketing Strategy (**AMS**), and Annual Product Strategy (**APS**) documents.
[2] Excluding Figma.
[3] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C4.4.
[4] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C4.6.
[5] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C4.8 (Figure 38); Parties' response to the phase 1 Issues Letter.

(i)   For vector editing: Clip Studio, Marq (formerly Lucidpress), Xara Designer Pro, Procreate, Inkscape, and a long list of other competitors;[6] and

(ii) For raster editing: Capture One, Pixelmator, PicMonkey, GIMP and a long list of other competitors;[7]

(c) 'Big Tech' players, such as Apple, Google, and Microsoft;[8]

(d) Additional competitors in a 'hypothetical' market for creative design software for screen design use cases; including product and/or marketing design use cases (Penpot, Uizard, and Axure for both vector and raster editing, and additionally Framer for vector editing), VistaCreate (formerly Crello), BeFunky, Creatopy (formerly Bannersnack), Microsoft Paint, CSS (the coding language), Microsoft PowerPoint, Microsoft Designer, Google Web Designer, Hubspot, and Infogram;[9]

(e) Disruptive industry trends and players driving these, which the Parties further subdivided into:

(i)   prosumer tools, including Canva, Picsart, and others;

(ii) mobile products, including Picsart, Camscanner, and others; and

(iii) Artificial Intelligence, including Canva, Corel, Picsart, DALL-E, Midjourney, Muse.ai, and Stable Diffusion.[10]

5.   As set out in paragraph 9.382, in our assessment of competitive constraints, we have reviewed Adobe's key decision-making documents that were submitted to the CMA, namely, Digital Media annual strategy plans, Quarterly Business Reviews (**QBR**), Annual Business Strategy (**ABS**), Annual

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[6] Further alternatives listed by the Parties as additional competitors are Amadine, Assembly, Artify, Apple Photos and iMovie, Infinite Painter/Design, Fable, Graphic, Krita, Looka, Lunacy, Microsoft Publisher, Over, Pixelmator, PosterMyWall, QuarkXpress, Vectr, Vectornator, Vecteezy, Vector Styler, and VistaCreate (Crello). Parties response to the phase 1 Issues Letter. When providing contact details, the Parties also listed [✂], [✂], [✂] as alternatives to Illustrator (Adobe response to s109 notice). Only [✂] is mentioned in the Parties' key-decision making documents, and we consider the strength of [✂] in our assessment. We do not consider [✂] [✂] further.
[7] Further alternatives listed by the Parties as additional competitors were ACDSee, Acorn, Afterlight, Alien Skin Exposure, Apple Photos, Apple iMovie and Final Cut Pro, ArtRage, Bazaart, BeFunky, Blackmagic DaVinci Resolve, DxO Photolab, Faceapp, Facetune, Fotor, Inkscape, Instasize, Krita, ON1, Paint Net, PhotoFox (Photoleap), Photopea, Photoscape, Pizap, Polarr, Procreate, Rebelle, Sketchbook, Skylum Luminar, and Snapseed. Parties response to the phase 1 Issues Letter. When providing contact details, the Parties also listed [✂] as an alternative to Photoshop (Adobe response to s109 notice). [✂] is mentioned in the Parties' key-decision making documents, and we consider the strength of [✂] in our assessment.
[8] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C4.9.
[9] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraphs C4.33-C4.34; Parties response to the phase 1 Issues Letter.
[10] Parties' response to the phase 2 Issues Statement, 9 August 2023, paragraph C4.11; Parties' response to the phase 1 Issues Letter.

Marketing Strategy (**AMS**), and Annual Product Strategy (**APS**) documents.[11] The Parties submitted that these documents were relied on in the process used to make strategic commercial decisions at Adobe.[12]

6.   We consider that the extent of commentary around dynamic considerations in key decision-making documents reflects Adobe's understanding of the extent to which alternative suppliers' offerings will evolve in the future and therefore the degree of dynamic threat it perceived.

7.   Given the large number of companies identified at least once in Adobe's decision-making documents, in order to assess the extent of any competitive constraint they exert on Adobe (and on the Merged Entity post-Merger) we have drawn on the groups identified in the Parties' submissions, as follows:

   (a) Companies offering a suite of creative design software;

   (b) Additional companies offering specific asset creation software;

   (c) Additional companies offering product and/or marketing design use cases;

   (d) Further companies we identified in Adobe's key decision-making internal documents;

   (e) 'Big Tech' players; and

   (f) Disruptive trends, consisting of prosumer tools, mobile products, and AI.

8.   Further, because products in these markets are differentiated, the competitive constraints faced by the Merged Entity vary across customer segments. That is, some products exert a stronger or weaker constraint depending on the customer requirements and needs. Our full assessment of customer segmentation is set out above at paragraphs, however we draw in particular on the following factors as context in drawing inference from Adobe's documents.

   (a) As set out in paragraph 9.130, Adobe tends to monitor competitors in the following four categories: (i) creative professionals; (ii) communicators; (iii) consumers; and (iv) education customers. Adobe also considers some more detailed segmentation on occasion, which includes segments closely related to product and marketing design.

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[11] Parties' response to the CMA's request for information (**RFI**) and Adobe response to the CMA's section 109 notice (**s109 notice**).
[12] Adobe response to phase 1 s109 notice.

(b) As set out in paragraph 9.370, there are close dynamic competitive interactions between the Parties in product development in relation to vector and raster editing software, but this only currently takes place for professionals, particularly for product design use cases and to a lesser extent marketing design use cases.

(c) As set out in paragraph 9.6, professional users in vector and raster editing require different functionality to non-professional users, and the user bases are different. Therefore, products focused on non-professional users are unlikely to be credible competitors to professional creative software. We also consider differentiation within professional creative software, in particular for products with a product or marketing design focus.

9.   Moreover, we note that individual competitors may appear more or less frequently in Adobe's key decision-making documents, and the level of detail and analysis can differ across competitors, reflecting the strength of the competitive constraint perceived by Adobe. We take this into account when considering the strength of the competitive constraints below.

10.   We set out below evidence from Adobe's Internal Documents for each group of competitors listed above, for both vector and raster editing.

Vector editing

11.   As explained in paragraph 9.391, one of Adobe's key decision-making documents for Illustrator contains a framework for analysing the competitive landscape. We refer to this framework throughout the appendix:

(a) [✂].[13]

(b) [✂].[14]

(c) [✂].[15]

(d) [✂].[16]

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[13] Adobe Internal Document.
[14] Adobe Internal Document.
[15] Adobe Internal Document.
[16] Adobe Internal Document.

Companies offering a suite of creative design software

12. The Parties identified six products offering a suite of creative design software: Affinity; Corel; Canva; Picsart; Pixlr; and VSCO.[17]

13. Adobe's key decision-making documents for Illustrator identify [✂], [✂], [✂], [✂] as competitors for [✂]. We therefore conducted a more in-depth assessment of these competitors in Chapter 9.

14. Adobe's key decision-making documents do not mention [✂], [✂], [✂] in relation to vector editing. We do not consider them further in vector editing but return to them in raster editing at paragraphs 41 to 45 below.

Additional companies in vector editing software

15. Out of 26 products the Parties listed as additional competitors in vector editing software (see paragraph 1(b) above), Adobe's key decision-making documents for Illustrator mention the following 15 competitors: [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]. We discuss each of these companies below.

16. Adobe's key decision-making documents for Illustrator do not mention the remaining 11 competitors, namely: [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]. We did not identify relevant evidence that would link these companies to vector editing for creative professionals and do not discuss these companies further.

17. Whilst we consider that the key decision-making documents show that Adobe generally positions [✂] as targeting non-professionals, in some other documents [✂] is described as a [✂].[18] Further Inkscape was identified an alternative to Illustrator by several large and mid-sized customers (ie professional users). We therefore provide a more detailed assessment of Inkscape in Chapter 9.

18. We consider that the key decision-making documents show that Adobe generally perceives [✂] as very weak competitors for creative professionals because they target non-professional users rather than professional users.

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[17] Parties' response to the phase 1 Issues Letter.
[18] Adobe Internal Document.

(a) [✂] is a [✂] to Illustrator [✂] and is described as [✂] in a November 2020 document on Illustrator's AMS for 2021.[19] An October 2021 document on Illustrator's APS for 2022 describes it as a [✂].[20]

(b) [✂] is described as a [✂] to Illustrator [✂] in the October 2021 document on Illustrator's APS for 2022,[21] however, a January 2020 document describes [✂] as a [✂].[22]

(c) [✂] is described as a [✂] to Illustrator in the November 2020 document on Illustrator's AMS for 2021.[23] It is also described as a [✂]. [✂] is acknowledged as a [✂] in an October 2021 document on Illustrator's APS for 2022.[24] [✂] is not available on desktop or web and is raster-based software (rather than vector). We consider that this strongly limits the use cases where it competes closely with Illustrator.[25]

19. When asked whether they anticipated entry and expansion into creative design software in our competitor questionnaire, one mobile focussed respondent indicated it believes Procreate will enter into vector editing in mobile within two years.[26] We consider that this would not materially alter Procreate's competitive strength for professionals, given that mobile applications do not appear to be substitutable for desktop or web applications.

20. We consider that the key decision-making documents show that Adobe perceives [✂] as very weak competitors for creative professionals. These competitors were listed only in the Adobe Internal Document dated November 2020 on Illustrator's AMS for 2021 with no further competitor-specific analysis.[27] Therefore, they are less likely to drive Adobe's product development.

(a) [✂], [✂], [✂], [✂] are described as [✂] in an Adobe Internal Document dated November 2020 on Illustrator's AMS for 2021.[28]

(b) [✂], [✂], [✂], [✂], [✂] are described as [✂] alongside [✂] in an Adobe Internal Document dated November 2020 on Illustrator's AMS for 2021.[29] The document also notes that [✂].[30] However, we consider that the class

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[19] Adobe Internal Document.
[20] Adobe Internal Document.
[21] Adobe Internal Document.
[22] Adobe Internal Document.
[23] Adobe Internal Document.
[24] Adobe Internal Document.
[25] [✂].
[26] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[27] Adobe Internal Document.
[28] Adobe Internal Document.
[29]Adobe Internal Document.
[30] Adobe Internal Document.

of competitors to which these third-parties were allocated indicates that any constraint they place would not apply to product design use cases.

21. Finally, we consider that the key decision-making documents also show that Adobe perceives [✄] as very weak competitors for creative professionals since these companies receives less coverage in Adobe's Internal Documents (such as only being listed) and, therefore, are less likely to drive Adobe's product development.

   (a) [✄] is described as a [✄] in an Adobe Internal Document dated November 2020 document on Illustrator's AMS for 2021.[31] An Adobe Internal Document dated October 2021 on Illustrator's APS for 2022 lists [✄].[32] Similar to other [✄] above, Adobe's Internal Documents suggest [✄].[33]

   (b) An Adobe Internal Document dated November 2020 on Illustrator's AMS for 2021 compares the awareness of [✄] with Illustrator (and Photoshop) but does not explicitly list [✄] as a competitor to Illustrator.[34]

   (c) [✄] is described as a desktop competitor to Illustrator (with no further description) in an Adobe Internal Document dated October 2021 on Illustrator's annual product strategy for 2022.[35]

Additional companies for product and/or marketing design use cases

22. Adobe's key decision-making documents do not discuss any additional competitors for product and/or marketing design use cases identified by the Parties, except for [✄].

23. As discussed in paragraphs 9.452 to 9.459, Sketch is described in Adobe's key documents as a competitor specifically for UI/UX use cases and was identified by a small minority of customers as an alternative to Illustrator, along with Figma. Given the importance of differentiation in these markets, we consider Sketch's presence in the same use cases as Figma particularly relevant for the competitive assessment. We therefore provide a more detailed assessment of Sketch in Chapter 9.

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[31] Adobe Internal Document.
[32] Adobe Internal Document.
[33] Adobe Internal Document.
[34] Adobe Internal Document.
[35] Adobe Internal Document.

Big Tech players

24.   We consider that the key decision-making documents show that Adobe perceives [✂] and [✂] are very weak competitors for creative professionals to Illustrator, since they target either non-professionals or professional users who are not creative professionals, such as users of their productivity software.

25.   [✂] and [✂] are described as [✂] to Illustrator for [✂] in an Adobe Internal Document dated October 2021 on Illustrator's APS for 2022.[36] An Adobe Internal Document dated November 2020 on AMS for 2021 allocates [✂] and [✂] [✂].[37]

26.   We did not identify any indication in Adobe's decision-making documents that Big Tech players would disrupt Adobe's position in vector editing.

Further companies we identified in Adobe's key decision documents

27.   Adobe's key decision-making documents mention some other competitors including [✂], [✂], [✂], [✂], [✂]. For completeness, we further consider these companies here.

28.   We consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals because it receives less coverage in Adobe's Internal Documents (such as only being listed) and, therefore, is less likely to drive Adobe's product development. In addition, [✂] is a raster-based software, which strongly limits the use cases where it competes closely with Illustrator.

   (a) [✂] is described as a [✂] competitor to Illustrator (with no further description) in an Adobe Internal Document dated October 2021 on Illustrator's annual product strategy for 2022.[38]

   (b) It is a [✂] in an Adobe Internal Document dated November 2020 on AMS for 2021.[39]

29.   We consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals because it

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[36]Adobe Internal Document.
[37] Adobe Internal Document.
[38] Adobe Internal Document.
[39] Adobe Internal Document.

is mentioned only in a specific context. In addition, the relevant product appears to have been discontinued in June 2021.[40]

(a) An Adobe Internal Document dated November 2020 on AMS for 2021 compares the awareness of [✄], but does not explicitly list [✄] as a competitor to Illustrator.[41]

(b) An Adobe Internal Document dated October 2021 on Illustrator's APS for 2022 lists [✄] as a competitor for [✄] without any further analysis.[42]

30. We consider that the key decision-making documents show that Adobe perceives [✄] as very weak competitors for creative professionals because they target non-professional users. [✄] are described as [✄] in an Adobe Internal Document dated October 2021 on Illustrator's APS for 2022.[43] However, [✄] appear to be [✄] rather than vector editing software, while [✄] is a [✄].

31. When asked whether it anticipated entry and expansion into creative design software in our competitor questionnaire, one respondent submitted that a number of platforms, including Instagram, are expanding into creative design within their platform.[44]

Disruptive trends (prosumer tools, mobile products, and AI)

32. The Parties identified a number of competitors as part of these trends. In particular, they raised Canva, Picsart, Camscanner, DALL-E, Midjourney, Muse.ai, and Stable Diffusion. We consider Canva in Chapter 9. As set out in paragraph 14, we identified that Adobe did not perceive Picsart as a threat in relation to vector editing for professional users. We consider the remaining identified examples together with the general trends in this section below.

33. We consider the document evidence shows that Adobe is facing some challenge from mobile and prosumer players, but these focus on non-professionals rather than professionals. Further, we consider that Adobe's key strategic documents do not indicate that mobile-led suppliers would expand into web or desktop-based software.

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[40] 'SketchBook | Sketchbook Software Discontinued | Autodesk', accessed by the CMA on 25 September 2023.
[41] Adobe Internal Document.
[42] Adobe Internal Document.
[43] Adobe Internal Document.
[44] Third-party response to the CMA's phase 2 creative design competitor questionnaire.

(a) An Adobe Internal Document dated November 2020 on Illustrator's AMS for 2021 states that [✂].[45]

(b) A summary of Photoshop's Competitive Landscape discussed by [✂] (Adobe, VP of Digital Imaging) at a Photoshop Strategy Planning in June 2022 meeting states that [✂], the document also states that [✂].[46]

34.   In relation to the views that were expressed by respondents to our competitor questionnaire, we note the following:

(a) One mobile focussed respondent indicated it believes Procreate will enter into vector editing in mobile within two years.[47]

(b) Another respondent submitted that a number of platforms (eg Google Ads, Instagram, TikTok, Microsoft Bing) are expanding to creative design within their platforms as well as offer standalone creative design tools (eg CapCut, Microsoft Designer).[48]

(c) Another respondent noted that Figma was well positioned to expand into point tool functionality given its strong network effects, collaboration capabilities and high user 'stickiness'.[49]

(d) A respondent noted its plans to build an Ai power image editor/creator for a niche use case which would marginally compete with Adobe.[50]

(e) One respondent told us that the effect of AI on the industry is uncertain: 'It could be totally transformative, or it might not be'.[51]

35.   Adobe's key decision-making documents do not discuss AI in the context of vector editing. The summary of Photoshop's Competitive Landscape discussed by [✂] (Adobe, VP of Digital Imaging) at a Photoshop Strategy Planning meeting in June 2022 states that [✂]. [✂], this part of the document [✂].[52] We consider that the threat from AI is positioned as a longer-term possibility and more of an enabler of competition than a competitive threat in itself.

36.   The Parties submitted that there are additional key documents which provide evidence that [✂] and that [✂],[53] however, the key decision-making

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[45] Adobe Internal Document.
[46] Adobe Internal Document.
[47] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[48] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[49] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[50] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[51] Third-party call note.
[52] Adobe Internal Document.
[53] Parties' response to TOH 2 working paper.

document identified by the Parties does not discuss AI in the context of vector editing.[54] The other documents identified by the Parties in this context were part of a different series of documents (ie they are not within the key decision-making documents previously identified by the Parties identified in paragraph 5), but are, in any event broadly consistent with the other evidence we have considered.[55]

37.   Several customers stated that AI is the most significant long-term competitive threat to Adobe in creative design software more broadly, although respondents to our competitor questionnaire reflected substantial uncertainty in the future of AI.[56]

38.   We also note the following individual third-party views specifically in relation to AI:

(a)   One respondent to our competitor questionnaire noted that AI native companies could present a significant challenge to Figma and Adobe, highlighting startups like Stability.ai, Runway.ML, Synthesia, and others that have successfully entered the market and appear to be expanding.[57]

(b)   One customer told us that 'Gen AI is quickly impacting content generation across all formats (text, imagery, UI/UX, video, sound, code). Many software companies (including Adobe and Figma) are incorporating Gen AI in their software today and creating new business models'.[58]

(c)   Another customer stated that 'AI will increasingly be a feature of creative design software but it is unlikely to replace creative functions in the near future'.[59]

39.   Overall, we consider that the threat of entry from prosumer tools, mobile products, and AI is not sufficient to pose more than a weak competitive constraint in vector editing software for professionals over the short to medium term.

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[54] Adobe Internal Document.
[55] Adobe Internal Documents.
[56] Question 30 of the CMA's phase 2 customer questionnaire states 'Absent the Merger, what do you consider to be Adobe and Figma's most significant and long-term competitive threats to their respective market position in creative design and screen design software? Please explain your reasoning.' Third-party responses to the CMA's phase 2 customer questionnaire. [[✂], [✂], [✂], [✂], [✂]].
[57] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[58] Third-party response to the CMA's phase 2 customer questionnaire.
[59] Third-party response to the CMA's phase 2 customer questionnaire.

Raster editing

40. We set out below evidence from Adobe's Internal Documents in the same groups as for vector editing, as outlined in paragraph 7. One of Adobe's key decision-making documents for Photoshop [✂] (summarised in paragraph 11 above).[60] We refer to this framework throughout the section:

    (a) [✂].

    (b) [✂].

    (c) [✂].

    (d) [✂].

Companies offering a suite of creative design software

41. The Parties identified six competitors offering a suite of creative design software: Affinity; Corel; Canva; PicsArt; Pixlr; and VSCO.[61]

42. Adobe's key decision-making documents for Photoshop identify [✂], [✂], [✂], [✂] as competitors [✂]. We therefore conducted a more detailed assessment of these competitors in Chapter 9.

43. Adobe's key decision-making documents mention [✂] and [✂] in the context of non-professional users. We provide more detail below.

44. In relation to [✂], we consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals since it primarily targets non-professionals and receives less coverage in Adobe's Internal Documents (such as only being listed) and, therefore, is less likely to drive Adobe's product development.

    (a) A 2021 ABS for FY22 for Photoshop identifies [✂] as a competitor [✂].[62] However, it is not mentioned in some other documents, such as 2021 Photoshop AMS or 2022 APS.

    (b) Adobe's other documents also [✂] when discussing [✂]. An Adobe Internal Document dated September 2022 shows [✂].[63] An Adobe

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Internal Document on Photoshop Web strategy document in February 2022 states [✂].[64]

(c) However, we identified some evidence that shows Adobe may have also perceived [✂] as a dynamic threat. In particular, a summary of Photoshop's Competitive Landscape discussed by [✂] (Adobe, VP of Digital Imaging) at a Photoshop Strategy Planning meeting in June 2022 states [✂].[65] We consider that the reference [✂] together with its non-professional framing in the key decision documents means that Adobe did not perceive [✂] as a dynamic threat to professional users.

45.   In relation to [✂], we consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals since it primarily targets non-professionals and receives less coverage in Adobe's Internal Documents (such as only being listed) and, therefore, are less likely to drive Adobe's product development.

(a) An Adobe Internal Document dated October 2020 on 2021 Photoshop AMS as a [✂] to Photoshop.[66]

(b) An Adobe Internal Document dated September 2021 on 2022 ABS for Photoshop describes [✂] as a competitor [✂].[67]

Additional companies in raster editing software

46.   Out of 34 companies that the Parties listed as additional competitors in raster editing software, Adobe's key decision-making documents for Photoshop mention the following 18 companies: [✂]; [✂]; [✂];[✂]; [✂]; [✂]; [✂]; [✂];[68] [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂].

47.   Adobe's key decision-making documents for Photoshop do not mention the remaining 16 companies: [✂];[✂]; [✂]; [✂];[✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]; [✂]. We did not identify relevant evidence that would link these companies to vector editing for creative professionals, and do not discuss these companies further.

48.   Pixelmator, GIMP, and Procreate were identified as alternatives by large and mid-sized customers (ie professional users). Therefore, we consider they are among the competitors that exert a meaningful constraint on Adobe for

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[64] Adobe Internal Document.
[65] Adobe Internal Document.
[66] Adobe Internal Document.
[67] Adobe Internal Document.
[68] See the section on Big Tech players, below (paragraph 52).

professional users. We therefore provide a more detailed assessment of their constraints in Chapter 9.

49.   We consider that Adobe's key decision documents show that Adobe perceives [✁] as very weak competitors for creative professionals since they target non-professionals and receive less coverage in Adobe's key decision-making documents.

   (a) [✁], [✁], [✁], [✁], [✁] an Adobe Internal Document dated October 2020 on 2021 Photoshop AMS [✁].[69]

   (b) An Adobe Internal Document dated September 2021 on 2022 ABS for Photoshop [✁], [✁], [✁], [✁] [✁]; [✁] [✁] [✁].[70]

   (c) An Adobe Internal Document dated August 2020 on Photoshop AMS [✁] contains an analysis of [✁] [✁] [✁].[71]

   (d) [✁] [✁] are mentioned as competitors to Lightroom (rather than Photoshop) in a draft Adobe Internal Document dated July 2021 on Photoshop/Creative Imaging ABS FY21.[72]

   (e) An Adobe Internal Document on QBR document from June 2021 lists [✁] and [✁] as competitors in photography (rather than design) in the UK and Germany (together with [✁], and [✁]).[73]

50.   We consider that the internal documents we reviewed show that Adobe perceives [✁] and [✁] as very weak competitors for creative professionals since they are only mentioned once in a very specific context in Adobe's key decision-making documents.

   (a) An Adobe Internal Document on QBR document from June 2021 lists [✁] in photography (rather than design) [✁] (together with [✁], [✁], [✁]).[74]

   (b) [✁] is described as [✁] of an Adobe Internal Document dated November 2021 on Photoshop APS for 2022.[75]

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[69] Adobe Internal Document.
[70] Adobe Internal Document.
[71] Adobe Internal Document.
[72] Adobe Internal Document.
[73] Adobe Internal Document.
[74] Adobe Internal Document.
[75] Adobe Internal Document.

Additional companies for product and/or marketing design use cases

51.   Adobe's key decision-making documents do not discuss any additional
      competitors for product and/or marketing design use cases identified by the
      Parties, except [✖] (discussed above) and [✖] (discussed below).

Big Tech players

52.   We consider that the key decision-making documents show that Adobe
      perceives [✖] as very weak competitors for creative professionals since they
      target either non-professionals or professional users who are not creative
      professionals, such as users of their productivity software.

      (a) [✖], [✖], [✖] are briefly mentioned [✖] in an Adobe Internal Document
      dated October 2020 on 2021 Photoshop AMS, [✖].[76]

      (b) An Adobe Internal Document dated September 2021 on 2022 ABS for
      Photoshop describes [✖], [✖] as competitors for [✖].[77]

      (c) [✖] [✖] are also mentioned in an Adobe Internal Document dated
      November 2021 on 2022 Photoshop APS. [✖].[78] However, there is no
      indication that either is a strong competitive threat to product design use
      cases and no detailed analysis on what their AI offerings could mean for
      the future.

53.   When asked whether they anticipated entry and expansion into creative
      design software in our competitor questionnaire, two respondents identified
      Big Tech firms as entrants. We consider that these responses indicate a Big
      Tech focus on non-professional creative users.

      (a) One respondent noted its plans to build an AI power image editor/creator
      for a niche use case which would marginally compete with Adobe.[79]

      (b) One respondent identified platforms such as Microsoft and Google as
      existing entrants and said 'platform users will no longer need creative
      tools outside the platforms. Creative tools will need to evolve quickly to
      offer more differentiated and innovative creative tools'.[80]

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[76] Adobe Internal Document.
[77] Adobe Internal Document.
[78] Adobe Internal Document.
[79] Third-party response to the CMA's phase 2 creative design competitor questionnaire.
[80] Third-party response to the CMA's phase 2 creative design competitor questionnaire.

Further companies we identified in Adobe's key decision documents

54. Adobe's key decision-making documents mention some other companies, namely [✂]. For completeness, we further consider these companies here.

55. We consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals since it is only mentioned in a specific context when discussing high-end workflows. In addition, [✂] appears to be video editing software rather than raster editing software. [✂] is mentioned in an Adobe Internal Document dated November 2021 on 2022 Photoshop APS [✂], specifically in the context of 'compositing'.[81]

56. We consider that the key decision-making documents show that Adobe perceives [✂] as a very weak competitor for creative professionals since it is focused on digital artists rather than creative professionals. In addition, it appears to be vector editing software rather than raster editing software (see paragraph [✂] on [✂] in the vector editing section).

    (a) A draft Adobe Internal Document dated July 2021 on ABS states [✂].[82]

    (b) [✂] is mentioned in an Adobe Internal Document dated November 2021 on 2022 Photoshop APS [✂].[83]

57. We consider that the key decision-making documents show that Adobe perceives [✂] as very weak competitors for creative professionals since they are competitors to Photoshop APIs rather than the main version of Photoshop. They are briefly mentioned in an Adobe Internal Document dated October 2020 on 2021 Photoshop AMS as image processing specialists. [✂], [✂], [✂], [✂], [✂] are also considered in a competitive assessment with Photoshop and Photoshop Lightroom APIs.[84]

58. We consider that the key decision-making documents show that Adobe perceives [✂] and [✂] as very weak competitors for creative professionals since they target non-professionals.

    (a) [✂] is listed as a [✂] in some decision-making documents (eg an Adobe Internal Document dated October 2020 on 2021 Photoshop AMS).[85] There is no further in-depth analysis of [✂] in any later decision-making

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[81] Adobe Internal Document.
[82] Adobe Internal Document.
[83] Adobe Internal Document.
[84] Adobe Internal Document.
[85] Adobe Internal Document.

documents. As described in paragraph [✂] above, [✂] appears to target non-professionals.

    (b) [✂] is briefly mentioned as a competitor [✂] in an Adobe Internal Document dated September 2021 on 2022 ABS for Photoshop.[86]

59.   We consider that the key decision-making documents show that Adobe perceives [✂] as very weak competitors for creative professionals since they focus on mobile and compete with Adobe's mobile offering rather than Photoshop desktop or web.

    (a) [✂] according to an Adobe Internal Document dated November 2021 on Photoshop APS for mobile FY22.[87]

    (b) [✂] [✂] are described as [✂] to [✂] in an Adobe Internal Document dated March 2022 on QBR for [✂].[88]

    (c) The Adobe Internal Document dated November 2021 on 2022 Photoshop APS mentions [✂].[89]

    (d) An Adobe Internal Document dated August 2020 on Photoshop [✂] states that [✂].[90]

    (e) [✂], [✂], [✂] are mentioned in the context of [✂] in the draft Adobe Internal Document dated August 2021 on Photoshop/Creative Imaging ABS FY21.[91]

Disruptive trends (prosumer tools, mobile products, and AI)

60.   The Parties identified a number of companies as part of these trends. In particular, they raised Canva, Picsart, Camscanner, DALL-E, Midjourney, Muse.ai, and Stable Diffusion. We consider Canva and Picsart in Chapter 9.

61.   We consider the remaining identified examples together with the general trends in this section below. Adobe's key decision-making documents do not discuss any specific individual prosumer tools (beyond those covered individually in the sections above) as relevant to raster editing.

62.   We consider the document evidence shows that Adobe is facing some challenge from mobile and prosumer players, but these focus on non-

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[86] Adobe Internal Document.
[87] Adobe Internal Document.
[88] Adobe Internal Document.
[89] Adobe Internal Document.
[90] Adobe Internal Document.
[91] Adobe Internal Document.

professionals rather than professionals. Further, we consider that Adobe's key strategic documents [✄] expand [✄].

(a) An Adobe Internal Document dated November 2021 on 2022 Photoshop APS mentions that [✄]. The document also mentions [✄] [✄] [✄].[92]

(b) Adobe's key strategic documents [✄].

63. In relation to AI, we consider the evidence set out in paragraphs 35 to 38 above generally also applies to raster editing, although we consider AI could be a nearer term threat to raster editing than it is to vector editing. In particular the Discussion Photoshop 2022 Priorities document identifies [✄].[93] Further, [✄] is one of only three competitors mentioned in an Adobe Internal Document dated December 2022 on 2023 Photoshop APS. Along with [✄] is identified as a threat to [✄] customers.[94]

64. There is also evidence that Adobe has been responding to the threat of AI to raster editing through Firefly, which leverages AI capability for Adobe's existing Creative Cloud applications, particularly Photoshop.[95] This demonstrates that the product development Adobe is incentivised to undertake by the threat of AI is different to the product development that it is incentivised to undertake by the threat of Figma, which led to web-based software being developed.

65. The Parties also submitted that there are additional key decision-making documents which provide evidence that [✄], including the Discussion Photoshop 2022 Priorities document discussed above.[96] The other documents identified by the Parties in this context were part of a different series of documents (ie they are not within the key decision-making documents previously identified by the Parties identified in paragraph 5), but are, in any event broadly consistent with the other evidence we have considered.[97]

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[92] Adobe Internal Document.
[93] Adobe Internal Document.
[94] Adobe Internal Document.
[95] Parties' response to the TOH 2 Working Paper.
[96] Parties' response to TOH 2 working paper.
[97] Adobe Internal Documents.

Glossary

ABS	Adobe's annual business strategy.
the **Act**	The Enterprise Act 2002.
Adobe	Adobe Inc.
Adobe Express	Adobe's social media content creation application.
Adobe XD	Adobe's all-in-one product design tool.
Advanced image manipulation	Certain functionality offered by a subset of raster editing tools, with examples provided by the Parties including distorting or liquifying an image.
AEs	Account executives.
After Effects	Adobe's motion design software.
AI	Artificial intelligence.
AI and ML tools	Tools that use artificial intelligence (AI) or machine learning (ML).
All-in-one product design	A software including all five stages in the product design process (ie sketching, wireframing, mock-up, prototyping and handoff). which can also include whiteboarding software.
AMS	Annual marketing strategy.
Application Programming Interface (API)	An application programming interface allows communication between computer programs.
APS	Annual product strategy, the approval of strategy for existing products and platform initiatives within Adobe.
AR / VR	Augmented reality / virtual reality.
ARR	Annual recurring revenues.
Canva	Canva Pty Ltd's graphic design software.
CC	Creative Cloud: Adobe's family of products, applications, web services and resources.

CC All Apps	All Apps offering: all Adobe's Creative Cloud's applications offered as part of a bundle.
CCE	Creative Cloud offering for enterprise.
CCI	Creative Cloud offering for individuals.
CCT	Creative Cloud offering for teams.
CEO	Chief Executive Officer.
CMA	Competition and Markets Authority.
Concept Accept	Adobe's initial stakeholder approval for new products, services, apps, initiatives, offers, etc.
Config	Figma's annual user conference.
CPros	Creative Professionals.
Creative design	Software used to create and design audio-visual media, either as standalone work (eg a photographic artwork or a video such as a movie) or as underlying assets (eg a website graphic or app icon) for other creative uses, including product design.
CTO	Chief Technology Officer.
DCF	Discounted cash flow.
Design System Management	A design system consists of a shared location containing reusable design resources, such a file of UI elements/symbols that are kept up to date.
Designers	Users of product design and creative design software.
Dev Mode	Figma's developers' tool launched in June 2023, allowing the translation of designs into code.
DI	Digital Imaging, Adobe's team responsible for products such as Photoshop and Lightroom.
DME	Adobe's Digital Media business.
DOJ	The United States' department of Justice, antitrust division.
EOL	End of life.

Extensions	In the context of Figma's products, extensions are a collective term for plug-ins and widgets.
Figma	Figma, Inc.
Figma Design	Figma's web-based product design tool.
FigJam	Figma's online whiteboarding tool.
Figma Ventures	Figma's venture capital investment arm.
FigNation	Figma's all staff internal 45-minutes meeting.
Forrester	Forrester Research, Inc., a global market research company.
FTE	Full-time equivalent, measuring the number of employees allocated to a project or working in a company.
GA	General availability.
GTM	Go to market.
Go-To-Market Plan	Adobe's milestone to gain approval of plans and programs that reflect campaign marketing, partnerships, engagement, country differences if any.
Handoff	The creation of a document with all details and digital assets (eg images or graphics) required to publish the end product.
Illustrator (Ai)	Adobe's vector editing software.
the **Inquiry Group**	The group of independent members appointed by the CMA to investigate and report on the Merger in accordance with section 36(1) of the Act.
Interactive product design	See Product design.
LOI	Letter of intent.
MAGs	The CMA's Merger Assessment Guidelines (CMA129), March 2021.
Marketing design	The use of software to create and design experiences that involve some degree of user interaction using various pieces of underlying creative assets, and which constitute

	digital marketing material (eg website landing pages and marketing emails).
MAU	Monthly active users.
MAX	Adobe's annual customer event, held in October.
Merged Entity	Adobe and Figma, for statements referring to the future.
the **Merger**	The anticipated acquisition of Figma by Adobe.
Mockup	The creation of high-fidelity graphic representations of the finished product.
Motion design	Software used to create motion graphics and visual effects to video content.
NDA	Non-disclosure agreement.
No-code/low-code tools	Professional templates-based tools used to design websites with little or no code.
Other product design software providers	Point tools, no/low-code website builders, and prosumer tools.
the **Parties**	Adobe Inc. and Figma, Inc.
Parties' Issues Statement Response	The Parties' response to the CMA's phase 2 Issues Statement, published on 13 October 2023.
Photoshop (Ps)	Adobe's raster editing software.
Pixel manipulation	The ability to change individual pixels in an image.
Plug-ins	Extensions to software, such as product design tools, enabling to expand their functionalities. Also referred to under the general term 'extensions'.
Point tool	Tools that only address one or a limited number of the five steps of the product design process (ie sketching, wireframing, mock-up, prototyping and handoff).
Premiere Pro	Adobe's video editing software.

Private beta	An early version of a product only accessible to a restricted audience.
Project Flow	Figma's code name for the proposed Merger.
Project Fulham	Adobe's code name for a potential acquisition of Figma in 2020. Also known as Project Fullmer or Project Fulmer.
Project Rand	Adobe's code name for a potential acquisition of Figma in 2021.
Project Saratoga	Adobe's code name for the proposed Merger.
Project Spice	The name of Adobe's development plans for Adobe XD. Also referred to as Project Fred, CC Web, Canvas or Spice.
Project X	Adobe's efforts to bring Express on the web. Also referred to as Adobe Express, CCX or X.
Product design	The use of software to create and design experiences that involve some degree of user interaction using various pieces of underlying creative assets, and which constitute design of websites and mobile applications. We consider that interactive product design and product design are terms which can be used interchangeably, and we use product design throughout this report.
Prosumer tools	Applications offering some product design functionalities, typically used for less sophisticated designs (eg photo and video editing for social media, websites, and marketing tools), built for non-professional users.
Prototyping	The creation of interactive digital 'sandboxes' in product design, which look like the finished product, and are used to simulate and test user interactions.
Provisional Findings	The CMA's Provisional Findings of 28 November 2023.
Public Beta	An early product release open to a large customer base, offering a more limited set of features than a full product version 1.0 launch.
Qatalyst	Qatalyst Partners, an investment bank advising Figma on the proposed Merger.

QBR	Quarterly business review conducted by Adobe's DME in the third fiscal week of quarters 2, 3, and 4 to set milestones and plans for the upcoming quarter.
Raster editing	Software used for point-based image editing and compositing.
RCBs	Relevant customer benefits.
RMAU	Repeat monthly active users.
RWAU	Repeat weekly active users.
the **Remedies Notice**	The CMA's Notice of Possible Remedies of 28 November 2023.
RFI	Request for information
RMS	Relevant merger situation, within the meaning of that term in section 23 of the Act.
S4R	Share for Review: one of Adobe's features that allows an author to share its project with collaborators for feedback and review.
SaaS	Software as a service.
Screen design	Software used to create and design experiences that involve some degree of user interaction, such as websites or mobile applications, and which are built using various pieces of underlying creative assets. (On the basis of this definition, screen design includes product design and marketing design).
Sketching	A preliminary step in product design that involves outlining of ideas and concepts.
Single Apps	Single Apps offering: Adobe Creative Cloud applications offered on a standalone basis.
SLC	Substantial lessening of competition, within the meaning of that term in section 35 of the Act.
SMB	Small and medium sized businesses.
SVP	Senior Vice President.

TAM	Total addressable market.
TOH	Theory of harm.
UK	United Kingdom.
UI	User interface.
UX	User experience.
Vector editing	Software used to create content, such as logos, icons, brand graphics, marketing materials, and illustrations.
Video editing	Software used for video asset assembling to create video content.
Visual interface builders / integrated developers' environments (IDEs)	Developer-centric design tools that integrate into their native coding environments.
VP	Vice President.
WAU	Weekly active users.
Whiteboarding	The exchange of assets and ideas by sketching on a shared digital space resembling a whiteboard. Also referred to as 'ideation'.
Whiteboarding tools	Are tools that provide a shared space for free-form exchange of ideas (ideation) and brainstorming.
Wireframing	The creation of diagrams in product design that represent the skeleton, user interface, and core functionality of an app or website.
XDC	Experience design and collaboration. Adobe's organisation responsible for Adobe XD.
XD Web	An earlier project by Adobe to bring Adobe XD on the web.

Table of employee roles

Name	Role during Merger negotiations (March 2022 to 15 September 2022)
[✂]	Adobe, Chairman and CEO
[✂]	Adobe, President of Digital Media
[✂]	Adobe, Chief Product Officer of Creative Cloud
[✂]	Adobe, Executive Vice President, Corporate Strategy & Development, and Chief Marketing Officer
[✂]	Adobe, General Counsel
[✂]	Adobe, Executive Vice President, Finance, Technology Services, and Operations, and Chief Financial Officer
[✂]	Adobe, Chief Technology Officer, Digital Media
[✂]	Adobe, SVP of Sales and Customer Support
[✂]	Adobe, SVP of Digital Media Global Marketing
[✂]	Adobe, SVP of Adobe Express and Creative Cloud Services
[✂]	Adobe, SVP of Business Platform
[✂]	Adobe, VP of Creative Cloud Services
[✂]	Adobe, VP of Design, Digital Media
[✂]	Adobe, VP of Products Digital Media
[✂]	Adobe, VP of CC Web App
[✂]	Adobe, VP of Digital Imaging
[✂]	Adobe, VP of Digital Video and Audio
[✂]	Adobe, VP of Experience Design and Collaboration
[✂]	Adobe, VP of Digital Media Strategic Development
[✂]	Adobe, VP of Photoshop
[✂]	Adobe, VP of Creative Cloud Developer Platform

Name	Role during Merger negotiations (March 2022 to 15 September 2022)
[✂]	Adobe, Senior Director of Strategic Development
[✂]	Adobe, Senior Director of CC Product Marketing
[✂]	Adobe, Senior Director and Head of Brand Strategy
[✂]	Adobe, Senior Director of Design
[✂]	Adobe, Director of Product Growth & Data Science, Adobe Creative Cloud
[✂]	Adobe, Director of Product Management
[✂]	Adobe, Director of Experience Design
[✂]	Adobe, Director of Product Marketing
[✂]	Adobe, Director of Products
[✂]	Adobe, Director of Creative Cloud, LCM, E&R Marketing in Japan
[✂]	Adobe, Senior Manager, CC Ecosystem Development, EMEA
[✂]	Adobe, Senior Product Marketing Manager, CC
[✂]	Adobe, Principal Product Manager
[✂]	Adobe, Principal Product Marketing Manager
[✂]	Adobe, Product Marketing Manager
[✂]	Adobe, Senior Research Lead
[✂]	Adobe, Senior Director, HR Business Partner, Creative Cloud
[✂]	Adobe, Principal Solutions Consultant
[✂]	Adobe, VP & General Manager of Creative Cloud Product Marketing & Community and Digital Media Education
[✂]	Adobe, VP of Product Marketing
[✂]	Figma, CEO and co-founder

Name	Role during Merger negotiations (March 2022 to 15 September 2022)
[✆]	Figma, Co-founder and former Chief Technology Officer
[✆]	Figma, Chief Financial Officer
[✆]	Figma, Chief Customer Officer
[✆]	Figma, Chief Revenue Officer
[✆]	Figma, Chief Technology Officer (From May 2022 – before this, VP of Engineering)
[✆]	Figma, Chief Product Officer
[✆]	Figma, Chief People Officer
[✆]	Figma, Head of Corporate Development & Strategy
[✆]	Figma, VP of Product
[✆]	Figma, VP of Product Design
[✆]	Figma, Corporate Development & Strategy
[✆]	Figma, GTM Strategy & Ops
[✆]	Figma, Group Product Manager, Collaboration & Native