

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

United States of America, *et al.*,

Plaintiffs,

v.

Google LLC,

Defendant.

Case No. 1:20-cv-03010-APM

HON. AMIT P. MEHTA



State of Colorado, *et al.*,

Plaintiffs,

v.

Google LLC,

Defendant.

Case No. 1:20-cv-03715-APM

HON. AMIT P. MEHTA



DEFENDANT'S RESPONSIVE PROPOSED FINDINGS OF FACT

TABLE OF CONTENTS

INTRODUCTION 1

I. PLAINTIFFS’ PROFFERED RELEVANT ANTITRUST PRODUCT MARKETS FAIL.....5

A. Google Competes with Other Online Sources That Serve Users’ Information Needs5

1. The Evidence Does Not Support Plaintiffs’ “One-Stop-Shop” Market Definition.....5

2. Specialized Vertical Providers Are a Reasonable Substitute for Google Search on Specific Categories of Queries7

3. Social Media Is Increasingly a Substitute for Google Search.....8

4. Both Internal and External Sources Recognize That Google Competes with SVPs and Social Media Platforms9

B. Plaintiffs’ Ads Market Definitions Are Too Narrow11

II. PLAINTIFFS HAVE NOT SHOWN GOOGLE POSSESSES MONOPOLY POWER IN THEIR ALLEGED MARKETS16

A. The Evidence Does Not Support Plaintiffs’ Search Services Monopoly Power Claim.....16

1. Plaintiffs Do Not Show Monopoly Power Through Indirect Evidence.....16

2. Plaintiffs Do Not Show Monopoly Power Through Direct Evidence.....18

B. The Evidence Does Not Support Plaintiffs’ Search Advertising Monopoly Power Claim.....20

1. “Pricing Knobs” Do Not Establish Monopoly Power.....21

2. Google’s Improvements to Keyword Match Types and Search Query Reports Do Not Establish Monopoly Power.....24

3. Advertisers Have Reasonable Substitutes for Google Search Text Ads25

III. THE BROWSER DEFAULT SEARCH AGREEMENTS DO NOT VIOLATE SECTION 2 OF THE SHERMAN ACT29

A. Plaintiffs Have Failed to Establish That Google’s Default Search Agreements with Browsers Are Exclusive29

B. Search Engine Defaults Do Not Substantially Foreclose Rivals36

C. Plaintiffs Provide No Legitimate Basis to Disregard Competition on the Merits for Search Default Agreements53

D. Plaintiffs’ Allegations of Competitive Harm Are Unsubstantiated61

1.	Plaintiffs’ Arguments Regarding the Role of Scale Are Contrary to the Evidence.....	62
2.	Plaintiffs’ Speculation Regarding Apple Has No Basis in the Record.....	74
3.	Plaintiffs’ Arguments Regarding Investment Incentives Are Contrary to the Evidence	80
4.	Plaintiffs’ Contentions Regarding Google’s Privacy Options and Data Practices Find No Support in the Record	83
E.	Plaintiffs Fail to Rebut the Legitimate Business Justifications Generating Procompetitive Benefits That Support Google’s Default Browser Agreements	91
F.	Plaintiffs Have Not Identified a Valid Substantially Less Restrictive Alternative for Achieving the Procompetitive Benefits That Google’s Browser Default Agreements Generate	96
IV.	THE ANDROID AGREEMENTS DO NOT VIOLATE SECTION 2 OF THE SHERMAN ACT	104
A.	Plaintiffs Have Failed to Prove That Google’s Android Agreements Are Exclusive or <i>De Facto</i> Exclusive.....	104
1.	Google’s MADAs Are Not “Effectively Compulsory” or <i>De Facto</i> Exclusive.....	104
2.	Google’s RSAs Do Not “Lock Up” Exclusivity.....	112
B.	Plaintiffs Have Failed to Prove Substantial Foreclosure from the Android Agreements	115
C.	Branch Metrics Is Not Evidence of Harm to Competition	116
1.	There Is No Evidence That Branch “Threatened” Google Search	116
2.	No Carrier or OEM Viewed Branch as Conflicting with the RSAs	118
3.	Discovery Is Available on Millions of Devices Today.....	122
D.	Plaintiffs Fail to Rebut Procompetitive Justifications in Support of Google’s MADAs and Android RSAs.....	122
E.	Plaintiffs’ Invalid Less Restrictive Alternatives Do Not Achieve the Same Procompetitive Benefits.....	129
V.	GOOGLE’S SA360 CONDUCT CANNOT SUPPORT COLORADO PLAINTIFFS’ SECTION 2 MONOPOLY MAINTENANCE CLAIM	131
A.	Google Never Had a Prior Course of Dealing with Microsoft	131
B.	There Is No Evidence That Google Sacrificed Short-Term Profits in a Manner That Was Irrational but for Injuring Competition	132
C.	There Is No Evidence That SA360 Made Feature Development Decisions to Favor Google Ads.....	132

D.	Colorado Plaintiffs Erroneously Equate Google Ads’ and Microsoft Ads’ Auction-Time Bidding Functionalities	134
E.	Google Has Built and Is Testing Microsoft Auction-Time Bidding for SA360	135
F.	Google’s Development of Microsoft Auction-Time Bidding Features Reflects Reasonable Business Judgment	135
G.	Colorado Plaintiffs Have Provided No Evidence of Harm to Microsoft, Advertisers, or Competition; Google’s Operation of SA360 Is Procompetitive	139
VI.	COLORADO PLAINTIFFS FAILED TO PROVE THAT GOOGLE’S ALLEGED CONDUCT HAS HARMED RIVAL GSEs’ ABILITY TO PARTNER WITH SVPs OR OTHER CONTENT PROVIDERS	141
VII.	THE COURT SHOULD REJECT PLAINTIFFS’ ACCUSATIONS REGARDING GOOGLE’S DOCUMENT PRESERVATION PRACTICES.....	144
A.	Plaintiffs Identify No Prejudice from Google’s Good-Faith Chats Policies.....	145
B.	Plaintiffs Identify No Prejudice From Google’s Privilege Labels.....	148

ABBREVIATIONS

CITATION	CORRESPONDING FILING
Google Br.	Defendant's Post-Trial Brief (ECF 826)
Google COL	Defendant's Proposed Conclusions of Law (ECF 827)
Google FOF	Defendant's Proposed Findings of Fact (ECF 828)
DOJ Br.	Plaintiffs' Post-Trial Brief (ECF 820)
DOJ COL	Plaintiffs' Proposed Conclusions of Law (ECF 821)
DOJ FOF	Plaintiffs' Proposed Findings of Fact (ECF 822)
Colorado Br.	Plaintiff States' Post-Trial Brief (ECF 823)
Colorado COL	Plaintiffs States' Proposed Conclusions of Law (ECF 824)
Colorado FOF	Plaintiffs States' Proposed Findings of Fact (ECF 825)

INTRODUCTION

Plaintiffs made the supposed importance of defaults and scale the centerpiece of their case. As a threshold legal matter, neither has the import that Plaintiffs assign. *See* Google COL ¶¶ 61-75, 98-107; Google Responsive COL ¶¶ 18-35, 50-53. But focusing for present purposes on their proffered findings of fact, Plaintiffs offer little in support of these central claims. Their purported proof that defaults and scale give Google an “insurmountable advantage,” DOJ Br. at 3, comes not from credible witness testimony or from empirical analysis derived from the reams of data produced by Google and third parties, but largely from snippets from documents, often taken out of context, and many of which were not used with any witness at trial.

Defaults. To make their case that “[m]any general-search queries are controlled by the power of defaults, and that is especially true on mobile devices,” DOJ FOF ¶ 867, Plaintiffs place great weight on statements plucked from documents, in many instances not even about search; single comments from surveys; and sweeping, but uncorroborated, generalizations from the testimony of witnesses from rival search engines. By contrast, Plaintiffs devote little discussion or analysis to actual market data or undisputed facts. When they do use numbers, the numbers they choose to rely on are not those reflecting what has occurred in the real world when defaults were switched away from Google, but instead projections and forecasts, as well as examples from other, very different contexts, such as Apple Maps and the Russian search engine market. As addressed below, the actual market data demonstrates that—contrary to the self-serving testimony of Microsoft executives—search engine defaults do not “control” where users send their queries and are not “winner-take-all” deals. A superior rival can compete against the default to win a ***large majority*** of users, just as Google has on Firefox, Windows PCs, and mobile devices—where rivals had won search distribution deals and thus were the out-of-the-box default. And while it may be true that the search engine in the default “will gain share no matter

what the quality,” DOJ FOF ¶ 882 (quoting Tr. 2722:2-10 (Parakhin (Microsoft))), that fact counsels *against* market intervention preventing the indisputably highest-quality search engine from competing to win the default, not for propping up inferior rivals knowing that some subset of users will suffer as a result.

Scale. Plaintiffs also have failed to prove their contention that the challenged agreements have “deprived rivals (and potential entrants) of the user-side data necessary to compete effectively.” DOJ Br. at 31. Plaintiffs’ contentions regarding scale rest on decade-and-a-half old emails (which, given the subsequent revolution in language understanding and search, have greatly diminished relevance in today’s world); snippets of documents (many of which were not used with any witness at trial); and the conclusory, self-serving testimony of Microsoft’s Mikhail Parakhin. None of these sources provides credible evidence on this highly technical subject matter. And they cannot overcome the evidence Google has put forward establishing (1) the importance of factors other than user interaction data on search engine quality, factors which explain both Google’s successes and Microsoft’s failures; (2) that the empirical data, whether Professor Fox’s data reduction experiment or the natural experiment of Bing’s doubling in size upon its syndication deal with Yahoo, disproves the claim that Microsoft would improve from additional scale; and (3) that the rise of modern large language models that use little or no user interaction data to train have transformed the future of search, as Google engineers and Neeva’s Dr. Ramaswamy explained (*i.e.*, with 2.5% of U.S. search queries, Neeva could compete with Google on search quality).

Plaintiffs’ reliance on snippets from documents rather than witness testimony or empirical analysis goes further. Throughout their submissions, Plaintiffs place great weight on statements in documents where the author was neither deposed nor called to testify at trial, even

where witnesses with knowledge who *did* testify at trial expressly contradict the conclusion the Plaintiffs seek to have this Court draw from the document. (Even after excluding all cited agreements, Plaintiffs' Proposed Findings of Fact collectively cite more than 450 exhibits that were not used with any witness at trial.) Where Plaintiffs cite documents that were used with the relevant witness at trial, they frequently ignore the testimony about that document—again focusing on their preferred excerpt divorced from the broader context provided by the witness who lived it. And where Plaintiffs purport to rely on witness testimony, the cited testimony often expressly contradicts the proposition for which it is offered: there are countless instances where Plaintiffs propose that the Court find a fact based on a witness purportedly having “conceded” or “admitted” the matter when the witness said nothing of the sort, and countless others where Plaintiffs omit material context from the questions and answers surrounding the soundbite they have excerpted.

Plaintiffs' discussion of the Apple evidence provides several illustrative examples:

Plaintiffs state that “Apple’s lead negotiator, testified that, if Apple did not receive the massive payments it sought from Google, Apple would have developed its own search engine.” DOJ Br. at 33 (citing DOJ FOF ¶ 1101). In fact, Mr. Cue’s reference to “potentially building our own” search engine, was a “guess” in response to a hypothetical. Plaintiffs strip all of the context: “Q. If you were unable to reach a deal with Google in 2016, what would Apple have done? A. It’s a lot of speculating. It’s not something I spent any time thinking about in any significance because I thought that I would be able to do a deal with Google. Ultimately -- I don’t know the answer, but I’m going to speculate a little bit, and that is, it wasn’t a choice to pick any of the existing search engines, so we probably would have been left with no other choice than potentially building our own. But, again, not something we went off and

investigated. You have to understand that even as successful and as big as Apple is, we have limited resources, and we want to spend our resources in the areas that we think we can make a material difference for our customers. In the case of search, we have somebody that we're working with who is the best in the world at it, is investing significant amounts of money, and we have found a way to work with them on that" Tr. 2540:15-2542:1 (Cue (Apple)); *see also* Tr. 2464:17-2465:7 (Cue). Mr. Cue was unequivocal that for Apple to build its own search engine when "the customer was getting a great experience with Google" is "idiotic." Tr. 2540:15-2542:1 (Cue).

Plaintiffs also contend that the "ISA restricted Apple's ability to enter into a search partnership with DuckDuckGo for Safari's private browsing mode." DOJ FOF § VI.A.2.e. They base this claim not on testimony from Apple witnesses but on DuckDuckGo CEO Gabriel Weinberg's interpretation and supposition. The Apple executives who testified at trial—and who were the relevant decision-makers—flatly rejected Mr. Weinberg's wild speculation. The trial evidence established that Apple never wanted to preload a different search engine like DuckDuckGo in Safari's private browsing mode.

The Colorado Plaintiffs' separate proposed findings suffer the same problems. For example, Colorado Plaintiffs' characterization of Ms. Braddi's involvement in the SA360 team's discussions with Microsoft relies on mischaracterizing and misquoting emails, and ignores Ms. Braddi's testimony on the matter. As another example, Colorado Plaintiffs claim Google was "slow-roll[ing]" its implementation of Microsoft auction-time bidding, but cite an exhibit actually showing Google deciding to continue work on the Microsoft feature despite the lack of needed support from Microsoft. Colorado FOF ¶ 279. Notably, Colorado Plaintiffs did not examine any witness about this or many other cited exhibits.

Given Plaintiffs' approach to the evidence, identifying each error in Plaintiffs' Proposed Findings of Fact would have exceeded by many multiples the pages allotted for responsive briefing. Google has addressed herein those proposed findings of most significance to the Court's resolution of the case. The Court should not infer that Google's silence on a particular paragraph or citation means that Plaintiffs' proposed finding is supported by evidence.

I. PLAINTIFFS' PROFFERED RELEVANT ANTITRUST PRODUCT MARKETS FAIL

A. Google Competes with Other Online Sources That Serve Users' Information Needs

1. Plaintiffs' user-side market definition depends on the notion that users "one-stop-shop" the internet and that (derivatively) Google's "most significant competitor" must be Bing. DOJ Br. at 11, DOJ FOF ¶ 351. The evidence refutes those notions, reflecting that Google has many significant competitors from specialized vertical providers ("SVPs") including the likes of Amazon, Expedia, and Yelp, as well as from social media platforms such as TikTok, Instagram, and Facebook.

1. The Evidence Does Not Support Plaintiffs' "One-Stop-Shop" Market Definition

2. Plaintiffs offer no reliable empirical analysis for their assertion that consumers use general search engines ("GSEs") as "one-stop shops," DOJ FOF ¶¶ 327-33, instead relying on Professor Whinston's incomplete Comscore analysis, which found that "77% of consumers on Windows PCs begin their search sessions on GSEs." DOJ FOF ¶ 328. That analysis has three significant gaps: (1) the Comscore data excludes all mobile activity, including apps, even though SVP apps are a common search starting point for users; (2) it bundles all queries on Windows PCs, without studying user behavior by vertical category to examine those where SVPs are present; and (3) the 77% figure improperly includes SVP and other navigational queries (*i.e.*,

those where the user's intent was to search for information on a particular SVP's website, rather than to search on Google). Google FOF ¶¶ 937-39. Colorado Plaintiffs' reliance on Professor Baker's analysis, Colorado FOF ¶¶ 16, 19, is similarly flawed. *See* Google FOF ¶ 940; Google Br. at 22. Professor Baker's analyses of traffic to SVPs, Colorado FOF ¶ 20, overstates the traffic from GSEs, ignoring traffic from mobile apps. Tr. 9631:10-25; DX0256 (traffic analysis including apps).

3. Plaintiffs posit that SVPs cannot compete for those queries where a user does not know the best SVP on which to conduct such a search as such users "may need to type their query in multiple places" to find the best answer, whereas using a GSE saves the consumer "time and mental energy." DOJ FOF ¶ 329. Plaintiffs presented no evidence of the prevalence of such users, instead relying on misconstrued testimony from Dr. Israel, who actually testified that when a user does not know the best source for their search, "in some cases, it might be a GSE," "[i]n other cases, I'm quite sure it's [Apple] Maps or Amazon," and for specific queries, "a GSE doesn't always get me what I'm looking for either." Tr. 8716:7-8717:23 (Israel (Google Expert)).

4. In practice, users do not typically "pursue all their different queries in one place," DOJ FOF ¶ 330, but instead "pick different choices for every single [search] need, and they often do use a variety of tools, not a single one." Tr. 8199:21-8200:8 (Reid (Google)); Tr. 8416:9-8417:1 (Israel) ("Queries clearly are separate decisions, not a bundle."), 8420:3-9 (Israel) ("[T]he point I'm trying to make is that most visits are one query. That's the most important point because, to me, that's the opposite of one-stop shopping."); *see also* Google FOF ¶¶ 924-27.

5. Plaintiffs further argue that users value "one-stop shops" because only GSEs are offered as browser defaults. DOJ FOF ¶¶ 332-38, 356-60. However, the survey that Plaintiffs

rely on did not ask users whether they preferred the “one-stop-shop” aspect of GSEs; rather, it asked respondents how they preferred to access Google and Bing, such as through the Google Safari default versus navigating to Google.com. DOJ FOF ¶ 333; UPX0090 at -940. While GSEs are generally set as the default search engine for browsers, users often navigate to Google’s non-GSE competitors because it is easy to do so. *See* Tr. 8401:1-8403:15 (Israel) (testifying that a large majority of users mostly used SVPs for flights and shopping queries instead of searching on GSEs); Tr. 9764:2-9765:4 (Murphy (Google Expert)) (contrary to DOJ FOF ¶ 83, Professor Murphy did not “conced[e] that a difficulty exists in changing the default on mobile”; he in fact clarified, “[t]he way you can shift is not about changing the default . . . we know that on mobile, app downloads . . . are pretty ubiquitous, and downloading apps is not hard and people do it all the time on mobile devices.”).

2. Specialized Vertical Providers Are a Reasonable Substitute for Google Search on Specific Categories of Queries

6. Plaintiffs acknowledge that “[i]n addition to the 10 blue links, GSEs offer search features or content in response to a query” and that “[s]earch features,” such as “the onebox,” “come from structured data . . . [and] may include sports, weather information, business information, and hotel prices.” DOJ FOF ¶ 62. These vertical search experiences are indisputably part of Google’s strategy to compete with vertical search and other online information providers for a user’s queries, and at trial, SVPs confirmed that they compete directly with Google’s verticals. *Infra* ¶¶ 14-15; Google FOF ¶¶ 951, 958, 966. In fact, Google has continuously developed and improved its verticals in the face of intense competition from SVPs. *See* Google FOF §§ VI.B-D; *see also infra* ¶ 58.

7. Plaintiffs argue that SVPs are outside the relevant market because they have “unique production facilities” that do not index or crawl the web. DOJ Br. at 12; DOJ FOF

¶ 381; Colorado FOF ¶ 17. Yet, as Plaintiffs admit elsewhere, Google’s verticals employ the same approach, using for many functions “structured data” that cannot be scraped from the web, just as SVPs do. *See* DOJ FOF ¶ 62; Tr. 9147:12-9148:9 (Holden (Google)).

8. Dr. Israel’s empirical query analysis further refutes Plaintiffs’ assertion that Bing is Google’s “most significant competitor,” and that SVPs do not compete with GSEs. DOJ Br. at 11, DOJ FOF ¶¶ 351, 378. His study confirmed that SVPs are Google’s closest competitors in their areas of focus—for instance, Google faces greater competition for shopping queries from Amazon than it does from Bing, and greater competition for local queries from Yelp than it does from Bing. Google FOF ¶¶ 960, 964.

9. Plaintiffs also argue that SVPs are not reasonable substitutes due to two internal Google studies that found users with an Amazon Prime membership or Amazon app were more likely to be frequent Google users. DOJ FOF ¶¶ 385-86; Colorado FOF ¶ 21. However, as Dr. Israel testified, that “there are elements of complementarity between” Google and Amazon does not warrant placing them in separate search markets. “Google as a query competitor needs to compete well . . . or that 58 percent number who start on Amazon will go to 100 percent.” Tr. 8735:23-8736:22 (Israel). Although query volume may increase and expand output, “Google’s got to fight for that with Amazon because Amazon can serve the queries itself.” Tr. 8736:23-8737:10 (Israel). In fact, trial witnesses confirmed that users increasingly begin shopping searches on SVPs like Amazon, Google FOF ¶ 955, and a 2020 Bank of America study (relied on by Professor Whinston) found that 58% of respondents said they use Amazon first for online purchases, compared to only 25% who use Google first, Google FOF ¶ 956.

3. Social Media Is Increasingly a Substitute for Google Search

10. Plaintiffs argue that social media cannot substitute for general search because social media presents an information feed rather than a SERP. DOJ FOF ¶ 376. That contention

ignores evidence that social media platforms do in fact present SERPs and are increasingly popular channels for informational queries. Tr. 8205:9-23 (Reid) (describing a study which showed that “63% of daily TikTok users age 18 to 24 stated that they use[d] TikTok *as a search engine* in the last week” (emphasis added)), DX0241 at .010; Google FOF ¶¶ 973, 977. Similarly, Facebook is not confined to an information feed and in fact has a user interface for search that is similar to Google’s search interface. Google FOF ¶ 980.

11. Plaintiffs also rely on two stale studies to argue that users do not substitute Facebook and Google. Like much of the evidence Plaintiffs rely on, these studies reflect the world of fifteen years ago, where, among other things, TikTok was years away from existing, and Instagram was not yet launched. DOJ FOF ¶ 377 (relying on 2009 studies cited in UPX0902 and UPX0904). Plaintiffs make much of the general observation that search users are more typically looking for something specific than social media users, but ignore that social media platforms increasingly provide direct personalized results to a user, especially given the extended periods of time users spend on them. Google FOF ¶¶ 985-86.

4. Both Internal and External Sources Recognize That Google Competes with SVPs and Social Media Platforms

12. Plaintiffs’ assertion that Google “recognizes that GSEs comprise a relevant general search market” misreads the evidence. DOJ FOF ¶¶ 340-58.

13. To be sure, Google has monitored its query share compared to other GSEs. DOJ FOF ¶¶ 341-45. What Plaintiffs ignore is that Google also regularly monitors whether users are going to other competitors as well. *See, e.g.*, DX0062A at .022-.028 (a series of Google surveys asking users where they go for local search); DX0101 at .033 (comparing the number of businesses signing up for Facebook pages versus Google pages); DX0073 at .007 (a Google survey asking users what mobile app or site they use to answer specific dining queries); DX0245

at .010, .013 (a set of surveys and interviews Google conducted with TikTok users, which found that 58% of respondents used TikTok as a search engine in the past week, and for 37% of reported searches, the user opened TikTok just to do the search).

14. Plaintiffs suggest that because Comscore tracks data for “general search services,” that somehow reflects the conclusion of an “industry analyst[.]” of what constitutes a “market” for antitrust purposes. DOJ FOF ¶ 362. But whatever Comscore’s choices have been for data collection (Plaintiffs never deposed anyone from Comscore), actual market participants see intense competition between SVPs and Google. The securities law filings and testimony of SVPs in Travel, Shopping, and Local verticals all identify Google as a primary competitor. *Compare* Google FOF ¶¶ 951 (Expedia, Booking, Yelp, and TripAdvisor identify Google as their competitor in securities filings), 958 (Amazon benchmarks itself against Google Shopping), 966 (deposition testimony from OpenTable, Thumbtack, and Angi confirming that Google is a major competitor), *with* DOJ FOF ¶ 369 (arguing that SVPs do not identify GSEs as their competitors).

15. Plaintiffs make much of the fact that Google analyzes its search quality against other GSEs. *See* DOJ FOF ¶¶ 353-55. Once again Plaintiffs ignore that, as explained by Dr. Nayak, Google “[does] more than just comparison to Bing. We have regular comparisons to Bing, because they’re relatively easy to do, because the way Bing operates is very similar to the way Google operates. But we do comparisons with other places that users look for information . . . for example, recently, we’ve been doing comparisons with TikTok, where young people particularly are increasingly turning to TikTok for their information needs.” Tr. 6367:25-6368:14 (Nayak (Google)); *see also* Tr. 8677:18-22 (Israel) (“There’s lots of documents where Google compares itself to many different companies.”); Google FOF ¶¶ 665-66, 952, 967, 979.

16. Plaintiffs also misread UPX1082 to suggest that users would not respond to decreases in search quality (and thus that GSEs are a discrete market). DOJ FOF ¶ 372. That exhibit tracks the impact of small quality differences and, as Dr. Nayak explained, found that “it matters what we do in improving search quality. People notice it, even if subliminally.” Tr. 6327:16-6329:7 (Nayak). He further explained how this experiment confirmed Google’s long-held belief that improving search quality increases query volume and makes search more helpful, thus making the “business case” for “Search Quality investments.” UPX1082 at -293; Tr. 6327:16-6328:17 (Nayak). Importantly, as the document itself explained, with a quality change beyond the small levels tested, there could be an even greater effect. UPX1082 at -296.

B. Plaintiffs’ Ads Market Definitions Are Too Narrow

17. Plaintiffs’ ads market definitions are likewise too narrow. Plaintiffs’ proposed factual findings here (1) rely on outdated documents (some dating back nearly two decades), many of which were never shown to a witness with personal knowledge, *see, e.g.*, DOJ FOF ¶¶ 400, 408, 421, 454, 458; (2) either cite just *one* advertiser in support of a broad, sweeping statement about advertisers at large, *see, e.g.*, DOJ FOF ¶¶ 507, 720, or cite no advertiser evidence at all, *see, e.g.*, DOJ FOF ¶¶ 442, 623; (3) rely on cherry-picked statements contained within testimony or lengthy documents, omitting material context and contravening evidence, *see, e.g.*, Colorado FOF ¶ 61; DOJ FOF ¶¶ 406, 429, 437, 484, 486, 488; or (4) mischaracterize the evidence they cite, *see, e.g.*, Colorado FOF ¶ 34; Colorado Br. at 11-12. This evidence should be given no weight.

18. Plaintiffs’ proposed findings regarding market definition ignore the fundamental truth that advertisers’ primary consideration when choosing where to spend their advertising dollars is *return on investment or ROI*. Google FOF ¶¶ 1001-15. Advertisers want to drive sales; they care primarily about ROI, not the ad format, in making ads choices. Google FOF

¶¶ 1001-15; Tr. 3931:1-4 (Lowcock (IPG)) (“I think all of advertising is to drive sales”); Alberts (Dentsu) Dep. Tr. 241:12-19, 242:13-19; McAteer (Google) Dep. Tr. 178:15-179:11.

19. While there are of course differences between ad types, Plaintiffs ignore how they comprise good substitutes for one another.

a) A search query is not a uniquely powerful expression of user intent that makes search ads materially different from other digital ads, as Plaintiffs claim. *See, e.g.*, Colorado FOF ¶¶ 8, 22; DOJ FOF ¶¶ 116, 129, 399. Latent intent signals—gathered by platforms like Amazon, TikTok, Facebook and Instagram—convey real-time information that is similarly probative of user purchase intent. Google FOF § IX.B.2.a; Tr. 1417:16-1418:16 (Dischler (Google)) (“The user’s interest can be signaled in any number of ways, whether it’s visiting a website, whether it’s subscribing to a TikTok channel of a golf influencer or in any number of ways.”). Latent intent signals can provide a richer, more fulsome picture of a particular user, which can be used for effective ad targeting. *See* Google FOF ¶¶ 1033, 1036-40; Miller (Google) Dep. Tr. 112:18-113:4 (“Facebook actually often does have a very strong idea of what the user wants. They’ve got a broad network of pixels that are across the Internet. So as soon as somebody goes to a website, Facebook will put you into an audience category for an in-market product or affinity-type solution. And they will share that readily with other advertisers.”); Levy (Meta) Dep. Tr. 239:23-240:13.

b) Many ad types are sold in real time through auctions, just as Google search ads are sold. Levy Dep. Tr. 264:17-265:15 (discussing UPX2131 at -344) (explaining that with Meta advertising, “ad prices are set by the auction”); Tr. 8549:9-8550:17 (Israel); DX0596 at .003 (explaining that Amazon’s auction for selling sponsored product ads considers, among other

inputs, “bid and expected CTR”); DX0599 at .032 (“Sponsored Brands are cost-per-click, auction-based, keyword-targeted ads that appear on Amazon.”); *see also* DOJ FOF ¶ 5.

c) Contrary to Plaintiffs’ contention that search advertising is different than social media or display advertising because it is “unaffected by privacy initiatives and limitations on cookie tracking,” the trial record shows that Meta innovated in response to recent privacy initiatives so that it could continue to offer a successful and highly popular advertising platform that complied with such initiatives. *See* DOJ FOF § IV.B.1.e. Its stock price rebounded in 2023 as a result of these innovations. Levy Dep. Tr. 261:13-262:3; DX3256; *see also* Tr. 8835:16-8836:8 (Israel).

d) The Plaintiffs cannot even agree among themselves as to the supposed functional differences between search, display, and social ads. Google FOF ¶ 1071. For example, DOJ Plaintiffs assert search text ads are “most effective at driving conversions,” DOJ FOF ¶ 134, while Colorado Plaintiffs assert that “general search ads [] reach consumers who may intend to transact but are not yet at a place where they can complete a purchase,” Colorado FOF ¶¶ 29-30; *see also id.* ¶¶ 35-37 (“Advertisers routinely engage in this practice of buying general search ads for their brand name and the names of their competitors.”).

e) The empirical data presented at trial established that advertisers move their advertising dollars freely between search ads, social ads, and display ads. Plaintiffs claim that when Nike boycotted advertising on Meta, Nike’s search ad spend remained relatively unchanged. DOJ FOF ¶¶ 514-15. The actual Nike data shows that when Nike stopped spending on Meta’s properties, it reallocated the social spend to search and display advertising. Google FOF ¶¶ 1047-53; UPX2076 at -152; Tr. 8512:23-8514:19 (Israel). Plaintiffs focus on only limited snapshots in time: (1) one week before the boycott, (2) one week during the three-month

long boycott, and (3) four weeks after the boycott. DOJ FOF ¶¶ 514-15; Tr. 8848:14-8849:15 (Israel). However, Dr. Israel’s analysis of the full set of data produced by Nike—which covered several months before, during, and after the boycott—shows that, during the Meta boycott, “search [went] up a lot” while non-Meta social advertising spend went up only “a little bit.” Tr. 8515:1-18 (Israel); Google FOF ¶¶ 1047-53.

f) Plaintiffs claim that other search ads, like shopping ads, are not substitutes for text ads because they can only be used to advertise tangible products or the specific subject matter of an SVP, whereas text ads can be used to advertise anything. DOJ FOF ¶¶ 473-75, 481, 497. But what matters for market definition is that many advertisers can and do buy other search ads as substitutes. Tr. 8544:5-8545:10 (Israel) (describing Amazon and Home Depot examples).

g) Moreover, advertisers that Plaintiffs characterize as purchasing text ads but not product listing ads from Google in fact do purchase other ad types. Tr. 4860:2-13 (Lim (JPMC)) (testifying that JPMC purchases social advertising on Pinterest, LinkedIn, Snapchat, Facebook, Instagram, and TikTok); DX0657 at .010, .013 (showing that JPMC used paid search, paid social, and display advertising). Plaintiffs concede that advertisers can (and do) purchase both text ads and other types of search ads, for example, shopping ads and hotel ads. DOJ FOF ¶ 491. That is because all search ads have “an intersection of purpose” and can be used interchangeably to reach users and get clicks. *See* James (Amazon) Dep. Tr. 234:9-235:4; Tr. 9195:22-9196:3 (Holden) (explaining that Google’s hotel ads are designed just like Google’s general search ad products, to connect advertisers with customers and deliver positive ROI), 9197:22-9198:15 (testifying that Google’s travel advertisers “look collectively” at advertising spend and frequently shift budget from one ad channel to another if “they feel the ROI is better in one area”); McAteer Dep. Tr. 87:8-16; Google FOF ¶¶ 1058-64.

h) Real-world examples show that a user can swiftly click to a purchase, regardless of any differences in ad format. Tr. 3930:18-3931:7 (Lowcock); Tr. 1412:5-22 (Dischler); Tr. 8541:5-8542:8 (Israel) (discussing DXD-29.105 and the ability to watch videos on Instagram, see “shop now” pop up ads, and buy a product).

20. Plaintiffs contend that advertisers cannot measure ROI across channels and thus cannot view search ads as comparable or substitutable with other advertising. DOJ FOF ¶¶ 510-13, 685; Colorado FOF ¶¶ 61-63. Plaintiffs’ evidence is either stale (dating back to 2017), *see* DOJ FOF ¶¶ 510-13, or, on its face contradicts their position, because it shows advertisers in fact measuring and comparing ROI across ad types, *see* DOJ FOF ¶ 511; Tr. 5169:2-5170:17 (Booth (Home Depot)) (describing Home Depot’s incrementality testing (*i.e.*, measure of sales generated by advertising) with, and comparison of, search and display advertising). It is no surprise that technology has improved over the past 10 years, and advertisers like Home Depot are taking advantage of these improvements to more accurately measure where their advertising budgets are most effective. Google FOF ¶¶ 1004-07, 1009; Tr. 8864:9-17 (Israel) (“[T]he world of digital advertising has changed a ton in the last few years and . . . a big area is improvements in ROI measurement.”); DX0187 at .054 (CX Lab study into “Perceptions of ROI” stating “Shift from ‘18 - we see a higher proportion of participants say they monitor their ROI”); *see also* Tr. 4893:8-4894:18 (Lim).

21. Nor does it matter that various ad types may be priced differently. Tr. 8461:23-8464:12 (Israel); DXD-29.062. Indeed, advertisers can (and do) employ a host of third-party management tools to evaluate and move spend across channels based on comparable ROI metrics. Google FOF ¶ 1015; Tr. 6647:11-6648:3 (Vallez (Skai)) (discussing DX3226); PSX01117 at -006; PSX00729 at -209; DX3100 at .005.

II. PLAINTIFFS HAVE NOT SHOWN GOOGLE POSSESSES MONOPOLY POWER IN THEIR ALLEGED MARKETS

A. The Evidence Does Not Support Plaintiffs’ Search Services Monopoly Power Claim

22. Plaintiffs fail to prove direct or indirect evidence of monopoly power.

1. Plaintiffs Do Not Show Monopoly Power Through Indirect Evidence

a. Plaintiffs’ “Market Share” Evidence Does Not Prove Monopoly Power

23. Plaintiffs’ proffered general search services market is legally infirm; therefore, the Court cannot rely upon market shares of such a market to infer monopoly power. Google COL ¶ 42; Google Br. at 31. As Dr. Israel explained, because “Google faces substantial[] competition from SVPs . . . GSE-only market shares don’t tell you anything.” Tr. 8436:23-8437:23 (Israel (Google Expert)); *see also* Tr. 5911:16-Tr. 5912:1 (Whinston (DOJ Expert)) (conceding that if a general search services market does not exist, then his market share numbers are irrelevant).

b. The Evidence Does Not Support Any Significant Entry Barriers

24. Even if there is a general search services market, Plaintiffs’ monopoly claim still fails because Plaintiffs have not proven significant entry barriers.

25. *First*, the cost and complexity of constructing a GSE is not a significant entry barrier. Plaintiffs estimate that it costs between \$2 and \$10 billion annually to develop and operate a GSE. DOJ FOF ¶ 538 (citing UPX0002). The high end of Plaintiff’s estimate is a “very, very back of the envelope” estimate by Google employees that was “very thought ‘exercise-y’” because they “had absolutely no idea” of the actual costs. Tr. 1650:14-1652:6 (Roszak (Google)) (discussing UPX0002). Gabriel Weinberg testified that he built, and continues to operate, DuckDuckGo at a fraction of Plaintiffs’ estimated cost. *See* Google FOF ¶¶ 542-50. Although its business model of charging users for a traditionally free product

ultimately caused Neeva to exit consumer search (via a sale to Snowflake), it was able to create a quality search engine with millions of monthly users with an investment of less than \$100 million. *See* Google FOF ¶¶ 622, 624-25, 631.

26. *Second*, the absence of scale at the time of entry is not a significant entry barrier for all the reasons discussed in Section III.D.1, *infra*.

27. *Third*, brand recognition and consumer loyalty are not significant entry barriers. DOJ FOF ¶¶ 543-45. For example, new SVPs and social media platforms have had immense success attracting users searching for information. Mr. Hurst of Expedia testified that Airbnb swiftly built brand recognition and consumer loyalty for its vacation rentals platform that displaced the established Vrbo, and Airbnb remains a top competitor today. Tr. 6542:10-6543:25 (Hurst (Expedia)) (including discussion of DXD-18.004-.005). Dr. Israel testified that users easily find and download SVPs' mobile applications to search. Google FOF ¶¶ 932-34. And SVPs use loyalty programs to gain new users and maintain current users. *See* Tr. 6546:23-6547:8 (Hurst), 6558:10-17. Finally, when Google launched its search engine 25 years ago, it faced and overcame search engines with significant brand recognition and consumer loyalty, including Yahoo Search. *See, e.g.*, Google FOF ¶¶ 23-24.

28. *Fourth*, Google's position as a default search engine for certain browsers, including Chrome, is not a significant entry barrier for all the reasons discussed in Sections III.D and IV.C, *infra*.

29. *Fifth*, the suggestion that syndication is not a viable means of entry, DOJ FOF ¶¶ 557-58, ignores the reality that many search engines have done so, including, among others, Yahoo, DuckDuckGo, and (initially) Neeva. *See* Google FOF ¶¶ 513, 612.

2. Plaintiffs Do Not Show Monopoly Power Through Direct Evidence

30. Plaintiffs recognize that search output grew significantly during the relevant period, DOJ FOF ¶ 1302 (citing Tr. 10456:17-10458:18 (Whinston)); *see also* Google FOF ¶¶ 1084, 1452, 1464 (Google’s output grew consistently and substantially during the period of alleged monopoly maintenance); Google COL ¶ 39 (citing *Ohio v. Am. Express Co.*, 138 S. Ct. 2274, 2288 (2018) (monopoly power requires the power to control market-wide output)).

a. Google’s Search Quality and Monetization Success Do Not Prove Monopoly Power

31. Plaintiffs claim that Google’s search quality advantage is evidence of its monopoly power. DOJ FOF ¶ 559. But Google’s quality advantage arose in an era where it lacked greater scale, lacked distribution agreements, and as to which no claim is made by Plaintiffs of monopoly maintenance. *See* Google FOF ¶¶ 19-20, 27, 47-48, 833-34, 835-43, 887-90. Instead, Google’s quality arose from (and is maintained by) Google’s unceasing hard work and a relentless drive to innovate. *See* Google FOF ¶¶ 78-84, 93, 118, 120, 122, 127, 138, 140, 154, 158, 164-66, 173, 222.

32. In Section V of their Proposed Findings of Fact, Plaintiffs again claim that, as a purported monopolist, Google can remain “good enough” and still not lose query share to GSE competition. DOJ FOF ¶¶ 560-62, 571-74. But the evidence adduced at trial confirms that Google has never behaved as if it were insulated from competition as a result of its superior search quality, and has never settled for “good enough” when it comes to search quality. *See, e.g.*, Google FOF ¶¶ 81, 227-32, 1102. *First*, Plaintiffs rely on an internal Google email from 2017 (UPX0752), not shown to any witness at trial, suggesting an “underinvestment” in aspects of Search from 2014-2017. To the extent the email accurately describes the then-existing state of

affairs, Plaintiffs omit that in the same email, Google employees recommended a “disproportionate[ly large] 2018 investment.” *Compare* DOJ FOF ¶ 572, with UPX0752 at -017.

33. *Second*, Plaintiffs rely on Professor Whinston’s analysis calculating software and computer services companies’ 2020 R&D-to-sales ratio. DOJ FOF ¶ 573 (citing UPXD104 at 79). This analysis itself is unpersuasive for two reasons: (1) Professor Whinston included many small companies that have low sales (and by consequence a high R&D-to-sales ratio), which skewed the data; and (2) Google’s purported Search R&D total omitted Google’s R&D in areas that benefit Search, such as Chrome. Tr. 9900:12-9902:9 (Murphy (Google Expert)). Professor Murphy’s analysis corrects these flaws and demonstrates that Google’s comprehensive Search R&D, measured as a share of sales compared to comparable firms, is above average. *Id.*

34. The evidence at trial further showed that Google monitors and responds to the innovations and quality improvements of search competitors, including GSEs, SVPs, and social media platforms. Google FOF ¶¶ 969 (Bing and DuckDuckGo), 978-81 (social media), 952, 961, 967 (SVPs). Rather than a field in which the leader is stagnant, no less an observer than Microsoft’s CEO and former head of search observed that Google “compet[es] every day to improve search,” and “the competition is pretty intense.” Google FOF ¶¶ 84.¹

b. Google’s Search Distribution Deals Do Not Prove Monopoly Power

35. Plaintiffs contend that Google’s profitable business deals are evidence of monopoly power, because Google was “very insulated from competitive responsiveness during

¹ Plaintiffs’ suggestions that Google does not compete, and does not need to compete, on privacy are addressed in Section III.D.4, *infra*.

its negotiations with Apple.” DOJ FOF ¶¶ 568, 570 (internal quotations omitted).² Yet Microsoft VP Jonathan Tinter testified that Microsoft’s conversations with Apple about Bing “very clearly . . . help[ed] Apple get more money, and . . . cost[] Google more money” in the 2016 Google-Apple ISA negotiations. Tr. 3245:6-3246:18 (Tinter (Microsoft)). Indeed, due to competitive pressures during these negotiations as conveyed to Google from Apple, Google responded and increased the revenue share it was willing to pay Apple during the 2016 ISA negotiations. Google FOF ¶¶ 1262, 1264.

B. The Evidence Does Not Support Plaintiffs’ Search Advertising Monopoly Power Claim

36. Plaintiffs’ proposed factual findings about monopoly power in the alleged market for search advertising and search text advertising contain scant or no record support, *see, e.g.*, Colorado FOF ¶ 1; DOJ FOF ¶¶ 611, 649, 696, 714, 1169; rely upon Plaintiffs’ erroneous interpretation of ads documentation that was never presented to a witness with personal knowledge, *see, e.g.*, DOJ FOF ¶¶ 675, 682-83, 705, 1166-68; or rely upon selective portions of exhibits and testimony, while omitting material context, *see, e.g.*, DOJ FOF ¶¶ 577, 610, 704, 706, 709, 719, 1175, 1181-83. This evidence should be given no weight.

37. Crucially, throughout their proposed findings, Plaintiffs confuse evidence of market power with supposed evidence of monopoly power (that is, the power to reduce *market-wide output*). But evidence of price increases alone may be evidence of mere market power, not necessarily monopoly power. Google Br. at 25.

² Plaintiffs’ citation to Mr. Pichai’s testimony, DOJ FOF ¶ 570, distorts the record by quoting part of his answer, while omitting the broader context he provided immediately before and after the cited portion. *See* Tr. 7772:12-7773:10 (Pichai (Google)).

1. “Pricing Knobs” Do Not Establish Monopoly Power

38. Plaintiffs claim that Google’s so-called ad “pricing knobs” increased cost per click (“CPC”) over time, providing direct evidence of monopoly power. DOJ FOF § V.C.5.d. But Plaintiffs’ evidence concerning “pricing knobs” does not establish monopoly power in search advertising or search text advertising for the following reasons:

a) Google is not able to unilaterally raise the price of search advertising or search text advertising; price is informed by a combination of factors, including the advertiser’s own bid and the quality of the advertiser’s ad and landing page. Google FOF ¶¶ 1144-63; DOJ FOF ¶¶ 639-44; *see also* Tr. 4240:2-20 (Juda (Google)).

b) There is no evidence that changes to Google’s search ad auctions, whether via “pricing knobs” or any other mechanism, actually resulted in any output reduction in search advertising or search text advertising. Plaintiffs have not (and cannot) dispute that digital advertising output has significantly increased. Google FOF ¶¶ 995-98, 1125, 1192-98. In fact, Plaintiffs have not proffered *any* evidence that Google has restricted output in their purported relevant markets.

c) Plaintiffs’ focus on CPC ignores that the relevant measure of price is a quality-adjusted price, which CPC does not represent. Google FOF § X.E.1; Tr. 8584:18-8585:18 (Israel) (“So this [excess CPC] metric they had, consistently over time the value is negative. . . . If you account for advertiser value and what’s happening to price, the quality adjusted price is going down.”).

d) The specific auction launches or changes that Plaintiffs call “pricing knobs” were motivated by corresponding value-creating launches or product improvements. Google FOF ¶¶ 1167-77, 1179-82, 1185-91; Tr. 8578:3-8581:9 (Israel). Plaintiffs have not cited a single price-related launch that lacks a corresponding value-creating launch or product improvement.

e) Google does not capture all of the value created through improvements to its ad products: Google’s search ad auction is a second-price auction, in which, by definition, the winner pays the less than their maximum bid. Google FOF ¶¶ 1149-53.

39. Plaintiffs rely heavily on a “search ads price index” to purportedly show that Google’s “pricing knobs” have caused Google CPCs to increase over time. DOJ FOF ¶¶ 635, 696. But reliance on this “index” is misplaced. The “search ads price index” does not account for quality adjustments. Google FOF ¶¶ 1135-37, 1140-43. And even this flawed measure does not show consistent increases, but instead that CPCs have fluctuated both upwards and downwards. *See* DOJ FOF Figure 8; Google FOF ¶ 1135.

40. Further, evidence shows that CPCs [REDACTED] and, on average, product listings ads (“PLAs”) [REDACTED]. *See* UPXD102 at 39. CPCs on other competitor platforms, which are not subject to claims of even market power, have also increased and fluctuated over time, and these platforms have been more expensive than Google. Tr. 5183:8-15 (Booth (Home Depot)); Tr. 8855:11-20 (Israel) (testifying that prices on Bing and Meta have gone up); Raymond (Kohl’s) Dep. Tr. 92:16-25, 93:2-3, 97:17-23.

41. Plaintiffs’ reliance on Google Ads’ “persistently high profit margins” as proof of monopoly power is also flawed. DOJ FOF ¶ 590. Plaintiffs had originally named a purported expert on this topic, Christine Hammer, whom Google challenged on *Daubert* grounds. ECF Nos. 416, 514. Plaintiffs did not call Ms. Hammer at trial. The opinions Plaintiffs propose as findings of fact are no more reliable without a purported expert sponsor than they were with one. Among the most important factual flaws are that the profit margins of Google’s strongest competitors have been higher than Google’s during the relevant time period. DX0599 at .003

(Amazon's Advertising P&L) (showing that Amazon's gross margins on its ads business was approximately █████ in 2018 and 2019); DX0644, DX0645, DX0646, DX0647, DX0648, & DX0649 (Expedia's gross margins in its Media Solutions business line (its online advertising business) were between █████ from 2013 to 2019); DX0651 at .051 & DX0652 at .058 (Facebook's gross margins were between █████ and █████ from 2015 to 2018).

42. Plaintiffs' contention that "Google does not consider its competitors when pricing or making other changes to its text ads auction," *see* DOJ FOF § V.C.6, reveals a lack of understanding of how automated ad auctions work and the trial testimony regarding Google's work on ads. To begin with, auctions (like Google's search ad auction) reflect competition. Tr. 8575:25-8577:22 (Israel) (testifying that in an auction, "the winner by competition is going to be the guy with the highest value"); *see also* Google FOF ¶ 246. Google also innovates and improves its ad products (including the auction itself) in order to provide advertisers with an ROI that is competitive with the ROI on rival ad platforms. Google FOF ¶ 246; Tr. 1288:13-22 (Dischler (Google)); *see generally* Google FOF § III.E.

43. Plaintiffs' own exhibits also show that Google accounts for competitor pricing by monitoring advertiser responses to its ads launches and auction changes. UPX0509 at -958 (expressing concern about "advertiser choices around what to advertise on" in a "competitive environment," and stating that "[t]he best way for us to tackle this Google vs Competition pricing question so far has been to investigate (a) the response time frame of our advertisers for their different knobs (*e.g.*, targeting / objective settings vs channel budgets) and (b) to measure the very long term response (6 months+) to price changes since it should include additional spend shifts if Google was now underperforming compared to other channels").

44. As for Plaintiffs’ claim that Google lacks “pricing transparency,” they cannot cite to any specific reporting provided by another ad platform that contains more information for advertisers. *See* DOJ FOF ¶¶ 713-24. Nor do Plaintiffs dispute that the reason Google does not inform advertisers about every ads launch, including its quality improvements, is because each launch affects individual advertisers differently such that crafting a uniform notification is not possible. Google FOF ¶¶ 1165-66, 1170.

2. Google’s Improvements to Keyword Match Types and Search Query Reports Do Not Establish Monopoly Power

45. Plaintiffs also rely upon changes to Google’s keyword match types and its search query report as purported “direct” proof of monopoly power. *See, e.g.*, DOJ FOF §§ V.C.4, VIII.D.2 (conflating with “anticompetitive effects”). But Plaintiffs have no response to the evidence that Google’s ad launches were intended to “improve the user value, improve the advertiser value, [and] do that in the long-term, and then that’ll benefit Google.” Tr. 1361:24-1362:3 (Dischler); *see also* Tr. at 1287:20-1288:8 (Dischler); Tr. 4195:3-21 (Juda). The changes are thus consistent with quality-adjusted prices falling.

46. If not filtered in a privacy-sensitive manner, providing advertisers with granular query level data can reveal personally identifying information about Google’s users. Google FOF ¶ 1213; UPX0526 at -540. As discussed in Section III.D.4, *infra*, there are tradeoffs between privacy and functionality in online activities. There is more than a little irony that Plaintiffs criticize Google for an initiative that was allegedly *too* protective of user privacy.

47. Google updated its search query report to protect user privacy by limiting information about unique and user-identifying queries. Google FOF ¶ 1216; Tr. 1367:7-1368:7 (Dischler). Google made this change to remain competitive in an increasingly privacy-sensitive environment. *See* UPX0526 at -540; Tr. 3971:11-16 (Lowcock (IPG)) (“The industry as a whole

is making efforts towards changing the way things work because of privacy regulations.”); Google FOF ¶ 1218 (Microsoft similarly limiting the information it provides to advertisers).

48. Plaintiffs also point to Google’s changes to keyword match types. Those changes were designed to simplify its ad products and reduce the burden on smaller advertisers of managing extensive keyword lists, Google FOF ¶¶ 252, 1208-09, and made in response to other advertising platforms, including Facebook, that were able to offer smaller advertisers a more streamlined experience, Google FOF ¶¶ 252, 1028, 1208. Plaintiffs’ own exhibits show that Google’s keyword match type changes improved user and advertiser value by increasing clicks, demonstrating an increase in semantic match value. *See, e.g.*, UPX0050 at -072; UPX8055 at .003; UPX8049 at .002.

49. Plaintiffs claim that Google “limits visibility into its ‘black box’ auctions.” DOJ FOF § V.C.5.i.iii. But Google does not disclose certain proprietary information about the internal functioning of its search ad auction in order to promote fairness and a level playing field among advertisers participating in the ad auction. Tr. 7377:15-7378:5 (Raghavan (Google)) (explaining that “publishing ranking functions in all their detail, whether for ads or for organic, makes it easier for large and sophisticated actors to game those functions at the expense of smaller players”); *see also* Tr. 1334:20-1335:5 (Dischler). Plaintiffs do not dispute that protecting confidential, proprietary information is a lawful goal, nor do they dispute that these limitations benefit the overall advertiser ecosystem.

3. Advertisers Have Reasonable Substitutes for Google Search Text Ads

50. Plaintiffs argue that Google text ads are a “must have” for advertisers. *See* DOJ FOF §§ V.B.3, V.C.2; Colorado FOF ¶¶ 101-02, 106-10. But the trial record, including Plaintiffs’ own evidence, demonstrates that advertisers, including SVPs, buy Google search ads because these ads are profitable and lead to positive ROI, not because advertisers lack reasonable

alternatives, as Plaintiffs suggest. Google FOF ¶¶ 1001-03, 1126, 1129-30; James (Amazon) Dep. Tr. 85:15-25, 117:19-118:6.

51. If advertisers are dissatisfied with Google search ads for any reason, including increasing CPCs without attendant increases in quality or return, they can and do move their advertising dollars to other advertising platforms. Google FOF ¶¶ 1126, 1130. As SVPs exemplify, advertisers also can acquire free and paid traffic through direct navigation through apps and other ad platforms. Google FOF ¶¶ 672, 932-35; Stoppelman (Yelp) Dep. Tr. 192:9-19; James Dep. Tr. 209:16-20; *see infra* ¶¶ 57-59. Some advertisers have been able to reduce their relative ad spend on Google while increasing direct user traffic to their properties. Tr. 5313:4-22 (Dijk (Booking)); *see infra* ¶ 57-58.

52. Plaintiffs' claim that Google's text ads are a "must have" because advertisers cannot reach the same advertiser scale elsewhere ignores the reality that competing advertiser platforms already are effectively competing for advertiser dollars. DOJ FOF § V.C.2. Plaintiffs' own exhibits indicate that 26.5% of the advertisers who advertise on Google also advertise on Bing, and these 26.5% of advertisers likely make up nearly 99% of ad spending at Google. *See* Tr. 8587:18-8589:12 (Israel); DXD-29.141; van der Kooi (Microsoft) Dep. Tr. 55:20-56:23; UPX0841. Further, advertisers have options other than Bing to reach audiences; for example, Meta has more advertisers than Google. Google FOF ¶¶ 1042-44; Tr. 1392:12-1393:6 (Dischler), 1439:21-24. As Plaintiffs' own evidence reflects, advertisers looking for Google users on other platforms are more likely to find them on Amazon or Meta than on Bing. Colorado FOF ¶ 21; *see also* Google FOF ¶¶ 1042-44. Accordingly, advertisers' significant alternative advertising platforms dispel the notion that Google Search ads are "must have."

a. SVPs Have Alternatives to Purchasing Google Ads

53. Despite having lost on summary judgment on their claim that Google impermissibly displays its vertical units above SVPs' organic links, Colorado Plaintiffs seek to recycle the evidence regarding that claim as an argument that (1) SVPs' organic traffic has lessened as Google has improved its vertical offerings; (2) SVPs have purchased more Google ads because their organic traffic has decreased in the face of competition; and (3) SVPs would have not done so if Google were not a monopolist in advertising. Colorado FOF ¶¶ 78-90.

54. The first step of that syllogism simply shows that Google does compete with SVPs. *See supra* § I.A.2. And Colorado Plaintiffs' rendition of all three steps ignores the evidence.

55. To begin, the product design Colorado Plaintiffs point to is not unique to Google. Other GSEs like Bing and DuckDuckGo launched substantially similar vertical experiences. Google FOF ¶ 651. On modern search engines, it is common for a specialized vertical unit to provide answers to a user's query and to appear above the organic blue links. *See* Tr. 6218:10-14 (Barrett-Bowen (Microsoft)), 6219:14-6221:4 (testifying about DX0292A, an example Bing SERP for "hotels seattle," which shows four search text ads at the top, followed by Bing's hotels unit, and agreeing that the inclusion of Bing's hotels unit "means organic results are pushed down the results page"); Tr. 1966:9-17 (Weinberg (DuckDuckGo)), 2051:18-2052:18. Launching vertical experiences is not conduct only explicable by a firm having monopoly power.

56. Although Colorado Plaintiffs assert that Google launched verticals and "demoted" organic links to force SVPs to buy more ads, Colorado FOF ¶¶ 76, 82, the record is clear that Google launched verticals to provide better answers and retain users in an increasingly competitive environment, Google FOF ¶¶ 685-93; *see also infra* ¶¶ 57-61. Google's research found that users want to see business entities and SVPs separately, Tr. 8340:4-12 (Reid

(Google)), so while SVPs cannot appear in the top-level page of the travel or local units on the SERP, Colorado FOF ¶¶ 73-75, SVPs do appear in the immersive pages that follow once a user clicks on the vertical unit, Google FOF ¶¶ 725-26, 745-50.

57. Nor are the SVPs “trapped” on Google. Airbnb, for example, has made successful efforts to generate more direct traffic and reduce ad spend with Google. *Compare* Tr. 9202:14-9203:8 (Holden (Google)) (“And since [Airbnb has] gone public, they’ve continued to advertise [on Google] to some degree but a far less[er] degree than they ever did before.”), *with* Colorado FOF ¶ 99.

58. Other SVPs like Booking, Expedia, and OpenTable generate the majority of their bookings through direct traffic, and this trend has been bolstered by the popularity of mobile apps. Google FOF ¶¶ 672 (nearly two-thirds of Expedia’s gross bookings come from direct traffic, Booking’s direct traffic makes up █████ of its bookings, and for OpenTable, “[m]ore than █████ [of traffic] is self-directed); Google FOF ¶ 933; Tr. 9203:9-24 (Holden) (explaining that many OTAs invested in their apps and have been effective in connecting with customers so they no longer come to Google); Tr. 6557:12-6558:17 (Hurst); DX0590 (in 2023, Expedia had “record app usage and member counts”); *see also supra* ¶ 2.

59. While general search ads no doubt help SVPs acquire new customers, Colorado FOF ¶ 93, some SVPs like Expedia have shifted away “from being largely transactionally focused where we were focused on acquiring customers through performance marketing channels,” instead focusing on “increasing customer loyalty and app[] adoption as . . . [they] typically experience higher repeat rates, gross profits, and bookings relative to nonloyalty members and non-app users,” Tr. 6557:12-6558:17 (Hurst); DX0308.

60. Nor is it the case that SVPs' marketing spend can only flow to Google or Bing. Colorado FOF ¶¶ 102-09. SVPs spend significantly on ads on social and metasearch (other SVPs). Tr. 6555:17-6556:12 (Hurst) (explaining that two-thirds of Expedia's bookings are from direct channels, and the remaining third consists of traffic from a combination of free SEO traffic, paid SEM traffic, paid metasearch traffic, and paid social traffic); *see supra* ¶ 58.

61. Finally, Colorado Plaintiffs erroneously attribute all of SVPs' increased customer acquisition costs to Google's SERP design, Colorado FOF ¶¶ 83-86, while ignoring the dramatic increase in competition across verticals, Tr. 9189:10-13 (Holden) (explaining that over the last ten years, competition in the travel vertical has been "very competitive and gets increasingly competitive over time"); Tr. 8252:19-8253:13 (Reid) (testifying that competition in the local vertical has "dramatically increased"); Tr. 6542:10-13 (Hurst) (testifying that Expedia's brands, including Vrbo, compete in intensely competitive markets); Tr. 5347:25-5348:11 (Dijk) (discussing Booking's 2022 10-K, stating that "the markets for the services we offer are intensely competitive, constantly evolving, and subject to rapid change, and current and new competitors can and do launch new services at a relatively low cost."); DX3114.

III. THE BROWSER DEFAULT SEARCH AGREEMENTS DO NOT VIOLATE SECTION 2 OF THE SHERMAN ACT

A. Plaintiffs Have Failed to Establish That Google's Default Search Agreements with Browsers Are Exclusive

62. Plaintiffs concede that Google's default search agreements with Apple, Mozilla, and other browsers are not "literally" or "technically" exclusive. DOJ Br. at 36.

63. Plaintiffs do not dispute that Google's agreements allow the browser developer to promote search rivals on the same browser, and Apple and Mozilla have for many years entered into promotional deals to do just that, including with Microsoft, Yahoo, and DuckDuckGo. Google FOF ¶¶ 1280-92, 1351-55, 1401-11; DOJ FOF ¶ 734. And Plaintiffs admit that the

Apple Information Services Agreement (“ISA”) does not prevent Apple from preinstalling a rival search application or another browser that defaults to a rival search engine on Apple devices.

DOJ Br. at 36; Google FOF ¶¶ 1280, 1402-03.

64. Plaintiffs instead focus on whether Google’s contracts with Apple, Mozilla, and other browser agreements are “de facto, or partially” exclusive. DOJ Br. at 35-38, 42.

65. **Google’s ISA with Apple:** Plaintiffs fail to show that the Apple ISA provides *de facto* exclusivity on Apple devices. Plaintiffs contend that “the Safari default is the most prominent and commonly used search access point on Apple devices.” DOJ FOF ¶ 730. But Plaintiffs do not contest³ that 38.2% of search queries on iOS devices in 2020 flowed through search access points other than the Google Safari default. Google FOF ¶ 1413; Tr. 9758:9-9761:22 (Murphy (Google Expert)); Tr. 6072:23-6079:9 (Whinston (DOJ Expert)); DXD-16.006-.007; DXD-37.052-.053.

66. This mix of traffic is based on Apple’s current device set-up, and does not show what rivals could receive if Apple added additional search access points on Safari or on Apple devices. As Plaintiffs acknowledge, the reason that “the Safari default is the most prominent and commonly used search access point on Apple devices” is “[d]ue in part to” Apple’s preference not to preinstall third-party applications. DOJ FOF ¶¶ 729-30. And while Plaintiffs suggest that Apple “does not foresee any scenario” that this will change, *id.*, there is nothing in the ISA that limits Apple’s ability to do so should a new, superior search product become available.

67. The potential traffic through new search access points not covered by the ISA could be significant. For instance, Apple could start preloading a search widget on iOS. As

³ Plaintiffs highlight certain internal Google documents which attempted to analyze the traffic through various search access points on iOS. DOJ FOF ¶ 730. But the Court can rely on the actual data produced in this case regarding search traffic through Apple iOS devices.

Plaintiffs highlight elsewhere, search widgets are a very popular search access point on Android devices, and there is no reason to think an iOS search widget would perform differently. DOJ FOF ¶ 796; Tr. 10187:21-10188:3 (Murphy); DXD-37.109, .114 (showing widget and browsers are roughly equal in search volume on Android).

68. Plaintiffs further argue that the ISA limits Apple’s ability to “(1) offer a search engine choice screen,” “(2) pre-select a different default search engine in Safari’s private browsing mode,” “(3) offer a different default search engine on different Apple devices (*e.g.*, different defaults on mobile versus desktop devices),” “(4) offer a different default search engine in the United States (or part of the United States) versus the rest of the world,” “(5) materially expand Apple’s Suggestions feature in Safari,” or “(6) run ads on Siri or Spotlight without giving Google the right-of-first-refusal to control those ads.” DOJ Br. at 36-37. But for each of these claims, the undisputed evidence at trial demonstrated that either Apple has no desire to design its product in these ways or the ISA does not limit Apple from doing so.

69. Apple has never wanted a search engine choice screen on Safari for Apple devices, as it believes a search engine choice screen would provide an inferior user experience for Apple users. Google FOF ¶¶ 812, 1235-37; Tr. 2476:2-2477:4 (Cue (Apple)). The only evidence that Plaintiffs present of Apple even considering a choice screen was from more than 15 years ago and involved Safari for Windows, a product that would not have been on Apple devices and which was discontinued over a decade ago. DOJ FOF ¶¶ 747-51; Google FOF ¶¶ 809-12, 1250-52.

70. Similarly, the evidence at trial demonstrated that Apple never wanted to preload a different search engine like DuckDuckGo in Safari’s private browsing mode. Google FOF ¶ 1420. Plaintiffs rely on conversations that DuckDuckGo had with lower-level Apple

employees who did not have decision-making authority to enter into such an agreement, and DuckDuckGo’s “belief” that the conversations had gone well and its “interpret[ation] . . . that Apple was considering integrating DuckDuckGo into Safari’s private browsing mode.” DOJ FOF ¶¶ 768-77.⁴ Tellingly, Plaintiffs only cite the testimony of Mr. Weinberg from DuckDuckGo for these assertions and do not cite the contrary testimony from Apple’s decision-makers, Mr. Giannandrea and Mr. Cue.

71. That testimony from Mr. Giannandrea and Mr. Cue proves that Apple’s decision-makers never wanted to set DuckDuckGo as a default on Safari’s private browsing because DuckDuckGo’s search quality is too poor to be set as default on Safari. Tr. 2506:25-2508:2 (Cue) (“Q. Would you consider DuckDuckGo as an option to be set as the default in the Safari browser? A. No, I would not. That would not be a good thing for our customers. . . . [T]he quality of the search results of DuckDuckGo are not up to par. And so one of the things we’ve been very clear on from an Apple point of view is, privacy is of utmost importance, but you can’t [d]o privacy by providing an inferior product. . . .”); *see also* Tr. 2359:4-11 (Giannandrea (Apple)); Google FOF ¶¶ 556-67, 1340-44.

72. Plaintiffs’ citation to Mr. Weinberg’s testimony is misleading. For instance, Plaintiffs cite Mr. Weinberg’s testimony that DuckDuckGo “interpreted” an early 2019 proposal by Apple “to mean that Apple was considering DuckDuckGo for the preset default search engine

⁴ Google objects to Plaintiffs’ reliance on embedded hearsay in UPX0666, a DuckDuckGo document, for the truth about the beliefs of Apple. DOJ FOF ¶ 772; *see* Tr. 2022:1-2025:9 (Court discussing statements attributed to Apple in UPX0666 and noting that “this is an Apple employee expressing sentiments, if you will, about where things are in discussions. I think arguably it is being offered for the truth.”). Plaintiffs’ reframing as *DuckDuckGo’s* “beliefs” does not resolve the embedded hearsay issue, as the fact that Plaintiffs would try to use UPX0666 to establish is whether *Apple* was seriously considering a private browser default, but was prevented from doing so by the ISA (as Mr. Weinberg “believed”).

in Safari's private browsing mode." DOJ FOF ¶ 773 (citing Tr. 2033:4-2035:25 (Weinberg (DuckDuckGo)), 2037:7-2038:4). But Plaintiffs omit that Mr. Weinberg acknowledged on cross examination that Apple had "stricken" "the section that DuckDuckGo had added titled Private Browsing Default" with a note that read, "Safari doesn't use separate default search engines for private and regular browsing modes." Tr. 2108:17-2109:6 (Weinberg); DX2000 at .007.

73. Nor is there evidence that Apple wants to offer multiple versions of the Safari browser with different default search engines. Google FOF ¶ 1422. Mr. Cue testified definitively that "we would never do that. There's no scenario in which I could see us ever doing that, because it doesn't make any sense. We want to give our customers the best experience, so why would we ever do that." Tr. 2631:20-2632:2 (Cue). Again, the only evidence that Plaintiffs present of Apple ever considering such a design was for Safari for Windows more than 15 years ago under factually distinguishable circumstances. DOJ FOF ¶¶ 755-57. In particular, this was in the context of Apple considering how to get users to download Safari onto Windows PCs, including whether to provide different versions of Safari depending on where the user downloaded Safari on a Windows device. Tr. 2633:5-2635:3 (Cue).

74. Plaintiffs also failed to provide any evidence that Apple wanted "a different default search engine in the United States (or part of the United States) versus the rest of the world." DOJ Br. at 36-37; Tr. 6060:21-6061:2 (Whinston) ("Q. . . . You're not aware of any evidence in this case of Apple wanting to use somebody other than Google in the U.S., but using Google elsewhere in the rest of the world? A. No. I think it was something Microsoft was hoping to sell Apple on doing."). Indeed, Apple has sought and obtained carve outs from the ISA in geographies where Apple believes there is a superior rival to Google. Google FOF ¶ 1394. Apple chose not to carve out the United States from the ISA because Google offered the best

product. Cue (Apple) (30(b)(6)) (Apr. 14, 2022) Dep. Tr. 55:3-9 (“Q. Why did Apple not include the United States in point 3, which gives Apple the option to select a different default search engine in a geography? A. Because Google was by far the best search engine. So there wasn’t any reason to do that.”).⁵ The fact that Apple has been able to carve out geographies and set rivals as the default in those geographies demonstrates that Apple could and would do the same in the United States if it believed a superior search engine existed.

75. The evidence at trial also proved that (1) the ISA does *not* prevent Apple from increasing the number of queries for which Safari provides “suggestions” and (2) Apple has no intentions of putting ads on Siri or Spotlight or using an ads provider other than Google, if Apple ever did. *Infra* § III.D.2.

76. Finally, Plaintiffs argue that in 2007 Google “did not allow Apple to set an alternative GSE as the Safari homepage,” citing Google’s reaction to “an iPhone demonstration that showed Yahoo as the homepage on Safari.” DOJ FOF ¶¶ 752-54 (cleaned up). But Plaintiffs omit that the email they cite plainly states that Apple “clarified that Safari on iPhone does not have a home page setting and it just launches with the last page visited every time.” UPX0672 at -475. There is no evidence that Apple ever intended to have a different homepage for the Safari browser, let alone one that preset a different search engine. *Id.*; UPX0671 at -593 (“We have no deal on start page in our products.”).

⁵ Plaintiffs’ citation (DOJ FOF ¶ 1275) to UPX0736 is not to the contrary. To start, the statements attributed to Apple are hearsay and Google objects to their use for the truth. However, these statements do not establish that Apple wanted to set Bing as the default in the United States, rather that it dismissed the idea when Microsoft raised it. So too with Plaintiffs’ citation to Mr. Tinter’s testimony (DOJ FOF ¶ 1275). Testimony from Apple itself shows that it never seriously considered the idea because Google’s product quality in the United States is superior to Bing. Tr. 2588:22-2589:4 (Cue).

77. ***Google’s agreements with other third-party browsers:*** Plaintiffs fail to show that Google’s other browser agreements provide *de facto* exclusivity on those browsers or on devices on which users download the browsers.

78. Plaintiffs acknowledge that Google’s other browser agreements only “cover” 2.3% of searches in the United States. DOJ FOF ¶ 864. Plaintiffs did not attempt to show at trial what portion of search results on Mozilla or other third-party browsers go through the browser default, as opposed to other search access points on those browsers or on devices on which a user downloads the browser (as there was no evidence presented at trial that Mozilla’s Firefox browser, UC Web’s browser, or Opera’s browser is preloaded on any desktop or mobile devices in the United States).

79. Google’s agreements with Mozilla do not restrict an end user from changing the default search engine on the Firefox browser or restrict Mozilla from integrating search engines other than Google into the Firefox browser. Google FOF ¶ 1355. And Plaintiffs do not contest that Mozilla promotes other search providers within the Firefox browser (including by providing the option for users to “this time, search with” Bing and DuckDuckGo). Google FOF ¶ 1408. Plaintiffs provided no evidence that these are not significant access points for rivals.

80. And Plaintiffs presented no evidence at trial from other browsers as to the effect of Google’s default agreements that Plaintiffs challenge. *See* DOJ FOF ¶¶ 316-18.

81. Plaintiffs also ignore that these non-Apple browsers are not preinstalled on any of the major mobile or desktop devices. Thus, these challenged agreements do not make Google the out-of-box default on any device. Rather, users have chosen to download browsers that default to Google onto their devices, just as they could have downloaded a browser such as Edge with Bing as the default or the DuckDuckGo browser with DuckDuckGo as the default. Google

FOF ¶ 1410; *see* Tr. 6052:6-8 (Whinston) (agreeing “that the default search engine is important to a consumer’s view of the quality of a browser”).

B. Search Engine Defaults Do Not Substantially Foreclose Rivals

82. Plaintiffs’ case is focused on the so-called “power of the default.” And while they do not say so expressly (likely because to do so would reveal that their argument would invalidate *all* default arrangements), their contention is that any search engine that wins the default position “forecloses” rivals because even an inferior search engine will still receive some number of queries by virtue of being in that position. Plaintiffs overstate the “power of the default,” as well as the importance of the distribution channels at issue. The evidence shows that the decades-old practice of setting a search engine default does not constitute exclusive dealing that substantially forecloses rivals from being able to compete on the merits.

83. Plaintiffs concede that the percentage of queries that go to a search engine other than the preset default varies based on the relative quality of the default option (among other factors). DOJ FOF ¶ 955. This fact alone confirms that there is no foreclosure. Rivals can access and compete for users where there are defaults. To put it in terms embraced by Plaintiffs, the contracts at issue do not “prevent the use of a rival product or service,” DOJ COL at 18, and thus are not *de facto* exclusive. This fact also underscores the importance of assessing any foreclosure relative to a but-for world. Plaintiffs provide no such analysis; Professor Murphy showed that when using European choice screen data to assess supposed foreclosure against a hypothetical world in which all Apple and Android devices covered by the challenged agreements employed a choice screen, only 1.5% of general search shares in the United States would shift to rivals. *See* Google FOF ¶¶ 1432, 1612; DXD-37.121.

84. Plaintiffs’ proposed measure of foreclosure is coverage, which is infirm for the reasons set forth in Google’s initial submission, *see* Google FOF ¶¶ 1415-16, namely that it is

undisputed that Google would have served some significant percentage of this search traffic even without the challenged contracts. Notably, Plaintiffs do not argue that Professor Whinston's "separate calculation" of the share of queries he opines would be unavailable to a superior rival, presented for the first time at trial, is a proper measure of foreclosure. DOJ FOF ¶ 955. Nor is it measured against a proper but-for world. Professor Whinston's analysis assumes that an inferior search engine would hold every default in that scenario (*i.e.*, he assumes, counterfactually, that Google is the inferior search engine and that it would nevertheless continue to win the default deals), and Plaintiffs provide no basis on which to find that is a feasible scenario (they offer none, and the record contains none). The record evidence further refutes the underlying assumption of Professor Whinston's calculation, *i.e.*, that two-thirds of queries that originate from a search access point with a default are unavailable to a superior rival. *See infra* ¶ 106.

85. The evidence at trial established that the search engine in the default position receives additional search volume beyond what it would otherwise receive. *See, e.g.*, Google FOF ¶¶ 761-62, 1439. It is this additional volume (and promotion) that search engines, including Google, pay for. Defaults are not equally situated, however, and the evidence at trial does not establish that there is any set, guaranteed amount of traffic the default search engine will receive. Rather, as Professor Rangel agreed, how many people use the recommended default depends on a number of factors. "[I]f [the default] [is] well selected, it can be very valuable within the class of defaults. If it's poorly selected, it can backfire." Tr. 748:8-749:7 (Rangel (DOJ Expert)); *see also* Tr. 547:16-549:3 (Rangel) ("[Y]ou start thinking about switching more if the [default] experience is unsatisfactory."); Google FOF ¶ 764 (listing factors driving how many people use the recommended default).

86. Defaults are ubiquitous in the search engine context. Whether they are the “most efficient” means of distribution, as Plaintiffs claim, DOJ FOF ¶¶ 875-83, depends on a variety of factors. Professor Rangel, for example, acknowledged that picking a default provider requires consideration of whether the majority of customers prefer the default (and to what extent they prefer it) and whether the default will save customers time or effort. Tr. 750:2-25 (Rangel). They certainly do not assure usage as users will churn away from the default out of dissatisfaction with the product, a phenomenon Bing repeatedly experienced on mobile phones and Windows PCs. *See, e.g.*, DX0440 at .013 (“In April 2010, default generates 7.5% of Bing RIM Browse queries on Verizon; Without default, Bing would have no share.”); Tr. 3571:21-3572:16 (Nadella (Microsoft)); Google FOF ¶¶ 48-52, 488, 770, 779.

87. Plaintiffs’ conclusory contentions that default bias in search is “especially strong” and that “default effects in search are ‘sizeable and robust,’” DOJ FOF ¶ 876, carry no quantification, and thus cannot be used to support Professor Whinston’s calculations. Professor Rangel made clear his opinion was “qualitative,” not quantitative. Tr. 524:15-525:5 (Rangel). And reflecting the danger of relying on an expert’s adjectives, admitted that, in his view, a difference as small as █% was “sizeable and robust.” Tr. 654:1-656:2 (Rangel) (discussing UPXD101 at 49).

88. Plaintiffs rely on testimony from Neeva’s CEO Sridhar Ramaswamy and DuckDuckGo’s CEO Gabriel Weinberg in support of their claim that defaults are the “most efficient method” of distribution, DOJ FOF ¶ 877, but those witnesses recognized that defaults are far from the only means of distribution, Tr. 3693:19-3694:6 (Ramaswamy (Neeva)) (apps were a “meaningful alternative channel of distribution for Neeva beyond browsers,” accounting for “40 percent of all our traffic”); Tr. 2157:17-2159:6 (Weinberg) (“So our best moment for

converting people to the default . . . is when you download our app.”). Their testimony that being the default is a *preferred* distribution method is consistent with Google’s position that defaults are valuable and that Google should be permitted to compete for those defaults. And there is no evidence that Neeva or DuckDuckGo launched with any expectation of winning a default—recognizing that is not necessary to operate a viable search engine.

89. In lieu of any empirical analysis studying the reasons users today choose a search engine or how/when users switch defaults, Plaintiffs rely on outdated and distinguishable documents, such as a 2007 Google study regarding the impact of setting a search provider’s website (*e.g.*, google.com) as a browser’s default homepage at a time when users could not conduct searches directly from their browser’s address (or URL) bar. *See, e.g.*, DOJ FOF ¶ 878 (citing UPX0093, UPX0123, & UPX0124). This study is of limited, if any, applicability to the present day given differences in (1) the search landscape, (2) the means by which users accessed search engines in 2007 (as compared to the options available today), (3) how the specific default examined in the documents (*i.e.*, homepage default) was implemented (*see* Tr. 7674:20-7675:05 (Pichai (Google))), and (4) whether the implementation of the default provided a good user experience and aligned with user expectations. Whatever applicability those findings have to search engine default settings today, the Windows PC search engine data, as well as the Bing search default data from mobile devices, disproves that a search engine default setting “trumps” all other factors.⁶

⁶ Plaintiffs misconstrue Dr. Ramaswamy’s testimony to support their proposed finding that “a default search engine garners ‘enormous usage simply by the power of the default.’” DOJ FOF ¶ 882 (quoting Tr. 3710:7-3712:20 (Ramaswamy)). That testimony was in reference to the 2007 home page study, *see* UPX0093 at -904, not the power of defaults more generally, and he certainly was not attempting to quantify the value of the defaults set by browsers pursuant to the distribution agreements at issue in this case. With respect to the home page study itself, it

90. With respect to Plaintiffs’ assertions that “app downloads and marketing are ineffective methods of distribution,” DOJ FOF ¶ 880, and that the existence of bookmarks and downloaded search apps “does not undermine the power of Safari’s default,” DOJ FOF ¶¶ 734, 737, the data reflects that other search access points receive significant shares of queries. On iOS, for example, queries entered via non-default search access points, such as user-downloaded browsers, user-downloaded search apps, or bookmarks where rival search engines appear alongside Google, comprise nearly 40% of all queries. Google FOF ¶ 1413 (citing DXD-37.052). The Windows PC and Bing default on mobile experiences, as well, prove that users can and do (in large numbers) find other avenues to access their preferred search engine when it is not the search engine set as the default in the browser. *See, e.g.*, Google FOF ¶ 770 (citing DXD-37.036 (Google received roughly 78% of search volume on Windows computers despite lacking preinstalled browser defaults)); DX0440 at .011 (describing mobile query distribution in 2010 as “Bing + Yahoo is about 10% despite default deals”); Google FOF ¶¶ 496-500.

a) Plaintiffs rely significantly on Professor Rangel’s testimony, but all he testified to was that users who access search engines through means other than the default have to take multiple steps, just as users changing the default setting do. Tr. 617:23-618:17 (Rangel). The fact is that users *do* take these steps. *See, e.g.*, Tr. 2455:4-22 (Cue), 2625:11-2626:2 (“Most customers have downloaded tens, if not hundreds, of apps at this point.”), 2629:21-2630:16; Google FOF ¶¶ 933-36 (discussing success of SVPs in receiving direct traffic via app downloads), 983-87 (discussing success of Facebook, Instagram, and TikTok).

calculated that only 24% of Google’s traffic came via the home page under discussion. UPX0123 at -484.

b) Plaintiffs also cite a study of iPhone users to suggest apps are an ineffective mechanism to access search. DOJ FOF ¶ 880 (citing UPX0139 at -149). But the page Plaintiffs cite studies only those users who stayed with Safari, saying *nothing* about the portion of the population who chose to use an app instead (or the total population). Importantly, even among that subset who stayed with Safari, the majority were aware of the Google Search App, but a plurality didn't "see the need to install it," presumably because they were satisfied with their experience on Safari with Google as the default. UPX0139 at -149.

c) Plaintiffs also rely on Mozilla CEO Mitchell Baker's testimony, DOJ FOF ¶ 880, but she confirmed that apps *do* help grow usage—just that, unlike defaults, they require a "conscious decision" of the user. Baker (Mozilla) Dep. Tr. 135:3-5, 135:8-22, 139:20-23, 140:1-24. Defaults make access seamless, which is why Google and its partners believe they are the best experience for their users, but there are a number of other, easily accessible alternatives by which users can search using the provider of their choice.

91. Plaintiffs' assertion that "most search traffic arrives through defaults rather than through nondefault querying," DOJ FOF ¶ 883, is true only in the aggregate and thus presents a distorted picture. The percentage of search traffic that *flows* through the search engine default depends on, *inter alia*, which search engine is set as the default as well as the alternatives available to users. *See infra* ¶¶ 104-06; Google FOF ¶ 764. On Windows PCs, for example, it is decidedly not the case that "most search traffic arrives through defaults"; rather, the overwhelming majority of search traffic on Windows computers goes to search engines *not* set as the default, and the search engine that *is* set as default receives a minority (less than 20%) of traffic. Google FOF ¶¶ 50-52; DXD-37.037. On the flip side, where the majority of search traffic does flow through the search engine default, that fact denotes that the device manufacturer

or carrier has succeeded in selecting the highest-quality search engine to be in default. Tr. 750:2-25 (Rangel); DX0723.

92. Plaintiffs emphasize the role of habits in shaping user search behavior. *See* DOJ FOF ¶¶ 887-88. Whatever role habits play, their formation cannot be divorced from quality, and it is Google’s quality that each of Plaintiffs’ cited sources highlights. In short, that consumers return to things they like, including out of habit, and that Google thus seeks opportunities for exposure to users so that they come to enjoy Google hardly supports Plaintiffs’ case. *See* Tr. 741:12-742:5 (Rangel) (“THE COURT: Would you equate habituation to a product with consumer harm? A. No, of course not, Your Honor. . . .”).

93. Nor does the existence of a default equal a consumer harm. As the Harvard Business Review article Professor Rangel relies on (and that he confirmed his general agreement with, Tr. 747:17-20 (Rangel)) explains: “[w]ell-designed” defaults can “benefit both company and consumer by simplifying the decision making, enhancing customer satisfaction, reducing risk and driving purchases.” DX0723 at .001; *see also id.* at .007 (“When companies get defaults right, they and their customers benefit.”). This is consistent with Mr. Pichai’s testimony, quoted in part by Plaintiffs at DOJ FOF ¶ 897, that search engine defaults on browsers “make it very, very seamless and easy for users to use [Google’s] service.” Tr. 7661:1-11 (Pichai). It also conforms with Mr. Roszak’s testimony that reducing choice friction is a benefit to Google of default distribution. Tr. 1537:9-12 (Roszak (Google)) (“Q. And default distribution deals are valuable for Google, in your view, because they reduce the friction for users to access Google Search, correct? A. Yeah, potentially that’s one potential benefit, yes.”); *see also* UPX0103 at -214 (“reducing friction can create delight and immediate value”) & UPX0848 (focusing on simplicity as a design principle) (both cited in DOJ FOF ¶ 892).

94. Plaintiffs argue defaults introduce “choice friction,” relying in large part on the testimony of Professor Rangel. But Professor Rangel testified repeatedly that he is not providing any quantitative analysis whatsoever, and refused to provide any benchmark for what is meant by his characterization of choice friction as “substantial,” beyond that it takes more than one step (*i.e.*, tap) to change a default setting. Tr. 711:14-712:10 (Rangel). *Some* choice friction is inevitable with any act, and Professor Rangel does not opine otherwise.

95. However one characterizes the amount of choice friction entailed and the steps involved in changing a default, *see* DOJ FOF ¶¶ 893-97, the objective evidence is that users *do* change defaults, and further that Apple and Mozilla, as well as Google via Android and Chrome, have designed their interfaces to make it easy for a user who wishes to change the default to do so. *See, e.g.*, Google FOF ¶¶ 522-23 (citing DX2014), 769-770, 919, 1231-32. Microsoft historically has made it *more* difficult than those platforms, not less, and notwithstanding that additional friction Microsoft users face, users have managed to circumvent the Bing default settings in huge numbers. Google FOF ¶¶ 515-23.

96. Plaintiffs mischaracterize the record in connection with their assertion that “Google has long recognized and even harnessed the effect of choice friction to protect its defaults.” DOJ FOF ¶ 898; *see* DOJ FOF ¶¶ 899-901. The evidence Plaintiffs point to is merely that Google’s revenue share payments are primarily intended to drive the incremental promotion that comes from being the default, and for that reason Google consistently declines to pay revenue share where it would not be set as the default. With respect to the MADA’s provision prohibiting OEMs from prompting users through “processes, instructions, promotions, or other means” to change the device in ways that would interfere with the MADA’s placement

obligations, *see* DOJ FOF ¶¶ 899-900,⁷ that provision is merely intended to avoid an OEM undercutting the value Google receives from the placement provisions by entering a deal with a rival that would prompt the user to delete Google’s Search widget or change the search default in Chrome. Tr. 800:16-22 (Kolotouros (Google)); Tr. 9868:8-9870:1 (Murphy). And OEMs may provide users via the web with instructions on how to add or delete applications and widgets. Tr. 978:24-980:22 (Kolotouros). Lastly, regarding DOJ FOF ¶ 901, as Mr. Kolotouros explained in his testimony, the problem with Samsung’s change to the S-browser interface was not that it made it easy to change the default search engine; rather, the issue was that Samsung’s implementation might mislead users because it failed to explain that their selection would *permanently* change their default. *See* Tr. 887:1-15 (Kolotouros).

97. The fact that some number of users⁸ may not understand the difference between a search engine and a browser, or may not appreciate that the default search engine in a browser can be changed, *see* DOJ FOF ¶¶ 901-05, only underscores that browsers and search engines are strong economic complements, and that the decision of which search engine to set as default is among the most important decisions a browser company can make. What the evidence does show is that where the default has been changed to a lesser-quality search engine many users *do* notice a quality difference and that browser’s search volume is negatively impacted. *See, e.g.*, Google FOF ¶¶ 509-10 (describing experiments conducted by Mozilla where it switched the

⁷ Plaintiffs mischaracterize this provision, stating that this “restrict[s] OEMs from making it easier for a user to change a default by prohibiting OEMs from including ‘processes, instructions, promotions, or other means that directs, instructs or encourages the End User to change’ *their default search engine away from Google.*” DOJ FOF ¶ 899 (emphasis added). But the MADA does not dictate the default search engine or default browser on the device. Google FOF ¶¶ 1477-78. Thus, even with this provision, OEMs can encourage users to use any search engine and/or browser as the default on the device.

⁸ Professor Rangel offers no quantification or any empirical analysis of the extent of user confusion. Tr. 699:21-700:11 (Rangel), 703:9-16.

default search engine to Bing), 1372-73 (describing Mozilla’s experience following changing the Firefox default to Yahoo). In short, there is a robust body of record evidence that proves that users switch away from default settings when the default service does not meet their needs. *See, e.g.*, Tr. 9707:6-9709:15 (Murphy).

98. Plaintiffs downplay the most prevalent, long-running example of a non-Google default, specifically Windows desktop computers, and make no reference to any of the evidence introduced at trial regarding mobile phone defaults set to search engines other than Google. Where they do address Windows PC query share, they describe the data as reflecting a “near seven-fold default effect” between Bing’s query share on Windows computers and its share on Apple Mac computers. DOJ FOF ¶ 913 (citing Tr. 631:23-632:17 (Rangel) and UPXD101 at 56). This head-to-head comparison confirms that defaults have some effect, but it (1) contradicts Plaintiffs’ claim that an inferior search engine set as the default will always win at least two-thirds of queries (as Bing has failed to achieve anything approaching 66% share), and (2) confirms the remarkable difference in the number of users who switch from Bing to Google versus the number who switch from Google to Bing. Only 2.4% of Mac users choose to use Bing instead of the Google default, whereas nearly 80% of Windows users choose to use Google instead of the Bing default. *Compare* UPXD101 at 56, *with* Google FOF ¶¶ 50-52; DXD-37.036-.037, .056; Tr. 9761:23-9764:1 (Murphy). Plaintiffs generally ignore that the most prevalent method of bypassing a browser default is downloading a different browser. But even within a given browser, the comparison between Google and Bing shows that relatively few users choose to search with Bing on browsers where Google is the default, but that many more users (more than 40% on Internet Explorer, and more than 20% on Edge) search using Google on those browsers where Bing is the default. *See* UPXD104 at 29. This browser comparison,

moreover, does not account for the fact that it is much more difficult to switch default search engines in Internet Explorer and Edge than it is in Chrome, Firefox, and Safari. Google FOF ¶¶ 522-23 (citing DX2014 at .003), 769-70, 919, 1231-32, 1351.

99. As for Firefox, the data analyzing the impact of the switch from Google to Yahoo between 2014 and 2017 do not reflect the number of users that switched to another browser (*e.g.*, Chrome) in order to conduct searches via Google. *See* Tr. 9761:23-9764:1 (Murphy); DXD-37.055. Accordingly, this data underestimates the volume of users who switched away from Yahoo when it was the default on the Firefox browser. Google FOF ¶ 769.

100. The choice screen data from Russia and the European Union do indeed “show[] the consequence of removing a default,” DOJ FOF ¶ 910—namely, that had a similar choice screen been implemented in the United States on Safari, Firefox, and other third-party browsers under contract with Google, approximately 0.9% of total U.S. search queries would have shifted to rivals, *see* Google FOF ¶¶ 1431-32 (citing Tr. 9838:16-9839:21 (Murphy); DXD-37.082). Plaintiffs inaccurately characterize Professor Whinston’s regression analysis when they contend that “U.S. rivals would *acquire* about 10% *market share* were a choice screen implemented in the United States.” DOJ FOF ¶ 912 (emphases added). Professor Whinston testified only that “rivals would get about 10% of the *selections*” on *Android devices*, a far different statistic than actual usage. Tr. 5737:21-5738:10 (Whinston) (emphasis added). Indeed, when one focuses on the shift in actual search *query share* from Google to search rivals on Android devices in the U.S., Professor Whinston admits it would amount to less than 1% of U.S. search volume. Google FOF ¶ 1613 (citing Tr. 6046:16-19 (Whinston), 6089:20-6091:21); *see also* Tr. 9833:9-9835:23 (Murphy) (“[I]f you look at what happened in usage after that, you can see not nearly the change in usage you might expect by some choices.”); DXD-37.080.

101. Plaintiffs argue that defaults have “enhanced power” on mobile devices as compared to desktop, *e.g.*, DOJ FOF ¶ 923, but do so without any empirical evidence. Any comparison of the effect of the default on mobile versus desktop must consider that Google is predominantly the default on mobile, and Bing is predominantly the default on desktop. Thus, one cannot conclude that the difference in changing the default (or browser) reflects a difference between the device types as opposed to the difference in user satisfaction between Google and Bing. There is abundant empirical evidence in the record showing users switch away from inferior search engines. There is *no* empirical evidence as to the effect of device type on switching. While screen sizes are of course smaller on mobile, users are also well-accustomed to changing the settings on their phones and to downloading apps. *See* Tr. 2625:11-2626:2 (Cue), 2629:21-2630:16, 2636:10-25. Plaintiffs presented no empirical evidence at trial that users have more difficulty with those steps on mobile devices as opposed to on desktop. And as user search behavior reflects, the way that many people change the search engine is not by changing the default search engine setting on the browser but through accessing search engines through other means such as by downloading a different browser. *See supra* ¶ 98; Google FOF ¶¶ 778, 785, 915, 1373. Plaintiffs’ analysis on this point focuses myopically on the “power” of the default for a given search access point, rather than consideration of all of the different ways users can access a search engine of their choice apart from changing the browser default.

102. Plaintiffs focus on certain Google modeling regarding mobile defaults. That modeling, as the witness explained, was based on the Apple Maps episode from many years ago and constituted an “imperfect” comparison. Tr. 1538:19-1539:2 (Roszak (Google)), 1558:14-21. To this day, iPhone users have *no* ability to change the default map app away from Apple Maps; and for months after the launch of Apple Maps, Google did not even have an iOS Google Maps

app available for users to download and use in non-default situations. Google FOF ¶ 767. Thus, this episode does not address the question of whether search engine defaults on mobile are more powerful than on desktop. The Amazon Fire tablet data, which Professor Rangel relied on in addition to Apple Maps, suffers a similar problem: it has a non-removable search widget that cannot be changed from Bing and users do not have the ability to download the Google search engine application because Amazon Fire tablets are not Android compatible devices. *See* Tr. 693:13-694:16 (Rangel), 696:11-699:5 (discussing DXD-01.014), 735:7-736:4; *see also* Google FOF ¶ 1594.

103. Nor does the contention that “[m]obile users do, in fact, query mostly through defaults,” DOJ FOF ¶ 922, support Plaintiffs’ position that users are less likely to access rival search providers on mobile than desktop. The cited testimony from Mr. Nadella, DOJ FOF ¶ 921, does not relate to the proposition for which it is cited—the ease of changing the default in the browser—but rather his conclusory statement that *distribution* is easier on Windows desktop than it is on mobile. Notably, his testimony that “users don’t switch” was based on the Apple Maps example, Tr. 3526:13-3527:13 (Nadella), but this again ignores, for example, that users cannot switch the default. And Mr. Nadella’s assertion that “the one access point that matters is the search default on the browser,” DOJ FOF ¶ 922 (citing Tr. 3499:21-3500:8 (Nadella))—which was based on his supposition that “that’s the vast majority of the entry points,” Tr. 3499:25-3500:8 (Nadella)—is disproven by the actual data on mobile phones, which reflects that a number of other access points receive substantial share. Google FOF ¶ 1413. As for Mr. Tinter (cited in DOJ FOF ¶ 922), he testified to Microsoft’s “estimates” that on iPhones, 95% of searches through “the default entry points . . . are people who never change the configurations and only 5 percent of them we believe change the configuration.” Tr. 3102:12-3104:25 (Tinter

(Microsoft)). But Google is the default on iPhones, and so he is saying only that 95% of iPhone users do not change the default search engine in Safari on iPhone away from Google—which is not dissimilar to Google’s Mac (desktop) share, at 92%. UPXD104 at 30. Mr. Tinter also testified that users are less likely to navigate directly to bing.com or google.com on mobile, but that is far from the only way to access search outside of the Safari default, and does not speak to the ease of use of those other means, such as tapping on a search application.

104. The remaining conclusory testimony of Microsoft witnesses cited by Plaintiffs is likewise unpersuasive. Mr. Nadella’s unsupported testimony that defaults are the “only thing that matter in terms changing search behavior,” DOJ FOF ¶ 882 (quoting Tr. 3497:13-3498:4 (Nadella)); Mr. Parakhin’s conclusory comment that it is a “well-documented fact that people very rarely switch defaults,” DOJ FOF ¶ 882 (quoting Tr. 2722:2-10 (Parakhin) (Microsoft)); and Mr. van der Kooi’s similarly conclusory deposition testimony that the “default is the only thing that matters,” DOJ FOF ¶ 928 (quoting van der Kooi (Microsoft) Dep. Tr. 143:7-23), cannot be squared with Google’s ability to win (and retain) Windows PC users, Google’s ability to retain Mac users, Bing’s inability to retain users when *it* was the default on mobile devices, or other market data in the trial record and the default experiments by Mozilla showing, for example, that as recently as 2021 and 2022, when Mozilla experimented with making Bing the default for a small percentage of Firefox users, Bing accounted for less than 22% of searches from those users in English speaking markets.. Google FOF ¶¶ 1379, 1459; *see also* Google FOF ¶¶ 509-10 (describing experiments conducted by Mozilla in 2016 and 2017 where it switched the default search engine to Bing for certain users and noticed significant drops in search volume for those users). That Microsoft cannot win any significant percentage of users is a function of Bing’s inferior product quality, not the result of any exclusionary conduct.

105. Plaintiffs' contentions regarding defaults culminate in their assertion that it is *impossible* for a *superior rival* to attract more than one-third of the queries that come through the "covered" access points. DOJ FOF ¶ 960. In other words, Plaintiffs claim that the default effect is so strong that regardless of any difference in search quality, the search engine in the default position will receive at least two-thirds of user search queries. Notably, this opinion that purports to "measure the strength of Google's defaults," DOJ FOF ¶ 955, comes not from market evidence obtained through discovery of what has actually occurred when Google is not in the default, or for that matter from any analysis by Plaintiffs' behavioral economist, who was retained to "evaluate the impact of Google's search defaults," Tr. 521:13-23 (Rangel), but rather from Professor Whinston's reliance on *forecasts* of what could happen were Apple to contract with Bing instead of Google. Professor Whinston's analysis is premised upon forecasting models that were based on limited data and described as "doomsday" and "worst case" by Google employees. UPX0085 at -336; UPX1050 at -828; Tr. 1706:6-1707:23 (Roszak). Indeed, employees with first-hand knowledge of these analyses caveated that "[c]apture rate is a **difficult variable to predict**" in the case of Apple, UPX0095 at -331 (emphasis in original), and acknowledged various weakness in using certain assumptions (*i.e.*, the Apple Maps episode) for these worst case scenario forecasts, Tr. 1735:20-1737:16 (Roszak). Notwithstanding the obvious limitations of these forecasts, Professor Whinston opines, and Plaintiffs ask this Court to find, that "even a much stronger rival would be able to attract *at most* one-third of the covered queries," DOJ FOF ¶ 960 (emphasis added), and "[t]here are no plausible investments a rival

could make to attract the remaining two-thirds of covered queries,” DOJ FOF ¶ 961 (emphasis added).⁹

106. Given the availability of the *actual* market evidence of what has occurred when Google has not been set as the default search engine, there is no sound basis for Professor Whinston’s newly fashioned opinion that he first offered at trial. There is certainly no basis to rely *solely* on this hypothetical modeling to the exclusion of market evidence, as Professor Whinston does. Data on the “stickiness” of defaults in the search context reflects that they are not nearly as sticky as Plaintiffs contend, especially when the default is set to a less preferred search engine. The market evidence proves that a superior rival can achieve a far better “recovery” or “clawback” query rate than Professor Whinston estimates. For years and years, Google has consistently received more than *double Professor Whinston’s estimated ceiling—i.e.,* not 33% but nearly 80%—of queries on Windows PCs, where Microsoft has the exclusive browser default and exclusive search engine default on every access point. Google FOF ¶ 770. And on Firefox, Google likewise far exceeded the recovery rate that Professor Whinston uses as a fixed ceiling, obtaining nearly 70% of queries on Firefox. Google FOF ¶ 769. As for mobile devices, even in the comparatively early days of mobile, evidence showed that Google received approximately 90% of the queries on devices with non-Google defaults. Google FOF ¶ 781-82. There is no basis to believe that users today are less able to navigate to the search engine of their choice than they were a decade ago. *See, e.g.,* Tr. 677:12-19 (Rangel).

⁹ Professor Whinston provides this fixed-ceiling opinion presumably because the exclusive dealing case law involves contracts involving all- or nearly-all-or-nothing choices. This is trying to fit a round peg in a square hole, however, because the reality of defaults is that there is no fixed percentage that they guarantee.

107. With respect to the projections prepared by Google’s search finance team, this modeling was based on assumptions derived from two historical data points. The search finance team recognized that the two historical scenarios in which Google lost default status on desktop and mobile devices, Firefox and Apple Maps, were “imperfect” and “directional” datapoints. Tr. 1538:19-1539:2 (Roszak), 1558:14-1559:1. Among the reasons the Maps scenario is “imperfect,” as explained by Mr. Roszak, is because the search finance team did not adjust the assumptions to reflect that (1) when Apple launched its mapping application, Google did not have its own standalone Maps app available in the Apple app store, Google FOF ¶ 767, and (2) there is no way (to this day) for a user to change the default mapping application in iOS, Tr. 1737:8-11 (Roszak), and thus when a user clicks on a link to a location on a webpage, for example, the default map will be triggered, *see* Tr. 683:21-684:13 (Rangel). As for the Firefox “recovery” rate, it did not account for Google recovering users via alternative browsers like Edge or Chrome. Tr. 1704:11-17 (Roszak). Crucially, as stated in Google’s written 30(b)(6) responses—selectively quoted by Plaintiffs, DOJ FOF ¶ 926—to conduct a precise evaluation of Google’s potential claw back rate on iOS, Google also would need to understand what placement and promotion Apple might extend to the new default search engine. UPX6024 at -441.

108. Plaintiffs also cite modeling done by Apple in 2016 to 2018, relying on two exhibits. DOJ FOF ¶ 927 (citing UPX0095 and UPX0460). No witness was examined at trial about the modeling in those documents upon which Plaintiffs rely, and the cited deposition testimony surrounding UPX0460 reflects only that the witness (Mr. Perica) was unfamiliar with how the query retention rates were calculated. Perica (Apple) Dep. Tr. 211:4-24. As for Exhibit UPX0095, not only was no witness questioned regarding the document, the very “capture rate

analysis” Plaintiffs point to contains the bolded caution “**Capture Rate is a difficult variable to predict.**” UPX0095 at -331.

109. Plaintiffs also cite modeling done by Microsoft, wherein Microsoft estimates (including in presentations to Apple) that it will be just as successful as Google has been in retaining Safari users. DOJ FOF ¶¶ 928-29 (citing UPX0115 and UPX0116). That assumption is flatly contradicted by the evidence presented at trial and should be interpreted as self-serving projections—which Apple rejected. Google FOF ¶¶ 1311-32.

110. Finally, there is no basis to include search queries that originate through the user-downloaded Chrome app on Apple and Windows devices in calculating foreclosure, DOJ FOF ¶¶ 968-70, for the simple reason that those queries are by definition performed by users who downloaded the browser to their device. Those users could have downloaded any browser or search app of their choosing. Indeed, Chrome users on Windows computers are an example of competition against the same type of agreements by Microsoft that Plaintiffs allege cause foreclosure.

C. Plaintiffs Provide No Legitimate Basis to Disregard Competition on the Merits for Search Default Agreements

111. Plaintiffs do not contest that Google won its search default agreements with Apple, Mozilla, and other browser providers on the basis of Google’s superior product quality and monetization. Google FOF ¶¶ 1277-79, 1292, 1304-39, 1360-79, 1386-1400, 1456-59; *see* DOJ FOF ¶¶ 559-62. Nor do Plaintiffs address the evidence that these browser providers would choose a rival search provider as the default if it offered superior quality compared to Google. Indeed, Apple has done just that in other countries where it determined a rival was superior to Google. Google FOF ¶¶ 1292, 1393-99.

112. Plaintiffs instead argue that competition on the merits, resulting in browser providers choosing the best-quality search engine, should be disregarded for three reasons: (1) “[d]istributors do not always act in search consumers’ best interests,” (2) a dominant firm “can use monopoly profits to outbid rivals,” and (3) competition for “winner-take-all” contracts “is weak in industries dominated by a single firm.” DOJ FOF ¶¶ 1231-48. None of these arguments has merit.

113. *First*, Plaintiffs rely on economic theory to suggest that “distributors do not *always* act in search consumers’ best interests” because they are profit maximizing firms and because they are “relatively small” compared to the broader search market. DOJ FOF ¶¶ 1234-35 (emphasis added). The overwhelming *record evidence* here shows that Google’s partners have chosen their default search provider based on which provided the best search experience and best search quality *for their users*. Google FOF ¶¶ 1242, 1248, 1277-79, 1304-39, 1389-92 (Apple), 1360-79, 1395-99 (Mozilla), 1518-1537 (Android). Plaintiffs’ theory, as Professor Murphy showed, is inapplicable when a distributor selects a supplier based on quality. Tr. 9744:15-9747:16 (Murphy) (“[G]iven that [browsers] chose, by their own account and by the evidence, the highest quality search engine, okay, in attractive terms, there’s no reason to believe they would have done something different there due to any internalization of externalities, positive or negative.”); DXD-37.041 (theory only can apply when “distributors accept exclusive dealing *because* of externalities”).

114. Indeed, in those instances where partners have preloaded an inferior search provider as the default—Yahoo on Mozilla and AT&T, or Bing on Verizon—users have complained to the partner and often stopped using the partner’s product. Partners have taken such feedback into account, and ultimately switched to Google to ensure they were providing the

best search experience. Google FOF ¶¶ 892-95, 1509-12 (AT&T), 896-900, 1517-20 (Verizon). As Professor Whinston testified at trial, “[F]rom an economic perspective, it would be rational for an Android OEM or an Android carrier to be very sensitive to and care about product reviews like” these “when they go about making decisions about how to configure their devices.” Tr. 10585:16-21 (Whinston); *see also* Tr. 6052:6-8 (Whinston) (agreeing “that the default search engine is important to a consumer’s view of the quality of a browser”); DOJ FOF ¶ 1329 (“OEMs and carriers know that if users have a poor experience on devices they purchase, users may blame the responsible OEM and carrier and users will shift their business to competitors.”).

115. The only example Plaintiffs offer for their assertion that “Apple has repeatedly taken actions that were in its own interest, but not its customers’” is from an entirely different market for e-books. DOJ FOF ¶ 1239. The overwhelming evidence in this case proves that Apple has consistently acted with its customers’ interests in mind when choosing the best search engine (Google in the United States) to be the preset default, but making it easy for users to switch the default or download other search engines if they prefer a rival search provider. Google FOF ¶¶ 1230-33, 1242, 1248, 1277-79, 1289-90, 1304-39, 1389-92.

116. Plaintiffs also assert that Mozilla “may take actions that harm competition,” suggesting—though not directly saying—that Mozilla should have continued its agreement with Yahoo, rather than terminate it in 2017. DOJ FOF ¶ 1240. However, the record evidence proves that Mozilla decided to switch back to Google because Yahoo had failed to improve its search product and Mozilla’s users were not satisfied with Yahoo’s search quality. Google FOF ¶¶ 1370-76. That Mozilla, a small browser player, elected to switch to Yahoo in the first place based on the (incorrect) supposition that Yahoo would better meet user demand shows precisely the opposite of what Plaintiffs’ economic theory predicts.

117. And contrary to Plaintiffs’ assertion that “most distributors” are “relatively small,” DOJ FOF ¶ 1235, the companies responsible for the vast majority of Google search distribution in this case—Apple, Verizon, AT&T, T-Mobile, and Samsung—are not small players. Over half of all search volume in the United States flows through Apple devices. Tr. 9742:8-9744:14 (Murphy); DXD-37.040. And Verizon, AT&T, T-Mobile, and Samsung account for almost █% of Google’s Android RSA payments in the United States. Google FOF ¶ 1480; DXD-37.099. These companies therefore have a far bigger stake in enhancing search competition than individual users. Tr. 9742:8-9744:14 (Murphy) (“Apple has much more incentive to promote competition than an individual customer would, right, because they’re a big buyer, they’re a big participant, and they’re going to internalize, is what we call it, a lot more of those effects than an individual customer would who’s not going to think about those things, he’s just going to think about his own particular choices. Apple has got a broader view of how what they do affects things generally.”).

118. *Second*, Plaintiffs’ suggestion that Google outpays rivals for its default deals using “monopoly profits” is unsupported by any record evidence. DOJ FOF ¶¶ 1242-44. It also is contradicted by the assertion of their own expert that in a competitive marketplace, Google would be paying *more* to Apple, and that Google’s *underpayment* was evidence of its market power. Tr. 4773:23-4775:13 (Whinston), 10460:22-10462:23.

119. *Third*, Plaintiffs’ argument that “winner-take-all competition is weak” in a market with a dominant firm, DOJ FOF ¶ 1245, ignores both the fundamental nature of defaults and the terms of Google’s agreements.

120. Search default agreements are not “winner-take-all” deals. A superior rival can compete against the default to win a large majority of users, just as Google did on Firefox, Windows PCs, and mobile devices where rivals won search distribution deals. *See supra* § III.B.

121. And as to Google’s agreements in particular, Plaintiffs are incorrect that “Google’s distribution contracts ensure there is one winner and that winner serves as the search provider *on every search access point on a device or browser.*” DOJ FOF ¶ 1245 (emphasis added). Google’s agreements with Apple and Mozilla set the initial search provider on *one* access point—the default in the browser address bar. Both Apple and Mozilla provide rivals with placement on additional search access points (such as Apple’s bookmarks or Mozilla’s “[t]his time, search with” feature) on their browser. Google FOF ¶¶ 1280-92, 1351-55, 1401-11. And there is nothing in the ISA that limits Apple from creating new search access points on Apple devices. *See supra* § III.A.

122. Plaintiffs argue that the ISA is “winner-take-all” because it does not allow DuckDuckGo to compete to be the default for a separate private browsing mode on Safari. DOJ FOF ¶ 1247. But there is no evidence that Apple wanted to preload DuckDuckGo as an alternative private browsing mode default. *See supra* § III.A; Tr. 2359:4-11 (Giannandrea) (explaining his opinion that “setting DuckDuckGo as the default for private browsing” “is probably a bad idea”). That is, the ISA did not prevent DuckDuckGo from “competing just for users searching in private browsing mode.” DOJ FOF ¶ 1247. The evidence shows DuckDuckGo *did* compete for such a deal, but failed to convince Apple on the merits of their product quality or the benefits of an alternative design. Google FOF ¶¶ 556-67, 1340-44.

123. Plaintiffs also suggest that “Google insists on being set as the exclusive default on all devices in nearly all countries” and therefore Microsoft has been prevented from entering into

a U.S.-only deal. DOJ FOF ¶ 1248. But the evidence from trial shows that both Apple and Mozilla have entered into agreements that set different defaults in different countries.

124. Mozilla’s deal with Yahoo from 2014 to 2017 provided that Yahoo would be the default search provider on Firefox in the United States, and provided Mozilla the option to set an alternative search provider in territories where Yahoo did not meet certain quality expectations. DX1012 at .032-.035. Yahoo failed to meet those expectations, and so, in 2016, Google entered into an agreement with Mozilla to provide search results in a number of countries outside the United States, while Yahoo continued to provide search results in the United States. JX0031 (2016 Sponsorship Agreement between Mozilla and Google) at -616 (§ 1); DX0541 at .002 (email from Mozilla to Yahoo discussing decision to enter agreement with Google in “certain territories outside the US”).

125. And Apple has chosen to partner with search providers other than Google in certain foreign countries where Apple believed the rival provided a better product. Google FOF ¶ 1394. There is no evidence that Apple wanted a different default in the United States than the rest of the world, but was prevented from doing so based on Google’s “*insistence.*” Google FOF ¶ 1421 (citing Tr. 6060:21-6061:2 (Whinston) (admitting there is no such evidence, and it was only “something Microsoft was hoping to sell Apple on doing”)).

126. In addition, Google’s Android agreements with OEMs and carriers are device-by-device, allowing any partner to preload a rival search provider in the United States (or even a smaller geographic region), while continuing to preload Google exclusively elsewhere. Google FOF ¶¶ 1483, 1487, 1492, 1497, 1502, 1550, 1574-86.

127. Plaintiffs further argue that there has been “no meaningful competition” for search defaults in the United States for the last decade, citing the fact that Google continues to

win. DOJ FOF ¶¶ 1249-55. But Plaintiffs confuse the outcome of very intense competition with lack of competition. That Google has won certain defaults does not mean that there has not been meaningful competition.

128. Plaintiffs' argument also ignores that Microsoft has won search default deals on Windows PCs, on which a substantial amount of search usage in the United States occurs. Google FOF ¶ 47; DXD-37.033. Microsoft did not win these agreements based on superior product quality, but instead did so by leveraging the economics of its Windows operating system license so that OEMs were provided substantial discounts on Windows licenses in return for making Bing the exclusive search engine preloaded on Windows PCs. Google FOF ¶¶ 419-30.

129. And as to those agreements that were competed on based on search engine product quality and monetization, it should be expected that Google would win due to Google's undisputed superior product quality and monetization. Tr. 9725:13-9727:5 (Murphy) (“[T]he fact that Google wins based on price and quality is what you would expect if the market is competitive. . . . If you have a producer that has the highest quality and the lowest cost, an industry like this where there's no capacity constraints, you might expect, in fact, them to win a large share of the business.”).

130. Contrary to Plaintiffs' suggestion, Microsoft's inability to win the Safari default does not “illustrate[] the lack of meaningful competition that exists for search distribution agreements.” DOJ FOF ¶ 1263. Instead, the Apple-Microsoft negotiations are an example of competition at work. When Microsoft has competed to be the default, Apple conducted a serious assessment of product quality, and ultimately determined that “[t]he product gap is too large for us to consider moving to Bing.” Google FOF ¶¶ 1310-32; DX0376 at .001. Plaintiffs even

acknowledge that it was this product gap, not the price offered by Bing, that resulted in Bing's failure. DOJ FOF ¶ 1272.

131. The evidence also shows that Apple concluded that the driver of Microsoft's inability to match Google's revenue share payments was that users would switch their queries from Microsoft (even as the default) to Google's superior product. Tr. 2512:6-19 (Cue) ("Q. And, Mr. Cue, even at 90 or 100 percent revenue share that Microsoft was offering, Microsoft couldn't come close to the finances that Google was able to put on the table; is that fair? A. Not with an inferior search engine, no. If you have an inferior search engine, customers wouldn't use it, and so, therefore, I don't know how you could monetize it well"), 2527:17-2528:21 ("Google has the best search engine. You have to remember, advertising and the revenue doesn't just come in. . . . The way that it works is customers have to go and search on Google or search on Bing, in this example, and then they have to provide great results so the customers keep doing it . . . and using it, otherwise, it's very easy to switch.").

132. Nor does the Google thought exercise regarding the potential revenue share Microsoft would need to offer to match Google's payments show a lack of competition. DOJ FOF ¶ 1266. This thought exercise was based on a number of assumptions that Google did not have information about, including Microsoft's monetization rate. Tr. 1682:13-1683:9 (Roszak) ("[W]e really have no idea and we had no data on what Microsoft's RPMs were. . . . [T]here are so many unknowns in this that it would have been presented very humbly and that we really do not know if this is correct."). Even using the assumptions in the thought exercise, the analysis shows that Microsoft could offer a profitable revenue share at █% of Google's monetization rate, and therefore even a less than equally efficient rival could compete profitably. UPX0674 at -914.

133. Ultimately, Microsoft’s inability to win the Safari default was due to its failures to invest in improvements to Bing and to successfully innovate to improve Bing’s search quality, particularly in mobile, leading to the large gap with Google in product quality. Google FOF ¶¶ 457-86.

134. Similarly, the failure of the Mozilla-Yahoo agreement demonstrates that setting a low-quality search rival as the default is likely to result in users leaving the default, and often leaving the product altogether. In various analyses, Mozilla found that 64% of users switched away from Yahoo in the first day (before any changes to Yahoo’s Ads), and the “heavy user segment [that] generates most of the general browser usage . . . were ~100% switched to Google.” Mozilla “retain[ed] . . . near nobody of value on Yahoo.” Google FOF ¶ 1458.

135. That Yahoo responded to this low retention of users by increasing ads for the users that remained, rather than investing to improve its search quality and thereby retain more users, does not prove that a quality search rival cannot compete. *See* DOJ FOF ¶ 1261. Instead, it shows that competition *against* the default ensures that the winner of a default search agreement must still compete on the basis of quality to retain users. Google FOF ¶¶ 1446-51.

D. Plaintiffs’ Allegations of Competitive Harm Are Unsubstantiated

136. Plaintiffs posit three alleged harms to the competitive process relating to Google search distribution agreements: (1) depriving rivals of the scale “necessary to compete”; (2) “preventing Apple and Branch from growing their nascent technology or entering relevant markets;” and (3) foreclosing rivals via their “exclusive contracts.” DOJ Br. at 29.¹⁰ Plaintiffs

¹⁰ The alleged foreclosure resulting from the browser agreements is discussed in Section III.B, *supra*; the alleged foreclosure resulting from the Android agreements is discussed in Section IV.B, *infra*; and Branch is discussed in connection with the Android agreements in Section IV.C, *infra*.

elsewhere argue that the agreements impact the incentives of Google and its rivals to invest and innovate, including with respect to privacy. DOJ FOF § VIII.B. Plaintiffs have failed to carry their burden of proof to establish harm to competition in any alleged relevant market.

1. Plaintiffs' Arguments Regarding the Role of Scale Are Contrary to the Evidence

137. Plaintiffs argue that scale is “vital” and “critical” to search quality, DOJ FOF ¶¶ 163, 178, but no witness, not even their own computer science expert, used those words.

138. Plaintiffs' mischaracterization principally rests on three pillars: (1) email exchanges from 15 years ago between an in-house economist and executives the Plaintiffs neither deposed nor brought to trial; (2) snippets of documents, most of which were not discussed with witnesses at trial; and (3) conclusory statements from a Microsoft witness, unsupported by any contemporaneous ordinary course business document and contradicted by Microsoft's own documents.

139. As shown in Google's Proposed Findings of Fact, the weight of the evidence is that user interaction data has some utility for search quality, but the relative volume of queries is far from determinative of quality. The key evidence regarding scale is found in: (1) the extensive testimony from Google Search engineers on the importance of factors other than user interaction data on quality; (2) the extensive evidence that Microsoft's diminished quality resulted from failures to innovate and invest in search quality; (3) the results of Professor Fox's data reduction experiment (“DRE”); (4) the 2009 natural experiment in which Bing's scale doubled overnight when it combined with Yahoo but there was no resulting material increase in Bing search quality; (5) the conclusions of senior Microsoft researchers that Microsoft was at the point of diminishing returns from user data; (6) modern large language models (“LLMs”) that use little or no user interaction data to train and that have had a profound impact on language

understanding and thus search quality; and (7) the testimony of Dr. Ramaswamy that with 2.5% of U.S. search queries, his new entrant using modern machine learning could compete with Google on search quality. Google FOF §§ IV, V.A.6, V.D.1.

140. Plaintiffs' Proposed Findings of Fact mischaracterize the record on scale in many instances. For example, Plaintiffs argue that Google has "concede[d]" that scale gives it a "competitive advantage" and constitutes the "magic" behind its success. DOJ FOF ¶ 166; *see also* DOJ Br. at 30. That argument ignores hours of trial testimony in exchange for cherry-picked buzzwords out of millions of produced documents. The email using the phrase "competitive advantage" (UPX0189) was written by Dr. Lehman in 2008, while a junior engineer in his third year at Google, Tr. 1749:5-6 (Lehman (Google)), 1750:7-13, and was *not* shown to him at trial. The actual utility of click data was discussed in depth by Dr. Lehman at trial. As he explained, in 2016 (and earlier), Google's systems used clicks as a "mechanism [to] read by proxy" because computers themselves could not understand documents, but that changed during his tenure. Google FOF ¶¶ 305-23. By late 2018, as he wrote and testified, it had become clear that "[w]ithin the near future, a deep ML system will clearly outperform Google's 20-year accumulation of relevance algorithms for web search." Tr. 1921:6-1922:17 (Lehman) (discussing UPX0197 at -211). And since 2018, large language models such as Google's MUM model had become so powerful as to be able to "learn simply from text" and achieve "essentially human-level performance." Google FOF ¶¶ 144-46; Tr. 1909:18-1912:3 (Lehman), 1914:6-1915:20. The same DOJ proposed finding also misinterprets Mr. Giannandrea's testimony to suggest he agreed that (during his tenure at Google) user interaction data was Google's "secret sauce." DOJ FOF ¶ 166. Both his testimony and the email from which Plaintiffs seek to extrapolate, UPX0235, say something far different. The "secret sauce" that the email identifies

the third party (Apple) as seeking to obtain from Google was not user click data, but rather both the query and the search results pages Google showed, which in combination would “leak the ranking signal from Google.” Tr. 2313:21-23 (Giannandrea), 2314:14-2315:4.

141. Plaintiffs also try to make much of decade-and-a-half old email exchanges involving Google’s in-house Chief Economist, Dr. Varian, and various Google employees knowledgeable about search. DOJ FOF ¶¶ 203-06. And while Plaintiffs examined Dr. Varian, an economist, at trial, they neither deposed nor brought to trial any of the search executives involved in the email exchanges. More egregiously, Plaintiffs try to suggest that the role of user interaction data in 2009 is the same as today, ignoring the evidence of the dramatic changes in search engine technology over the last 15 years. *See* Google FOF ¶¶ 112-220, 305-32.

142. Plaintiffs also insinuate something sinister in Google’s reluctance to publicly discuss the use of user clicks in search ranking. DOJ FOF ¶ 207. Here, however, at least UPX0204 was shown to Dr. Lehman at trial and contrary to Plaintiffs’ characterizations, he cogently explained that Google’s reluctance to publicly discuss the use of clicks data is an effort to minimize people gaming Google’s search results. Tr. 1796:25-1797:3 (Lehman), 1798:16-1799:16.

143. At bottom, Plaintiffs’ proposed findings regarding user-side data conflate testimony about its utility with a conclusion that, at less than Google’s scale, rivals cannot compete on quality. *See, e.g.*, DOJ FOF ¶¶ 167-80. The record indicates, however, that there are an enormous number of factors beyond click and query data that affect search quality. *See, e.g.*, Google FOF ¶ 256. When it comes to crawling and indexing, for example, while there was witness testimony of user data having *some* role, “the fundamental problems are engineering problems, not user-side data problems,” as Plaintiffs’ own expert conceded. Tr. 10422:6-14

(Oard (DOJ Expert)). Notably, Dr. Ramaswamy testified this was a problem that Neeva had solved at its relatively small scale. Google FOF ¶ 613. Faced with that evidence, Plaintiffs suggest that website owners “often” prohibit crawling from search engines other than Google, DOJ FOF ¶ 167. That proposed finding is based exclusively on a conclusory statement by Mr. Parakhin, who quantified “often” by reference to a single example (Quora) at trial. Tr. 2766:1-21 (Parakhin). Notably, no Microsoft document in evidence suggested that this was the cause of Microsoft’s index quality problem (as opposed to its failure to invest, Google FOF ¶¶ 471-76).

144. With respect to query understanding systems such as spelling, synonyms and auto-complete, Dr. Gomes did *not* testify that “Google relies heavily on user-side data.” DOJ FOF ¶ 172. To the contrary, Dr. Gomes explained that Google’s innovation in spelling was realizing that “in the web corpus you actually have more correct spellings than you have . . . in the queries . . . [Y]ou’re more likely to find the right spellings on the web. And so therefore, you look to analyze those spellings on the web in order to figure out what the right mapping is.” Tr. 8023:8-8025:25 (Gomes (Google)); *see also* Google FOF ¶¶ 95-96, 109. Synonyms likewise make use of web corpus documents. Tr. 8088:12-20 (Gomes). And Google’s innovations in autocomplete notably include autocomplete for queries *that had never been seen before*. Tr. 8067:17-8068:18 (Gomes).

145. As explained in detail in Google’s Proposed Findings of Fact, there are myriad factors that impact search quality that are unimpacted, or little impacted, by user interaction data. *See generally* Google FOF ¶¶ 253-332.

146. Plaintiffs focus on systems like Navboost and QBST that rely more heavily on user interaction data, but the evidence shows that these systems are *not* the most important in Google’s document retrieval and ranking process. *See, e.g.*, Google FOF ¶ 283; Tr. 6472:15-

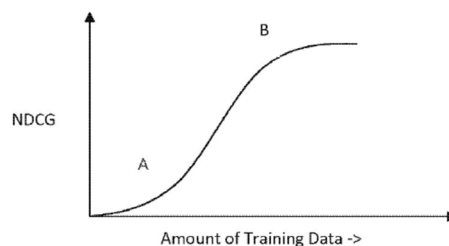
6473:3 (Nayak (Google)) (Dr. Nayak explaining that there are “plenty of other signals” that are also important in Google’s ranking and retrieval). On one end of the spectrum are Google’s “traditional” systems, which do not include Navboost or QBST, but rather, as Drs. Nayak and Lehman explained, are “old school” ranking and retrieval systems such as the inverted index that do not utilize any user interaction data. Tr. 6450:22-25 (Nayak) (“Q. Traditional systems work by looking up documents in the index, like you would use an index in the back of a book; is that right? A. That is correct.”); Tr. 1899:25-1901:11 (Lehman); Nayak (Google) (30(b)(6)) (Apr. 7, 2022) Dep. Tr. 106:15-24. On the other end are Google’s newer, AI-based systems that have led to record quality gains on a fraction of an older system’s user interaction data. *See, e.g.*, Google FOF ¶ 118. *Contra* DOJ FOF ¶¶ 1022-29. Plaintiffs, however, reference Google’s 2021 released MUM technology (which does *not* rely on click and query data) only once for an unrelated proposition about the expense of running AI models. DOJ FOF ¶ 1026.

147. Google’s search rivals have likewise found that breakthroughs in machine learning (which use little to no user interaction data) can profoundly improve search quality. For example, Microsoft engineers were “shocked” by the power of transformer models, and, when Microsoft applied OpenAI’s model to Bing’s core ranking algorithm, Microsoft saw the largest jump in relevance in two decades, even though that model does not rely on any user interaction data. *See, e.g.*, Google FOF ¶¶ 326-28. When Professor Whinston (departing from his area of expertise) sought to offer opinions about the role of scale in search quality, he failed to consider “whether or not artificial intelligence advances have lowered the barriers to entry.” Google FOF ¶ 1083 (citing Tr. 5918:25-5919:4 (Whinston)); *see also* Tr. 4765:12-25 (Whinston).

148. Three pieces of empirical data further confirm the limited influence that user interaction data has on search quality. *First*, Professor Edward Fox conducted a controlled data

reduction experiment to determine the extent to which the significant Google-Bing quality gap could be attributed to differences in user interaction data volume. *See, e.g.*, Google FOF ¶¶ 347-48, 351-79. Professor Fox’s DRE found that the quality decrease going from Google’s quantity of user interaction data to Bing’s was statistically insignificant and measured 0.113 IS4@5 points. *See, e.g.*, Google FOF ¶¶ 383-84. The measured quality diminution accounted for a mere 2.9% of the quality gap between Google and Bing. *See, e.g.*, Google FOF ¶ 349. *Second*, in 2009, Microsoft and Yahoo entered into a partnership that, in one fell swoop, more than doubled Microsoft’s search queries. *See* Google FOF ¶¶ 333-35. When Microsoft began to use Yahoo’s search data, it did not lead to a material increase in Bing’s search quality; in fact, the resulting quality improvement from the increased scale was smaller than an unrelated quality improvement measured two months earlier. *See* Google FOF ¶¶ 336-38. And *third*, in the ordinary course, Google reduced the amount of data available to Navboost by one-third yet found “no meaningful change in search quality.” Google FOF ¶¶ 293-94.

149. The results of these experiments illustrate the principle of diminishing returns. *See* Google FOF ¶¶ 290, 338-39, 350, 387. That principle—that an increase in user interaction data eventually provides only very minimal incremental benefit to search quality—finds support in the documents and testimony of Google’s competitors. For example, Dr. Rich Caruana, a Microsoft-affiliated researcher and former Cornell University computer science professor, did some experiments with different training data sizes and found that Microsoft’s models were “very close to point B” in the curve below:



See Google FOF ¶ 339; UPX0892 at -490. Other search engines have likewise found that they can compete successfully with Google using a fraction of the queries that Google currently receives. *See* Google FOF ¶ 295.

150. Plaintiffs posit that scale is necessary to compete on tail queries specifically. *See, e.g.*, DOJ FOF ¶¶ 981, 995-97. The weight of the evidence, however, is that the volume and availability of user interaction data are not the primary determinants of quality for tail queries. Tail queries, by their nature, occur infrequently, meaning that, when clicks are available, those clicks tend to be “noisier” and harder to interpret. *See* Google FOF ¶¶ 298-99. For that reason, non-scale inputs such as index size and algorithmic sophistication are more important considerations. *See* Google FOF ¶¶ 300, 304.

151. The real-world experiments discussed above confirm the limited influence that user interaction data has on tail query quality. *First*, Professor Fox’s DRE found that the quality decrease going from Google’s quantity of user interaction data to Bing’s was statistically insignificant, measuring only 0.155 IS4@5 points, and accounting for a mere 3.4% of the quality gap between Google and Bing on tail queries. *See, e.g.*, Google FOF ¶ 388; Tr. 7857:2-7859:1 (Fox (Google Expert)); DXD-26.013-.015. *Second*, when Microsoft began to use Yahoo’s search data in December 2010, Microsoft found that the new data did not lead to a material increase in Bing’s search quality on tail query quality. *See, e.g.*, Google FOF ¶¶ 336-38; *compare* DX0441 at .001 (October 22, 2010 email indicating that the “OctoberTree ship[ped] with [a] gain[] of . . . 1.9 in Tail”), *with* DX0442 at .001 (December 16, 2010 email indicating “[t]he DecemberTree release is the first to use our Yahoo Logs and resulted in improving NDCG by .3 Overall and .4 on the Tail”).

152. Plaintiffs also posit that scale is necessary to compete on fresh queries. *See, e.g.*, DOJ FOF ¶¶ 983, 1007-10. The weight of the evidence is again to the contrary. Because older, potentially stale pages tend to have more clicks than fresh pages, search results that have received the most clicks typically are not the most relevant results for queries. Google FOF ¶ 276; *see also* Tr. 7966:20-24 (Fox) (“Freshness usually has to do with very popular queries where the amount of user interaction data is not very important.”); Tr. 1899:25-1901:10 (Lehman) (“There is a special sort of freshness component that tries to look at things like, often news articles will have by-line dates so you can say, well, how old is this article versus this one. This is about Taylor Swift’s relationship two years ago, this is one two weeks ago. And so it can sort of boost the more recent ones more aggressively.”).

153. Plaintiffs further posit that scale in mobile queries is necessary to compete for queries on mobile devices. *See, e.g.*, DOJ FOF ¶¶ 998-1005, 1061. The weight of the evidence, however, indicates that desktop queries can also be useful for mobile quality and vice versa. *See, e.g.*, Tr. 2663:10-2664:6 (Parakhin) (Some queries are “not changing based on whether you’re on cellphone or on your laptop”); Tr. 6318:7-15 (Nayak) (testifying that the results for desktop and mobile queries “in a large fraction of queries, they’re really the same. The intents are the same. And so the user interactions on desktop are really no different from the user interactions on mobile.”). Rather than scale, the record suggests that Microsoft’s problems in mobile search stemmed from its failure to foresee and sufficiently prepare for the forthcoming mobile revolution. *See* Google FOF ¶¶ 477-86.

154. Plaintiffs also suggest that Google’s rivals (including Microsoft) lack the scale to compete or to conduct adequate experimentation. *See, e.g.*, DOJ FOF ¶¶ 196-98, 1011-15, 1022-29. The weight of the evidence is again to the contrary. The testimony at trial indicates that

Google regularly tests its search quality with both human rater tests and live experimentation tests. *See* Google FOF ¶ 236. As Dr. Nayak testified, human rater tests—which do not require live search traffic—permit evaluators to operate off of a common set of guidelines and to better resist click-rich content that may ultimately prove to be of poor quality (*e.g.*, “click bait”). *See* Tr. 6325:24-6236:16 (Nayak). The record further indicates that Google’s rivals do not require a greater share of live traffic data in order to compete on quality. For example, Dr. Ramaswamy testified that he believed Neeva could compete with Google with as little as 2.5% market share. Tr. 3778:9-3779:25 (Ramaswamy). The record contains no evidence of any experimentation that Microsoft wanted to conduct on Bing but could not for lack of scale. *See* Tr. 2673:3-11 (Parakhin) (“I think on desktop in United States, we are not really constrained by amount of traffic we get to run experiments.”); Ribas (Microsoft) Dep. Tr. 148:12-15 (“Q. And can you identify any experiments that you have wanted to run but have not been able to in mobile as a result of this? A. No, I cannot.”).

155. The principal evidence (that was not a decade or more old) adduced by Plaintiffs at trial on the notion that competitors’ ability to compete on search quality depends on scale came from Microsoft executive Mikhail Parakhin. Mr. Parakhin’s testimony, however, is insufficient to conclude that Microsoft’s ability to compete on search or advertising quality depends on the volume and availability of user interaction data.

156. *First*, Mr. Parakhin’s testimony is inconsistent with the plethora of evidence of Microsoft’s persistent failure to invest in search quality. Ascribing Microsoft’s quality differences to “scale” ignores, among other things: (1) Microsoft’s engineering headcount has long trailed Google’s by substantial margins, *see, e.g.*, Google FOF ¶¶ 458-62; (2) Microsoft’s underinvestment in search-related hardware and capital expenditures, *see, e.g.*, Google FOF

¶¶ 463-65; (3) Microsoft’s neglect of its search index, *see, e.g.*, Google FOF ¶¶ 471-76; and (4) Microsoft’s underinvestment in artificial intelligence relative to Google, leading executives to ultimately conclude that Microsoft needed to partner with OpenAI if only to secure the “right AI ambition.” *See, e.g.*, Google FOF ¶¶ 524-39.

157. *Second*, Mr. Parakhin’s testimony is conclusory. The record does not reveal a basis for Mr. Parakhin’s views regarding scale, nor does the record contain documents substantiating Mr. Parakhin’s views. Consistent with the conclusory character of Mr. Parakhin’s testimony, DOJ Plaintiffs’ computer science expert, Professor Oard, testified that Professor Fox’s study—and apparently not Mr. Parakhin’s testimony—is “the best information we have” about the effect that would result if Microsoft had additional scale. *See* Tr. 10401:25-10402:16 (Oard).

158. *Third*, Mr. Parakhin’s testimony is that of an interested party. No documents corroborated Mr. Parakhin’s testimony. Indeed, other than one demonstrative, the only exhibit used by Plaintiffs in connection with Mr. Parakhin’s testimony was a slide deck that Mr. Parakhin had no firsthand knowledge of, could not affirmatively state was created in the ordinary course of business, and bore all the hallmarks of having been prepared for advocacy purposes with regulators in Europe. *See* Tr. 2726:12-2732:2 (Parakhin). To the extent there is any doubt about Microsoft’s interest in the outcome of this litigation as a rival of Google, Microsoft’s internal documents acknowledge not just an interest, but an active effort to “shape the DOJ investigation.” *See* DX0688 at .001.

159. *Fourth*, Mr. Parakhin’s own testimony was inconsistent with the proposition that relative scale is the primary determinant of search quality. For example, Mr. Parakhin acknowledged that there are diminishing returns to search quality from an increase in scale.

Although he suggested that a search engine will not experience diminishing returns from increasing scale until it has reached roughly 70% market share, *see* Tr. 2679:3-2680:4 (Parakhin), he did not explain his basis for that threshold. When it came to engineering headcount, however, he was ready to suggest that there were diminishing returns. Tr. 2665:12-23 (Parakhin) (“After about two to 3,000 engineers, core engineers on search, the next implement will be very incremental . . .”). On cross-examination, Mr. Parakhin acknowledged that algorithmic improvements can increase search quality more directly than can an increase in user interaction data. He acknowledged that using LLMs in 2019 had yielded great results, Tr. 2738:17-19 (Parakhin), and agreed that, a few years later, applying OpenAI’s large language model “led to the largest [Bing] jump in relevance in two decades.” Tr. 2742:18-25 (Parakhin). In general, he acknowledged that there are a range of inputs that affect search quality, including “getting more computers to serve traffic,” acquiring “attributes to run artificial intelligence algorithms,” and “ha[ving] more engineers working.” *See* Tr. 2654:20-2655:13 (Parakhin).

160. Plaintiffs also suggest that scale affects search advertiser participation and search and text advertisement relevance. *See* DOJ FOF ¶¶ 200-02, 1030-60. The weight of the evidence, again, does not support that conclusion.

161. *First*, the record does not show that the volume or availability of user interaction data has any greater bearing on advertising relevance than it does on algorithmic search relevance. Although Plaintiffs suggest that Google uses click-and-query data to predict ad click-through rates (pCTR) and to predict the quality of a landing page (pLQ), off-line experimentation forms an important piece of the quality determination. *See* Google FOF ¶ 281 (explaining that “page quality is *anti*-correlated with user clicks”); Tr. 4251:19-4252:12 (Juda (Google)) (“[W]e show a lot of human beings examples of searches and landing pages and ask

them to answer a variety of questions that are usually of the form is this a good landing page or a bad landing page for a particular search.”). The record contains no evidence that Google’s competitors need but lack a particular quantity of user interaction data to improve search advertising technologies, much less that harm to advertisers or competition results. *See* Google FOF ¶ 296 (noting that “neither DOJ expert economist Professor Whinston nor DOJ expert computer scientist Professor Oard offered an opinion on the quantity of user interaction data that a search engine would need to build a competitive search business . . . as a seller of advertising”); *see also* DXD-29.142 (“Any claim that Bing’s smaller scale yields lower click-through/conversion rates is mitigated by lower CPC at Bing.”).

162. *Second*, the evidence at trial was that smaller search engines can attract the advertisers that account for most of Google’s ad revenue. A relatively small number of large advertisers account for most ad spend at Google. *See* Tr. 8587:18-8588:18 (Israel (Google Expert)) (“The top 2.5 percent of Google’s advertisers make up 90 percent of the revenue that’s spent on Google.”); DXD-29.140-.141. The evidence shows that advertisers accounting for the vast majority of Google’s search ad revenue also advertise through Bing. *See* Tr. 8588:19-8589:12 (Israel) (“[T]he vast majority of Google revenue is also advertising at Bing and thus at risk; Bing is competing for that revenue.”); DXD-29.141.

163. *Third*, the principal evidence for Plaintiffs’ theory is inconsistent with the weight of the evidence. At trial, Mr. Parakhin testified that the relationship between scale and search advertising revenue was “nonlinear” such that, for example, a search engine “twice as big as [its] opponent . . . will make four times as much money.” Tr. 2646:7-23 (Parakhin). The record indicates, however, that Microsoft understood that there were diminishing returns to search advertising and that Bing could compete. For example, as Dr. Susan Athey, then Microsoft’s

chief economist (and currently DOJ’s chief economist) wrote, there are “diminishing returns” in advertising, that it was “possible to compete with Google,” and that it was a “[m]yth” that “[o]nly through scale c[ould] ad platforms deliver Google’s efficiency.” *See* DX0428 at .004, .009.

164. *Fourth*, the evidence does not establish that scale is the cause of any limitations in Microsoft’s ability to monetize Bing. To the contrary, the weight of the evidence is that, to the extent that scale affects such monetization metrics as revenue per search (“RPS”), the effect is relatively modest. *See, e.g.*, DX0730 at .006 (“[S]cale accounts for 20-25% of the RPS gap between Google and Microsoft leaving 75-80% due to other factors”). Consistent with the limited influence of scale on Bing’s ability to monetize, Microsoft found that its revenue per thousand searches *dropped* after consummation of its Yahoo partnership. *See, e.g.*, DX0733 at .003 (“Scale effects after the Yahoo! integration[:] Initial shift to lower curve due to poor syndication quality and demand migration issues, counterbalanced somewhat by scale benefits.”); DX0449 at .001 (“We added scale but it did not grow RPS.”).

2. Plaintiffs’ Speculation Regarding Apple Has No Basis in the Record

165. Plaintiffs’ discussion of “Apple’s incentives to participate more fully in search” appears to encompass three newly invented hypothetical scenarios that no expert opined on before trial: (1) Apple developing its own search engine, *see* DOJ Br. at 33, DOJ FOF ¶¶ 1093-1101; (2) Apple growing Safari Suggestions so that “one day [it] could become a reasonable substitute for a general search engine,” *see* DOJ Br. at 33-34, DOJ FOF ¶¶ 1102-12; and (3) Apple building capacity to sell search ads in Spotlight, *see* DOJ Br. at 34, DOJ FOF ¶¶ 1113-19. There is no support in the record that the ISA prevented Apple from taking any of those steps.

166. ***Apple Developing Its Own Search Engine:*** As demonstrated in Google’s Proposed Findings of Fact, Apple has not had any intention of developing its own search engine.

Apple has determined that its resources are better spent in other areas of innovation that would enable Apple to provide a better user experience rather than developing its own search engine because Google already provides superior search quality for Apple users. Google FOF ¶¶ 1302-03. As Mr. Cue testified in response to a question from the Court: “Doing a search engine is a huge amount of work [W]e’d rather put our energies in the other areas that we’re investing in, whether it’s AR and VR, for example, or Health and our Watch.” Tr. 2594:16-2595:22 (Cue); *see also* Tr. 2540:15-2542:1 (Cue); Tr. 2261:20-2262:9 (Giannandrea).

167. Ignoring Mr. Cue’s testimony as to how Apple actually assesses its strategic priorities, Plaintiffs instead rely on “a lot of speculating” that Plaintiffs asked Mr. Cue to engage in. Tr. 2540:15-2542:1 (Cue). The hypothetical of what Apple would have done if it were unable to reach a deal with Google in 2016 is “not something [Mr. Cue] spent any time thinking about in any significance,” and Apple developing its own search engine is “not something [Apple] went off and investigated.” *Id.* Mr. Cue’s reference to “potentially building our own” search engine, which Plaintiffs have now seized upon (DOJ Br. at 33; DOJ FOF ¶ 1101), was a “guess” at trial in response to a hypothetical and premised on the notion that “search engines that were out there [other than Google] weren’t good enough.” Tr. 2542:2-12 (Cue). But Mr. Cue was unequivocal that Apple building its own search engine, when “the customer was getting a great experience with Google,” is “idiotic.” Tr. 2540:15-2542:1 (Cue). And Plaintiffs have presented no documentary evidence about any potential development of an Apple general search engine.

168. Plaintiffs’ assertion that Apple currently possesses the resources and technology to build a general search engine (*see* DOJ Br. at 33, DOJ FOF ¶¶ 1094-98) is both untrue and irrelevant. Apple has developed certain limited technologies based on its own web index

because Apple has several products that depend on it having knowledge of the web. *See* Google FOF ¶¶ 1298-99. However, key technologies that Apple does *not* possess includes search advertising technology, *see* Google FOF ¶ 1301, which Plaintiffs allege “requires complex technology and engineering” and is “prohibitively expensive,” DOJ Br. at 26-27. There is no evidence that Apple had or has any incentive to acquire these technologies, nor is there evidence that Apple presently possesses the resources and technology to build out a full-featured general search engine. Plaintiffs cite Mr. Giannandrea’s testimony for the proposition that “Apple could build a search engine to compete with Google.” DOJ FOF ¶ 1098 (citing Tr. 2261:25-2262:2 (Giannandrea)). But Plaintiffs ignore that Mr. Giannandrea testified, in response to the next question, that building a general search engine is “not the best way to differentiate [Apple’s] products” because “there already are many general search engines in the world that users choose to use.” Tr. 2262:3-9 (Giannandrea).

169. Plaintiffs also suggest that Apple could build a search engine “by acquiring Bing and investing to improve it,” and did not do so as a result of Google’s revenue share payments. DOJ FOF ¶ 1099. But Apple’s concern with Bing’s product quality over the past decade is well documented in the record. Google FOF ¶¶ 1304-39. In 2018, Apple specifically rejected Plaintiffs’ proposal that Apple acquire Bing because, as Apple’s CEO Mr. Cook wrote to a group of senior executives, “[a]cquiring Bing would be too distracting for us and outside our core competencies,” and “[t]he product gap is too large for us to consider moving to Bing.” DX0376 at .001; Google FOF ¶¶ 1318-32. Given Apple’s disinterest in building a search engine from scratch, it is not surprising that Apple also found it undesirable to acquire an inferior search engine that Microsoft had underinvested in for years.

170. ***Apple’s Safari Suggestions:*** The ISA does *not* preclude Apple from making product innovations to its Safari browser that would, in Apple’s determination, result in a better user experience; nor is Apple precluded from increasing the number of Safari queries Apple could answer directly *itself*, including through Safari Suggestions. Google FOF ¶¶ 1293-94. The testimony at trial was wholly consistent with that reading of the ISA. Apple’s chief negotiator Mr. Cue testified that “it was really important to us that we could innovate in any way that we wanted in order to provide better search results for our customers,” and “the agreement that I did with Google very clearly articulates” this. Tr. 2594:16-2595:22 (Cue); *see also* Tr. 2345:11-23 (Giannandrea). Google’s chief negotiator Mr. Pichai agreed. *See* Tr. 7704:12-20 (Pichai).

171. Plaintiffs argue that the 2016 ISA amendment, in response to the “threat” from Safari Suggestions, limited Apple’s use of Safari Suggestions through the insertion of the “substantially similar” clause. DOJ FOF ¶¶ 1106-11. But neither the “substantially similar” clause nor other parts of the ISA preclude Apple from increasing the number of queries Apple could answer itself, including through Safari Suggestions. Google FOF ¶¶ 1294, 1296. To the contrary, the language and intent reflected Google’s concern that Apple could potentially divert commercially valuable queries *to third-party vertical search engines*, leaving Google with a greater proportion of less profitable queries. Google FOF ¶ 1270; *see* DOJ FOF ¶ 1104 (acknowledging the distinction). As Mr. Pichai testified, it “was very, very clear between me and Mr. Cue” that “the default [as] implemented with respect to other rival [search engine] providers” must remain the same, even though “Apple can choose to do what they want to improve their products and services.” Tr. 7704:21-7705:11 (Pichai). That accords with what Apple wanted. Apple found it “really important . . . that [it] could innovate in any way that [it] wanted”—flexibility that the ISA preserved, Tr. 2594:16-2495:22 (Cue), but Apple had no

intention of diverting queries entered on the Safari browser to third-party vertical search engines. Google FOF ¶ 1271; Tr. 2602:5-13 (Cue). Mr. Giannandrea rejected the notion that the ISA limited “in any way Apple’s ability to make these Safari suggestions,” Tr. 2345:11-15 (Giannandrea); and Ms. Braddi similarly testified that Apple “ha[s] been expanding [Suggestions], and we have not raised it as an issue,” Tr. 5014:9-13 (Braddi (Google)). The record evidence thus contradicts Plaintiffs’ assertion that the ISA imposed “limitations [that] restrict[] Apple’s flexibility to design its products.” DOJ FOF ¶ 1112.

172. Plaintiffs also assert that Safari Suggestions “result[] in a much better user experience” which the ISA seeks to “thwart.” DOJ Br. at 33-34; DOJ FOF ¶ 1105. This, again, rests on a mischaracterization of witness testimony. Mr. Giannandrea’s testimony was that Apple could improve user experience, *for certain queries*, by directly answering users’ questions rather than sending users to a search engine. Tr. 2219:25-2220:5 (Giannandrea), 2235:6-7. Nothing in the ISA restricts Apple from increasing the number of queries it answers *itself*. Mr. Giannadrea’s testimony did not address that which the ISA does restrict, *i.e.*, Apple’s diversion of queries from Google to a third-party vertical search engine. And as Mr. Cue explained, Apple does not see any other search engine “as a potential competitor in quality . . . to Google.” *See* Tr. 2602:5-13 (Cue). The ISA therefore does not “thwart” any plans Apple had, or has, for increasing the volume of Suggestions offered by the Safari browser.

173. ***Apple Selling Search Ads in Spotlight:*** Plaintiffs’ final hypothetical scenario—that Apple would have (1) offered search ads in Spotlight, and (2) done so using Apple search advertising technology that it does not have—is wholly unsupported by the factual record. Plaintiffs’ hypothetical scenario is foreclosed by Mr. Cue’s testimony that Apple “has” and “had no intentions or plans to put ads on Siri or Spotlight” and that, even if Apple “chose to put ads,

Google was really good at it.” Tr. 2497:11-2498:17 (Cue). Plaintiffs’ hypothetical scenario also ignores evidence in the record that Apple has no interest in acquiring search advertising technology, *see supra* ¶¶ 166-68—which Plaintiffs characterize as “requir[ing] complex technology and engineering” and “prohibitively expensive,” DOJ Br. at 26-27.

174. Plaintiffs’ new theory ignores Mr. Cue’s clear testimony and instead relies upon a single 2020 email, pushed into evidence and not raised with any trial witness, that (1) involved none of the Apple senior executives who testified at trial or by deposition, and (2) was authored by an Apple employee whose name was not once mentioned at trial. DOJ FOF ¶ 1116. That single email concerned preliminary discussions within the Apple Ads organization [REDACTED] [REDACTED] [REDACTED]. UPX0959 at -177-178. [REDACTED] *Id.* at -178.

To infer from this email that Apple would have built its own search engine advertising technology to sell ads in Spotlight is entirely speculative, and further exposes Plaintiffs’ complete failure of proof on this issue.

175. Untethered to any of the above specific claims, Plaintiffs’ Proposed Findings of Fact contends that “[i]n search, Google and Apple seek to ‘work as if [they] are one company’” DOJ FOF ¶ 11. That mischaracterizes the “fiercely compet[itive]” relationship between the two companies and takes out of context a Google executive’s “rough notes” from “a difficult meeting” in 2018. UPX0617 at -059; Tr. 7711:3-16 (Pichai) (“[T]here has been a lot of tension, moments of mistrust between the two companies.”); Tr. 2318:15-20 (Giannandrea) (“There was a great deal of mistrust between the two teams at that time.”). Google and Apple engage in intense competition in a wide range of product areas, including mobile operating systems. Tr.

7711:3-16 (Pichai) (“[W]e build Android, they build iPhones. We compete every day in the marketplace on that and many, many other products.”); Tr. 2595:23-2596:20 (Cue) (“[W]e compete with Google aggressively.”). The testimony at trial contradicts the notion that Google and Apple are working as “one company.” See Tr. 7710:25-7711:2 (Pichai) (“Q. And did you agree with this vision, that Apple and Google work as if we are one company? A. No.”). That language refers specifically to the 2018 meeting’s discussion of the user experience with Google Search in the Safari browser. Tr. 7711:22-7712:11 (Pichai). Notwithstanding the fierce competition between the two companies, Google and Apple had a “shared understanding” that “the two companies are delivering a user experience which needs to work together seamlessly.” Tr. 7707:2-15 (Pichai).

3. Plaintiffs’ Arguments Regarding Investment Incentives Are Contrary to the Evidence

176. Plaintiffs argue that the existence of the browser agreements reduces rivals’ incentives to improve their search products. DOJ FOF ¶ 1070. As discussed elsewhere, that ignores that rivals compete for the agreements themselves (and future renewals), compete against the default, and, of course, compete for searches that occur on access points not covered by the agreements at issue—which comprise the *majority* of searches. Google FOF ¶¶ 1415-16 (noting even Plaintiffs’ expert concedes over 50% of search occurs on such non-covered access points). All of these provide ample incentives to invest. Moreover, as Professor Murphy explained, economic theory does not suggest that investment will necessarily increase or decrease when a firm faces tougher competitive conditions. Tr. 9888:4-9889:23 (Murphy). What the empirical evidence here reveals is a lack of correlation between firms having (or lacking) defaults and increases in investment levels. Google FOF ¶¶ 1447-50.

177. The record demonstrates that users are willing to seek out a new search product that they believe may be better. For example, Google’s PageRank algorithm enabled it to overtake its once larger rival, AltaVista. *See, e.g.*, Tr. 10391:2-10 (Oard). Similarly, when Microsoft announced incorporation of OpenAI’s technology into Bing, Microsoft saw downloads of the Bing app quadruple, making Bing the third most popular app in the Apple App Store at that time. *See* Tr. 3634:24-3635:11 (Nadella). By contrast, the record suggests that, without adequate product quality investment, distribution deals can prove ineffectual given the risk of user “churn.” *See, e.g.*, Tr. 3568:10-22 (Nadella) (The Verizon distribution deal “was a disaster financially . . . because [Bing] couldn’t retain the users at the rate at which [it] needed to”); *see also* Google FOF ¶¶ 487-514 (describing high rates of Bing user churn on mobile devices and Mozilla browser). Moreover, Plaintiffs’ investment incentive claim is belied by the fact that Google’s rivals have found search profitable. For example, Bing has been a “profitable multibillion-dollar business” for a “substantial number of years.” Tr. 3644:13-17 (Nadella); *see also e.g.*, Google FOF ¶ 544 (DuckDuckGo is profitable).

178. Plaintiffs also argue that Google’s success in competing for the browser agreements has reduced Google’s incentives to invest further in search. DOJ FOF ¶ 1079. To begin with, Professor Whinston admits that output and quality in search have increased substantially during the period of alleged monopoly maintenance. Google FOF ¶ 1081. And Professor Whinston conducted no analysis of what that output or quality would have been in a but-for world without the agreements, Google FOF ¶ 1084, instead resorting to conclusory statements that Google *might* have done more, DOJ FOF ¶ 1079. Having failed to conduct any empirical analysis, Plaintiffs brush aside the long history of Google search innovation, Google

FOF ¶¶ 77-241, and instead resort to a handful of anecdotes, DOJ FOF ¶¶ 1080-92, that fail to establish that Google would have invested more under some other conditions.

179. Plaintiffs point to a collection of documents regarding latency, many of which were not used at trial (UPX0223, UPX0233, UPX0249, & UPX0752), to suggest Google has “underinvested” in latency. DOJ FOF ¶¶ 1083-84. That argument reflects a profound misunderstanding of the issue. Latency, as the knowledgeable Google witnesses explained, is ultimately about tradeoffs between quality and speed, Tr. 6470:6-6471:10 (Nayak), and has less to do with adding computing capacity, Tr. 7442:20-7444:25 (Raghavan (Google)). No witness testified that users experience poor quality on Google because of latency and, indeed, median latency today on Google mobile is under one second. *Id.* at 7301:15-7302:2.

180. Plaintiffs also suggest Dr. Nayak testified that Google underinvested in its index, DOJ FOF ¶ 1083, but that is manifestly not so. In the portion of the testimony immediately following what Plaintiffs cited, Dr. Nayak rejected the questioner’s contention that “all else equal, bigger is better for an index,” explaining “that all else is rarely equal” and that “bigger is not necessarily better, because you might fill it with junk.” Tr. 6397:9-6398:8 (Nayak).

Plaintiffs made no showing whatsoever about the *quality* of Google’s search index over time and the evidence demonstrated that Google’s index had better coverage than Bing’s, all the more so on long-tail queries. *Id.* at 6306:7-6309:1 (discussing UPX268A at .033, .034).

181. Plaintiffs also point to Google’s R&D and somehow suggest the billions of dollars Google spends are small in some relative sense. DOJ FOF ¶ 1082. As Professor Murphy explained at trial, that is not the case. *See* Google FOF ¶ 222; *see also supra* ¶ 33. Nor can such a contention be reconciled with Google’s early and continued investments in everything from mobile search, Google FOF ¶¶ 171-80, to machine learning, Google FOF ¶¶ 132-33, 223-24.

182. Finally, Plaintiffs point to two particular instances where Google noted competitive pressure, DOJ FOF ¶¶ 1088-91, and thereafter argue that because Google reacted to competition *there*, it *otherwise* has not faced competition. The logical flaw in that syllogism is obvious. And the record is replete with Google’s consistent and relentless innovation, often driven by competition from rivals. Google FOF § III. As aptly summarized by no less an industry observer than Microsoft’s current CEO and former head of search: “[Google is] competing every day to improve search . . . on search, I think the competition is pretty intense.” Tr. 3532:22-3533:2 (Nadella).

4. Plaintiffs’ Contentions Regarding Google’s Privacy Options and Data Practices Find No Support in the Record

183. Along with their generalized argument that the conduct at issue reduces Google’s incentives to invest and innovate, Plaintiffs make the specific argument that in a “competitive world,” Google would offer additional privacy options and collect less consumer data. DOJ FOF § VIII.C.2. The trial record does not support such a finding.

184. It is undisputed that search engines differentiate in their approaches to privacy and that search engine users have varied privacy preferences. DOJ FOF ¶ 1142; Google FOF ¶¶ 1108, 1110. DuckDuckGo, for example, competes by minimizing the collection of data at the expense of functionality and search quality, whereas Google competes by offering a range of privacy controls so users can choose their preferred balance of product functionality and privacy. DOJ FOF ¶¶ 765, 1148; Google FOF ¶¶ 58, 1109, 1112.

185. Plaintiffs argue that testimony from Google’s Ms. Fitzpatrick and their expert Professor Rangel shows “Google Search’s privacy settings are hard to find and adjust,” DOJ FOF ¶ 1158, but neither source supports that assertion. Ms. Fitzpatrick described in depth how Google has invested heavily in teams that develop and improve privacy features—including in

response to user research and evolving user needs and preferences—to make it as easy as possible for users to choose their desired privacy-functionality balance. Google FOF ¶¶ 57, 1111-12. She further testified that Google, recognizing not all users understand all of the privacy controls, constantly tries to improve and simplify privacy settings. Tr. 9020:25-9021:23 (Fitzpatrick (Google)). Indeed, several of the “clicks” required in changing certain settings, DOJ FOF ¶ 566, are confirmation screens Google added to help users understand the implications of their choices and to prompt users to consider similar controls. Tr. 9050:10-9051:5 (Fitzpatrick). For his part, Professor Rangel did not testify that Google’s privacy controls are “hard to find and adjust.” The extent of Professor Rangel’s testimony on the matter is contained in two pages of the transcript; he notes “the controls take more than a click or two to change” and concludes—without any comparative analysis or quantification—that this entails “considerable choice friction.” Tr. 638:3-16 (Rangel). Indeed, DuckDuckGo’s Mr. Weinberg testified that 30 to 40% of Americans undertake actions at least as complex as the Google controls, including using a browser’s settings menu to make privacy-related changes and downloading and installing a tracker blocker or other web browser extension. Tr. 2148:15-2150:2 (Weinberg).

186. Plaintiffs have not offered any reason to believe—let alone reliable evidence—that users would choose different privacy options in a but-for world without the allegedly anticompetitive search distribution agreements. Google FOF ¶ 1122. There is no evidence, for example, that Bing differentiates itself on the basis of privacy, as one would expect if there was substantial unmet demand for privacy beyond what Google and search engines like DuckDuckGo offer. Google FOF ¶ 1123. Nor is there evidence that DuckDuckGo’s share of general search engine queries has increased meaningfully in Europe since the introduction of the Android choice screen. Google FOF ¶ 571. Plaintiffs instead argue generally that Google lacks

incentive to protect user privacy and that in a “more competitive world”—which Plaintiffs do not describe or define—Google would offer users more privacy options or collect less data by default. *See* DOJ FOF § VIII.C.2; DOJ Br. at 53. As detailed below, this contention is likewise not supported by the evidentiary record.

187. Plaintiffs’ assertion that Google “does far less to protect users than rivals such as DuckDuckGo” and has “resisted providing users better privacy protection or more control over their personal information,” DOJ Br. at 53, 54, cannot be squared with Ms. Fitzpatrick’s testimony regarding the legitimate reasons Google decided not to match DuckDuckGo’s practices, Google’s investment in privacy and security technologies, and its work to provide users transparency and control. Google FOF ¶¶ 1111-21; Tr. 8990:18-8992:5 (Fitzpatrick). Google endeavors to make it easy for users to choose their desired level of privacy, including by: (1) offering multiple entry points to controls; (2) encouraging users to take the Privacy Checkup; (3) providing users with simple toggle on-off settings whereby users can control whether their activity is saved to their Google Account and if so, whether Google may use the information to personalize their results or advertisements; and (4) providing users with in-product controls whereby users can, for example, delete recent searches directly within the interface of Google Search or easily switch to Incognito mode. Google FOF ¶¶ 1111-12, 1121; Tr. 9008:5-9009:2 (Fitzpatrick), 9016:6-19, 9024:4-18 (DXD-31.011-.018, .022, .023).

188. Plaintiffs’ proposed findings rest on mischaracterized testimony and snippets of user research or statements about privacy in a handful of exhibits that were not used with a witness at trial or otherwise contextualized (and Plaintiffs’ brief goes beyond even their already-

stretched findings, to make further unsupported assertions).¹¹ The very testimony and documents Plaintiffs misinterpret as evidence of Google “ignoring” privacy proposals, DOJ Br. at 54—namely, the Google Search team’s consideration of whether Google should mirror the practices of DuckDuckGo, an email from Google’s Chief Marketing Officer Lorraine Twohill wherein she shared “random thoughts” that were “hopefully somewhat useful and actionable,” UPX0981, and Google’s surveys of users to gauge privacy sentiment—all reflect that Google *is* competing on privacy and responding to user demand.

189. Plaintiffs mischaracterize the evidence about the Google Search team’s proposal regarding building privacy features intended to bring Google into parity with DuckDuckGo. *See* Google FOF ¶¶ 1117-21; DOJ FOF ¶ 1150. Google recognized the approach to privacy employed by DuckDuckGo involves significant tradeoffs to search and ads quality, and that it could invest in other privacy changes better designed to meet user demand. Tr. 9036:21-9037:8 (Fitzpatrick); Google FOF ¶ 579, § X.C.2.

190. There is no evidence that Google declined to adopt the proposal because “it is insulated from competition.” DOJ Br. at 53. Dr. Raghavan did not “admit[] that without competition (and the possible loss of users queries to rivals) to force its hand, Google ignores its users’ [] preferences.” DOJ Br. at 54 (citing DOJ FOF ¶¶ 1141-47). Rather, Dr. Raghavan testified that in response to the proposal, he recommended (reasonably) that the Search team develop product proposals based on data, not “gut.” Tr. 7598:6-7599:17 (Raghavan); UPX0501 at -520. Dr. Raghavan was neither on the Search team nor in any leadership role regarding

¹¹ Among the most egregious is Plaintiffs’ false claim that “[t]here is no way for a parent or any user to stop Google from logging queries *forever* or using this data to market products to children.” DOJ Br. at 53 (citing DOJ FOF ¶¶ 154-56). A user can choose for their activity not to be retained, and alternatively (or in addition), not to be used for advertising.

Search at the time, but rather considered the proposal in his capacity as a member of the Consumer Council. Tr. 7599:7-17 (Raghavan).

191. Dr. Gomes, former SVP of Search who led Search at the time, testified at trial, yet Plaintiffs did not ask him a single question about the proposal. Rather than asking Dr. Gomes directly, Plaintiffs draw their own conclusions from one email not shown to him at trial. DOJ FOF ¶ 1144 (citing UPX0501 at -520). The actual exhibit does not show that Dr. Gomes concluded that “Google could and should enhance its privacy offerings,” *id.*, by matching the data-collection practices of DuckDuckGo, as Plaintiffs imply. In the email, Dr. Gomes explained that rather than focusing on DuckDuckGo’s specific practices, Google should respond to competitive pressure around privacy by thinking “in the context of [its] environment and what [it] should do from both a product and marketing perspective.” UPX0501 at -520. As Ms. Fitzpatrick testified, the Search team did exactly that and introduced additional privacy features and controls. Google FOF ¶ 1121.

192. Plaintiffs also misstate Google’s privacy features, arguing Google does not offer a private browsing mode for Google Search. DOJ FOF ¶ 1150. As Ms. Fitzpatrick testified, Incognito mode is accessible on the Google Search App. Tr. 9024:19-9025:4 (Fitzpatrick), 9030:20-24; DXD-31.022. And users can also access Google’s suite of privacy controls from any browser. *See* DXD-31.009 (showing Google Account controls accessible from Google.com).

193. Plaintiffs’ contention that Google executives “ignored” Ms. Twohill’s ideas about privacy because they “did not see a risk that Google would lose users to privacy-focused rivals,” DOJ Br. at 54, is likewise contrary to the evidence. Ms. Fitzpatrick testified at length about the privacy ideas that Ms. Twohill (who did not have the expertise or responsibility for assessing the

inherent tradeoffs involved in product changes relating to privacy features) shared with senior executives at Google. *See* Tr. 9040:14-9054:21 (Fitzpatrick), 9058:12-9075:12, 9079:23-9084:17. Plaintiffs do not engage with any of this testimony but instead speculate that “if there was more competition,” Google “might reconsider” four ideas (out of the almost 30) in Ms. Twohill’s email. *See* DOJ FOF ¶ 1151. But Ms. Fitzpatrick explained that Google adopted several of Ms. Twohill’s recommendations, even if in slightly different form, and explained Google’s reasoning for not pursuing others. For example, Plaintiffs focus on Google’s decision not to create (1) “preset privacy bundles” or (2) a “privacy slider” allowing users to choose their retention period as opposed to a drop-down deletion control. Ms. Fitzpatrick explained that Google found the bundles to be inconsistent with how users think about privacy, and that providing fixed drop-down controls rather than a slider was a design decision Google made based on user research and product utility. Tr. 9052:1-9054:9 (Fitzpatrick), 9058:12-9060:21.

194. In sum, Plaintiffs have not identified any evidence showing Google did not pursue any particular change *because of* a lack of competitive pressure. DOJ FOF ¶ 1147. Plaintiffs note that Google considers whether it is losing search queries or search revenue to rivals as part of its assessment whether to pursue privacy-related changes, DOJ FOF ¶ 1143, but that fact does not reflect the absence of competitive pressure; rather, it evidences Google’s efforts to understand and respond to user demand (as such losses could signal untapped user demand). Google FOF ¶¶ 1115-16.

195. Plaintiffs, relying on Google surveys about user perception, contend “Google does not perform well with users on privacy and trust,” DOJ FOF ¶ 1141; “[u]sers dislike Google’s data storage policies,” DOJ FOF ¶ 1142; and Google’s “default settings ignore Google’s research,” DOJ FOF ¶ 1152. As outlined below, none of the evidence supports these assertions;

moreover, contrary to Plaintiffs' contention that Google is not competing on privacy, this very evidence reflects Google investing to understand and respond to user demand.

196. Plaintiffs' Proposed Finding of Fact 1141 cites four exhibits, only one of which was used with a witness at trial. Plaintiffs' use of UPX0419 at -489 is misleading: the quoted material that begins "We saw significant trust declines in 2018 in Google specifically" goes on to say "and the broader tech industry in general. In 2019, our user trust scores have stabilized but it remains crucial that we earn and retain the trust our users put in us." And the same slide deck discusses Google's ongoing prioritization of, and efforts around, user privacy in Search. UPX0419 at -492. The cited email (UPX0763 at -960) likewise reflects that Google's executives are continuing to assess how to best conceptualize privacy relative to user trust. (Plaintiffs incorrectly attribute a statement about privacy to Dr. Raghavan, who Plaintiffs did not ask about the email at trial). The other exhibits (DX0183 and UPX0795) are surveys that depend at least in part on users' *perception* of Google's privacy policies, which are not always accurate. *See, e.g.*, UPX0981 at -848 (70% of users incorrectly believe Google sells their data). Regardless, that Google is affirmatively conducting user research around privacy belies Plaintiffs' contention that Google is shielded from competitive pressure by virtue of the challenged agreements.

197. Plaintiffs' Proposed Finding of Fact 1142 relies on the mischaracterization of a page that appears in the Appendix of UPX0996, a 70-page slide deck that is largely focused on data minimization. *See, e.g.*, UPX0996 at -964, -979. Plaintiffs represent that, according to a snippet from a 2019 survey on user perceptions about Google collecting search and browsing history (at -977), 68% of 1000 users "felt negatively about the length of time Google stores data." DOJ FOF ¶ 1142. Plaintiffs omit that the survey measured sentiments around

“*indefinitely*” retaining data; that same year, Google introduced auto-delete controls and set the default period for search activity at 18 months. DXD-31.014, 026.

198. Plaintiffs’ Proposed Finding of Fact 1152 also relies on the user research cited in UPX0996. Plaintiffs contend Google’s 18-month default retention for signed-in users shows Google “ignores” user research because 74% of participants reported that they prefer Google store data for one year or less. *See also* DOJ Br. at 54 n.16 (citing DOJ FOF ¶ 1153). But the record proves Google considered this research and determined it is important that the default is greater than one year to allow for seasonality in search behavior to be preserved, ultimately settling on 18 months. Tr. 9012:21-9013:18 (Fitzpatrick) (providing examples of looking for last year’s Christmas tree lights vendor or for information about a trip taken at the same time the prior year); *see* Google FOF ¶ 1115. Plaintiffs’ repeated reliance on research from one survey out of millions of produced documents highlights the lack of evidence supporting their claims. Moreover, Plaintiffs consistently ignore, *see* DOJ FOF ¶¶ 566-67, that in addition to auto-delete controls, Google provides users with the option to turn off saving their activity altogether. Google FOF ¶ 1112.

199. To the extent Plaintiffs’ assertion that “[m]any Americans would like to avoid the harms associated with tracking by GSEs,” DOJ FOF ¶ 1139 (citing Mr. Weinberg’s testimony), is meant to suggest that Google is not meeting user preferences, the claim fails for lack of support. The evidence at trial, including testimony from one of Plaintiffs’ experts, establishes that privacy is a complex issue, users range in their privacy preferences and understanding of privacy practices, and stated preferences do not always align with users’ actual behavior. Google FOF ¶¶ 1108, 1110. There is no evidence that Google intentionally degraded quality, nor is there

evidence that other competitors who are not alleged to have monopoly power (*e.g.*, Bing and Yahoo) are better than Google on privacy.

200. Finally, Plaintiffs’ assertion that “Google violates privacy expectations by using personalized search history to target users with ‘creepy’ advertisements, even when the users are not on Google Search,” DOJ FOF ¶ 1159, is not supported by their citations and contrary to the weight of evidence. *First*, there is no evidence establishing fixed “privacy expectations” among users; the evidence that exists demonstrates users have varied preferences. Google FOF ¶¶ 1108, 1110. *Second*, as Dr. Raghavan testified but Plaintiffs omit, although ad personalization is on by default, users have “the option of turning it off.” Tr. 7463:14-16 (Raghavan). *Third*, Plaintiffs’ criticism appears aimed at conversion tracking. But as the witness (Dr. Ramaswamy) made clear, that is not unique to Google, but rather encompasses all ad-supported search engines, *including DuckDuckGo*. See Tr. 3738:20-3739:12 (Ramaswamy). Moreover, Plaintiffs simultaneously criticize Google for declining to provide its advertisers with *more* conversion information (DOJ FOF ¶¶ 1169-82); they cannot have it both ways. *Finally*, the two documents Plaintiffs cite (UPX0790 and UPX1070) are from third parties and approximately 10 years old.

E. Plaintiffs Fail to Rebut the Legitimate Business Justifications Generating Procompetitive Benefits That Support Google’s Default Browser Agreements

201. Google’s default browser agreements provide numerous procompetitive benefits. Google FOF ¶¶ 1435-67. Plaintiffs’ Proposed Findings of Fact take issue with two in particular: (1) lower device prices and (2) support for browser development and innovation. DOJ FOF ¶¶ 1279-96.

202. ***Enhanced User Experience***: Tellingly, Plaintiffs do not contest that Google’s search default agreements enhance the quality of users’ search experience by providing convenient access to the highest-quality search provider and thus expand search output. Google

FOF ¶ 1436. Indeed, browser providers have designed their products with a single search default that can be easily changed because they determined it was the best user experience. Google FOF ¶¶ 1227-36, 1348-57.

203. ***Lower Device Prices:*** Plaintiffs fail to rebut that some of Google’s search revenue share payments are passed on directly to consumers in the form of higher-quality, lower-priced devices, which ultimately generate more search output. Google FOF ¶¶ 1466-67.

204. Plaintiffs argue that Google’s distribution agreements do not *require* partners “to pass all or a portion of those payments through to consumers in the form of lower smartphones prices.” DOJ FOF ¶ 1282. Such restrictive contract language is not necessary for revenue share to be passed on to consumers. In a competitive market like smartphones, economics predicts that a seller will pass lower marginal costs on to consumers. Tr. 10161:3-10162:22 (Murphy) (“[I]n a competitive market with elastic supply, you would tend to expect very high pass-through rates as a matter of underlying economics.”).

205. Evidence regarding Apple’s margins shows this in practice: as Apple’s service margins (of which Google’s revenue share payments are a part) increased over the years, Apple’s device margins (*i.e.*, the mark up Apple charges customers) fell. Google FOF ¶ 1466. “[T]his is what you’d expect to see if there was substantial passthrough.” Tr. 9709:19-9712:22 (Murphy).

206. Plaintiffs provide no alternative explanation for the Apple evidence other than pass through. And Professor Whinston’s only response to this data was that it could be a coincidence. Tr. 10535:21-10536:15 (Whinston). But as Professor Murphy explained, “as an economist, I would say, coincidence is not my favorite explanation; that, in fact, this seems to suggest, and I think suggests pretty strongly, that there is passthrough going on in the world here.” Tr. 9709:19-9712:22 (Murphy).

207. Plaintiffs suggest that “Apple’s services margin includes costs and revenues from various products and services besides” Google’s payments. DOJ FOF ¶ 1290. But it is undisputed that Google’s total revenue share payments to Apple were increasing significantly during the period Professor Murphy studied. DOJ FOF ¶¶ 934-35. The fact that revenue from other services might have *also* been passed through does not negate that Google payments were too.

208. Plaintiffs also argue that Google’s partners do not “ earmark” revenue share payments for reducing device prices and that testimony by Android OEMs suggests “there is no *direct* connection between Google’s RSA payments and the retail price of phones.” DOJ FOF ¶¶ 1283-84 (emphasis added). This misunderstands how pass through occurs *indirectly*: as Google’s partners compete with other device sellers on price, they consider their overall device costs (including the lower costs due to Google’s revenue share payments). Thus, “pass-through in an industry with multiple players is not a single-player concept. It happens at the market level.” Tr. 10161:3-24 (Murphy). It is therefore not surprising that Google does not estimate pass through when analyzing search distribution deals with individual partners. DOJ FOF ¶¶ 1286, 1303; Tr. 10160:25-10162:7 (Murphy) (“[Y]ou can’t really track it at a given OEM.”).

209. This is consistent with the testimony at trial. While it is true that no Google partner or employee testified to a “direct” connection between revenue share payments and device payments, the witnesses Plaintiffs cite testified that Google’s RSA payments can *indirectly* impact device prices, as partners consider their overall costs in setting device prices. Giard (T-Mobile) Dep. Tr. 215:19-216:6 (“Well, indirectly that -- I would say all T-Mobile services and offerings factor into how we price devices and services collectively. So it is a factor. It is not -- it’s not a driving factor. It’s not even the largest factor.”); Christensen (Motorola)

Dep. Tr. 90:19-91:1 (“In general, the money we receive helps the overall health of the business, and we need to be a healthy, viable business entity to continue our operations.”); Tr. 9566:3-15 (Rosenberg) (“I’m not aware. What I would say is that particularly with the device manufacturers, selling phones is a highly competitive market. They’re competing with each other on price all the time. To the extent that our agreement provides them with a significant benefit to their P&L, I think we can assume that they’re able to take that into account in the way that they set their pricing.”).

210. Plaintiffs’ further contention that Google somehow has improperly competed by providing a higher revenue share (*i.e.*, a lower effective price) than competitors, reflecting a sharing of monopoly profits, DOJ COL at 31, cannot be squared with their (incorrect) contention that, in a counterfactual “more competitive” world, browser partners would receive *higher* payments from Google, DOJ FOF ¶¶ 1298-99.

211. ***Support for search-enhancing browser innovation:*** Plaintiffs also fail to rebut the evidence that Google’s search revenue share payments have supported browser development and innovation, leading to improved browser technology and increased search output. Google FOF ¶¶ 1278, 1455-65.

212. Plaintiffs’ only rejoinder to this evidence is that Mozilla uses search payments—which account for 89% of Mozilla’s total revenues, Google FOF ¶ 1462—for purposes other than the Firefox product. DOJ FOF ¶¶ 1295-96. But Plaintiffs ignore the evidence presented at trial that Firefox is unlikely to even exist without Google’s revenue share payments. As Mozilla explained to the Department of Justice, “it would be likely that Mozilla Corporation would exit the browser market in that circumstance altogether, and it is extremely likely that Mozilla

Corporation would no longer be able to sustain an independent browser engine given the expense.” Google FOF ¶ 1463 (quoting DX0547 at .001).

213. Finally, Plaintiffs argue “Google has not shown that lower retail phone prices or improved browsers have benefited consumers in the general search market.” DOJ FOF ¶ 1300. The only expert that analyzed this question was Professor Murphy, who testified that because of the complementary nature of browsers, mobile devices, and search, higher browser quality and lower-priced mobile devices have resulted in higher search usage. Google FOF ¶¶ 1456-59, 1464-67, 1695-96. Plaintiffs’ experts, on the other hand, did not analyze competition in the browser or smartphone markets, including the impact such competition has on search competition and output. Tr. 10596:8-25 (Whinston), 10598:19-10599:4, 10582:11-25. And Plaintiffs ignore that the very structure of Google’s default agreements—sharing a percentage of search revenue—incentivizes browser developers and device makers to improve the browser and device in ways that encourage users to conduct more searches. Google FOF ¶¶ 1465, 1689.

214. Plaintiffs do not dispute that search output, and in particular mobile search output, has grown enormously during the term of the challenged agreements. Google FOF ¶ 1693; DOJ FOF ¶¶ 1301-02. Plaintiffs instead argue that such output expansion could be explained by other factors as well. DOJ FOF ¶ 1302. Most of the factors Plaintiffs point to, however, also have a clear connection to the procompetitive benefits attributable to Google’s search distribution agreements. For instance, better browsers (including mobile browsers) and better and lower-cost mobile devices have contributed to the “growth of the internet” and the upward “trends in mobile phone usage (including adoption and now ubiquity of smartphones).” DOJ FOF ¶ 1302; Tr. 9877:3-9 (Murphy) (“[I]f you remember, if we go back, how search grew on mobile is a lot of it is growing the ecosystem; getting more devices, more use of those devices”); Tr. 7646:18-

7647:10 (Pichai) (“We realized just improving the state of browsers would overall help users use the web more, will increase online activity and increase search usage, including Google’s usage.”). And Google’s RSAs with wireless carriers have incentivized better “wireless telecommunications technology.” DOJ FOF ¶ 1302; Google FOF ¶ 1709 (citing, *inter alia*, testimony from OEM partners).

F. Plaintiffs Have Not Identified a Valid Substantially Less Restrictive Alternative for Achieving the Procompetitive Benefits That Google’s Browser Default Agreements Generate

215. Plaintiffs propose certain “less restrictive” alternatives that they claim would achieve the same procompetitive benefits Google proved. DOJ FOF ¶¶ 1304-09. The evidence at trial, however, proved that none of these alternatives are economically reasonable or would provide the same benefits. Plaintiffs accordingly fell well short of meeting their burden.

216. **Choice Screen:** Plaintiffs first propose “contracts with most-favored supplier terms” that “would permit distributors to set up choice screens.” DOJ FOF ¶ 1305. There is no market-driven precedent for such a contract in the search context, and Plaintiffs do not identify any evidence that such a contract would arise from competition. The only implementations of choice screens Plaintiffs identified were imposed by regulators. Google FOF ¶¶ 803-13. And both Apple and Mozilla definitively testified that they believed a search engine choice screen would be a worse user experience. Google FOF ¶¶ 1235-37, 1356-57.

217. Contrary to Plaintiffs’ argument that a choice screen would still “provid[e] a robust revenue stream for distributors,” DOJ FOF ¶ 1305, the weight of the evidence at trial proved that revenue share payments would fall significantly under a choice screen, Google FOF ¶¶ 814-21. After the European Commission’s 2018 decision resulted in Google implementing a search engine choice screen on certain Android devices sold in certain European countries, revenue share payments by Google to partners decreased significantly. Google FOF ¶¶ 821,

on Android Framework” or “GDAF”) and testimony by Jamie Rosenberg about that proposal. Neither supports Plaintiffs’ assertion.

220. To begin, GDAF was a “global” “proposal for a certain collection of OEMs, primarily Chinese OEMs, and . . . it was meant for all the territories that those OEMs ship into.” Tr. 9496:25-9497:7 (Rosenberg). And, as Plaintiffs recognize, this proposal did not apply to the largest OEM in the EU, Samsung. DOJ FOF ¶ 1299 (citing UPX0163). Thus, this document did not analyze whether payments for devices covered by the choice screen mandate in the European Union increased.

221. Moreover, the documents Plaintiffs cite show that the revenue share percentage for *search* did not actually increase under GDAF. While there was a higher “Google Forward” tier for OEMs to earn additional revenue share for certain *non-search* requirements, the search-related tiers (Core and Optimized) provided revenue shares that were either the “same as today” or less. The only OEM that was slated for an increased revenue share on search-related tiers was Xiaomi, a Chinese OEM, and this was “due to their emergence as a key Android OEM.” UPX0163 at -235-236. Again, the proposed revenue share percentages were *global*—the proposal does *not* contain a higher revenue share in Europe, as Plaintiffs’ argument would predict. *Id.*

222. Plaintiffs distort Jamie Rosenberg’s testimony. Mr. Rosenberg’s did *not* say that “Google increased RSA payments in Europe as a result of the European choice screen ruling.” DOJ FOF ¶ 1299 (citing Tr. 9499:14-9500:9 (Rosenberg)). Mr. Rosenberg only agreed that the European ruling was “listed as under the rationale section” of UPX0162, while clarifying that Google was, apart from search promotion, “asking for a lot more in these agreements from partners on the product side and proposing to invest behind those additional asks as well.” Tr.

9499:14-9500:9 (Rosenberg). Plaintiffs fail to acknowledge his testimony—consistent with the evidence of final signed agreements—that revenue share to partners in Europe *decreased* due to the choice screen. When asked by the Court, “What ended up happening [in Europe] to the rev share in those contracts,” Mr. Rosenberg explained that Google started limiting revenue share payments to search access points that were “within the partner’s control” such as those partners’ own browsers. Thus, “generally speaking, the revenue that we were able to pay partners on those devices went way, way down.” Tr. 9471:12-9472:9 (Rosenberg).

223. Similarly, Plaintiffs’ citation to prior Google statements about search engine choice screens on Microsoft products leave out important context that distinguish those circumstances from the facts of this case. DOJ FOF ¶¶ 742-44. The evidence at trial demonstrates that Google was objecting to “a unique egregious case of how [Microsoft] were not honoring user preference at all.” Tr. 7685:16-25 (Pichai). Microsoft had designed its Internet Explorer browser to hide the setting where users could change the default search engine. UPX0172 at -731 (“hidden setting”); Tr. 7682:15-21 (Pichai) (“I’ve never encountered a single user who would even know how to find that default search setting.”). And for those users that were able to change the default, Microsoft had designed the default search setting such that any user changes would only be temporary. UPX0172 at -731 (“[E]ven the few who might try to make a change from the drop-down menu in IE7 will be surprised to learn that their choice will revert to the original default the next time they start IE7.”). While Microsoft claimed Internet Explorer 7 respected user choice and “migrat[ed] the default search setting from previous versions of IE,” this was illusory as “all previous versions of IE set Microsoft’s own search as the default search setting.” UPX0172 at 730-31. It was in this specific context that Google

proposed that users be prompted to select the default search provider the first time they used the Internet Explorer search box for the new version of Internet Explorer.

224. ***Unconditional Revenue Share:*** Plaintiffs also propose that Google could “negotiate unconditional revenue shares.” DOJ FOF ¶ 1306. It is unclear what Plaintiffs mean by this: at trial, Professor Whinston defined an “unconditional revenue share” as an agreement whereby Google “offers a distributor a revenue share for any traffic coming from the device” or “for any traffic coming from [a] search access point” without *any obligation* to promote Google. Tr. 10529:20-10530:17 (Whinston) (distributor “is perfectly free to . . . make Google a default all the time . . . if it wants to. But isn’t obligated to, it’s not restricted . . . by the exclusivity term.”). Plaintiffs now describe an “unconditional revenue share” differently, as an agreement in which “Google would pay distribution partners for Google queries through the device or through specific search access points while *permitting* distributors to work with competing search providers.” DOJ FOF ¶ 1306 (emphasis added).

225. Under Plaintiffs’ new “unconditional revenue share” definition, Google’s browser agreements already meet this criteria. Google pays Apple and Mozilla revenue share on all queries Google receives through the search box in Safari and Firefox, while permitting Apple and Mozilla to work with competing search providers to promote their services in other access points (*e.g.*, as a bookmark or in the “[t]his time, search with” feature). *See supra* § III.A.

226. Under Professor Whinston’s definition, there is no precedent in the search industry for an agreement to provide revenue share to a browser provider regardless of the promotion received. Google FOF ¶¶ 796-802. Indeed, Professor Whinston acknowledged at trial that he was not aware of any such agreement. Tr. 10621:16-19 (Whinston) (“Q. You’ve not

cited any evidence in your expert reports of any search provider ever agreeing to an unconditional revenue share agreement? A. . . . No, I don't think I did.”).

227. Despite their expert being unable to identify any at trial, Plaintiffs now assert that “[u]nconditional revenue share arrangements are already common inside the general search services market” noting that “Bing, DuckDuckGo, and Yahoo pay for non-exclusive distribution in the United States.” DOJ FOF ¶ 1307. Again, if all Plaintiffs mean by “unconditional” is “non-exclusive,” Google’s agreements already fit that definition. But these agreements do not otherwise provide for “unconditional” revenue share.

228. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] DX1011 at -307-309, -322 (§§ 1.6, 1.12, 2.1 and Ex. D) ([REDACTED])

[REDACTED]

_____). These agreements, which exchange promotion for revenue share, do not support Plaintiffs’ “unconditional” construct.

229. The Yahoo agreement Plaintiffs cite is a search *syndication* agreement where Yahoo Search essentially purchases search results from another search engine and serves them to users under the Yahoo brand, not a search distribution agreement where a browser or device seller agrees to distribute a search engine as a browser default or through device preload. DOJ FOF ¶ 1307 (citing UPX0119 at -534, which was used with no witness). Again, Professor Whinston did not identify this agreement as an “unconditional revenue share” in his testimony at trial or in his expert reports, and for good reason. Tr. 10621:16-19 (Whinston). Search syndication agreements have entirely different economics than the default agreements at issue in this case. Unlike a search distribution agreement where a browsers’ users ultimately decide whether to use the promoted search engine or switch to a rival, a Yahoo Search user cannot change from which search engine Yahoo syndicates its search results. *See* UPX0119 at -534 (“Y! can choose which provider to send each query”). Therefore, while search distribution agreements pay for promotion that provides incremental traffic, Google FOF ¶¶ 761-72, all traffic under a search syndication agreement is incremental (thereby making payment for all traffic rational).

230. Plaintiffs also claim that Google’s Mobile Services Incentive Agreements (“MSIAs”) with U.S. carriers are an example of “unconditional revenue shares.” DOJ FOF ¶ 1308. But as Plaintiffs recognize, “Google separated the ‘search part’ from the Android MSIAs.” DOJ FOF ¶ 1308. In other words, these agreements are not alternatives for promoting *search*. In any event, these agreements are hardly “unconditional”; they include conditions related to other Google services in exchange for payments from Google. *E.g.*, JX0092 at -782

(2021 AT&T MSIA requiring Google Messages application be set as the default messaging application to receive payments from Google); JX0094 at -534 (2021 Verizon MSIA requiring same); JX0096 at -724, -725 (2021 T-Mobile MSIA requiring same); DOJ FOF ¶¶ 289-91 (“Under the MSIAs, carriers earn additional payments on Android devices they sell in exchange for meeting various non-search related requirements.”).

231. Plaintiffs further argue that “[u]nconditional revenue-share models are also common outside the general search market.” DOJ FOF ¶ 1309. But the examples they give are not “unconditional,” and indeed require *exclusivity*. For instance, CEO compensation is typically paid on the condition of exclusivity, as a CEO’s duties include not working for other competing companies at the same time. To be analogous to Plaintiffs’ “unconditional” revenue share, a company would need to agree to compensate a CEO based on the stock price at the end of the year, but allow her to work as the CEO of competing companies too. And the company would have to pay her if the stock goes up even if she spent all her time that year working at another company. Similarly, when lawyers take on contingency fee cases, one of the “conditions” is that the lawyer will not also work for the other side. *See* ABA Model Rule 1.7. To be analogous to Plaintiffs’ “unconditional” revenue share, one would have to imagine a lawyer that entered into fee agreements with both the plaintiff and the defendant in the same suit, and will get paid a portion of the plaintiff’s recovery regardless of whether or not the lawyer spent time working on the defendant’s side of the case.

232. As with the choice screen alternative, Plaintiffs’ unconditional revenue share alternative would result in much lower payments to browsers. Because there would not be any reciprocal commitment for the partner to promote Google’s search engine in any way, Google would not pay partners for search traffic that Google would get without any promotion. Google

FOF ¶ 802; *cf.* DOJ FOF ¶ 942 (arguing that Google must receive incremental traffic “for Google’s revenue-share payments to make economic sense”).

233. Indeed, elsewhere in Plaintiffs’ Proposed Findings of Fact, Plaintiffs highlight instances where Google would not enter a revenue share agreement unless it was provided the default. DOJ FOF ¶¶ 749 (“Google told Apple ‘no default, no rev share’”), 800 (“Google views any deal which invests in devices that do not have Google Search as default (where available) is a waste of time and money.” (cleaned up)). Again, Plaintiffs do not explain why Google’s position would change under Plaintiffs’ imagined “unconditional revenue share” alternative.

IV. THE ANDROID AGREEMENTS DO NOT VIOLATE SECTION 2 OF THE SHERMAN ACT

A. Plaintiffs Have Failed to Prove That Google’s Android Agreements Are Exclusive or *De Facto* Exclusive

234. Plaintiffs do not assert that either Google’s MADA or RSA is an exclusive agreement. Instead, Plaintiffs argue that these agreements work together to provide Google with “Default Exclusivity” on Android devices. DOJ Br. at 39; DOJ FOF §§ XI.B.1-2 (asserting that MADAs and RSAs “*Contribute To Exclusivity*” (emphasis added)). In particular, Plaintiffs assert that the MADA forces OEMs to preload Google on search access points that account for a large portion of search traffic. DOJ Br. at 39-40. Plaintiffs then assert that Google’s RSAs with OEMs and carriers “lock[] up” exclusivity for Google. DOJ Br. at 40. The weight of the evidence disproves each of these claims.

1. Google’s MADAs Are Not “Effectively Compulsory” or *De Facto* Exclusive

235. Plaintiffs argue that the MADAs are “effectively compulsory.” DOJ Br. at 39-40. In particular, Plaintiffs argue that “the Google Play Store is a must-have for Android devices,” and therefore OEMs have no choice but to enter MADAs, including its requirements to preload

the Google Search Widget on the default home screen and Google Chrome in a folder. DOJ Br. at 5.

236. This argument fails because real-world evidence, which Plaintiffs ignore, shows that OEMs are not forced to preinstall Google Search or Chrome. Since Google “unbundled” the MADA in Europe following the 2018 decision by the European Commission, no OEMs have entered into the eMADA without also separately licensing both Google Search and Chrome and preloading them in the same manner as the MADA. Google FOF ¶ 1605. Thus, *regardless* of whether Google Play is “must-have” for Android OEMs, any asserted “need” to take Google Play is not responsible for OEMs also preinstalling Google Search, Google Chrome, or the Google Search Widget as specified by the MADA.

237. Plaintiffs argue that “Microsoft, of course, wanted the Duo’s search access points to default to Bing, but to get the Play Store, Microsoft had to sign a MADA and had to put the Google Search widget on the Duo’s homescreen.” DOJ FOF ¶ 788. Again, the evidence from Europe shows otherwise. Despite having the option after the MADA was unbundled in Europe (1) to preload Bing and its widget exclusively or (2) to preload Google Search and Chrome but not give them prominent placement, Microsoft chose to preload the Google Widget and Chrome, including placing the Google Search Widget on the device’s home screen. Google FOF ¶ 1606.

238. In any event, although ruling on the issue is not needed to reject Plaintiffs’ contention that demand for Google Play explains why OEMs elect to preinstall Google Search and Chrome, Plaintiffs also failed to prove that MADAs are “compulsory.” Plaintiffs and their experts have not argued that the MADA constitutes an unlawful tie and did not present the analysis necessary for such a claim (including that any OEM was coerced into preloading the Google Play or Google Search Widget). Tr. 6084:20-23 (Whinston (DOJ Expert)). Plaintiffs

and their experts did not attempt to define any app store product market, did not calculate whether Google has “market power” in such a market sufficient to coerce OEMs into entering MADAs, and did not present any evidence regarding the costs or barriers to entry to building an app store.

239. Notably, documents Plaintiffs rely on show that OEMs do have a choice whether to preload Play or to build a competing app store. For instance, Plaintiffs cite documents (in DOJ FOF ¶ 780) that highlight OEMs developing successful OEM app stores abroad. *See* UPX0163 at -291 (“Chinese OEMs have alternative stores preloaded on ~80% of Android devices, and have a meaningful overlap with Play offering. Samsung ramped up investments into their own store with S10 launch.”); UPX0316 at -906 (discussing success of app stores created by Huawei and other Chinese OEMs in China, India, and Indonesia, and the potential for Samsung to “continue to heavily promote their own app store”).

240. Plaintiffs provide no explanation or evidence why an OEM could not build an app store that would have the same success in the United States, arguing only that “[r]ival app stores are unlikely to succeed on Android devices because the Google Play Store is protected from competition by network effects.” DOJ FOF ¶ 242 (citing UPX2106 and UPX0303). But Plaintiffs omit that when they asked Mr. Rosenberg about the language they highlight from UPX2106, he testified that an OEM “could have decided to make the investments at the levels [Google] had made. They would have to achieve the same marketplace dynamic [Google was] able to achieve with Play, but it was possible to do.” Tr. 9514:1-9515:23 (Rosenberg (Google)). Plaintiffs did not ask any witness about UPX0303.

241. As to whether MADAs are exclusive, Plaintiffs do not seriously argue that the terms of the MADA prevent OEMs or carriers from preloading search rivals. While Plaintiffs

suggest that T-Mobile had concerns that switching the default from Google would “risk [] violating the MADA,” DOJ FOF ¶ 786, there are no terms in the MADA that prevent an alternative search provider from being preloaded and there is zero evidence of Google ever not certifying a device as MADA compliant due to the inclusion of another search provider. As Plaintiffs acknowledge, Microsoft’s Surface Duo is a MADA device, DOJ FOF ¶ 788, and Microsoft preloads Bing as the default on multiple search access points on that device—including with Edge in the hotseat and as the default browser and with a Bing Search bar which can be accessed, among other places, on the minus-one screen or by swiping down from the home screen. Google FOF ¶¶ 1570-72.

242. Plaintiffs primarily focus their argument on the volume of search that flows through the Google Search App (“GSA”), the Google Search Widget, and Google’s Chrome browser on Android devices, citing several internal Google analyses showing the traffic Google received on Android devices through these search access points. DOJ FOF ¶¶ 793-96. These analyses do not support a finding that the MADA is *de facto* exclusive for several independent reasons.

243. *First*, the exhibits that Plaintiffs cite show only the traffic flowing through these search access points at the time of the analyses. But as Plaintiffs acknowledge, at the time of these analyses, Google was the only preloaded search provider on most U.S. partners’ devices. DOJ FOF ¶¶ 272-75, 276-83, 284-88, 294-301, 304. Thus, the current traffic flowing through search access points does not reflect the impact of the MADA because other search providers could be preloaded on MADA devices. *See, e.g.*, UPX0146 at -388 (traffic on carriers with a revenue share agreement); Tr. 2862:11-16 (Kartasheva (Google)) (explaining that search traffic

discussed in UPX0150 was based on a “device that is covered by the search revenue share agreement, meaning that there’s no other search provider on the device.”).

244. Critically, the traffic flowing through MADA access points does not predict the impact on traffic of alternative designs with alternative search providers that the MADA leaves available to carriers and OEMs. When asked at trial about that type of analysis, both Mr. Rosenberg and Ms. Kartasheva testified that they expected the traffic flow would change significantly. Tr. 9476:20-9477:14 (Rosenberg) (“[I]f you look at point one, when it talks about MADA and the widget and 60 percent of the revenue, I don’t think that fully takes into account the types of things we saw, for example, on the Surface Duo, where there could be other innovations that partners could do. Even if the Google Search widget is there, there could be other innovations that partners could do with rivals to create ways to access Search. So I think that was sort of based on a static set of assumptions that may or may not have been true.”); Tr. 2868:22-2869:6 (Kartasheva) (traffic through the Widget “would be significantly lower, again, because there were be rival services that would be generating traffic to the rival”).

245. For instance, while the MADA does not dictate the browser in the hotseat, Google FOF ¶ 1564, the analyses of search traffic on Chrome was based on devices on which Chrome was overwhelmingly preloaded in the hotseat. *See, e.g.* UPX0150 at -900. Thus, most of the traffic attributable to Chrome in these analyses is “available” for a rival to compete for by winning preload in the hotseat, as Microsoft positions Edge in the Surface Duo. Tr. 9478:4-11 (Rosenberg) (“So if a rival was able to make an offer that would put another browser in the hot seat that was set by default to another search provider, then that revenue would absolutely be available.”); Tr. 9865:8-9866:2 (Murphy); DXD-37.109, .114 (most search traffic from browsers

is attributable to the browser preloaded in the hotseat). As Plaintiffs acknowledge, the hotseat “is considered some of the most valuable real estate on the device.” DOJ Br. at 40.

246. The MADA also does not dictate the default in any third-party browser, including Samsung’s S-Browser. Thus, while Plaintiffs suggest it is unlikely that Microsoft would be able to convince Samsung to preload Edge browser with Bing preinstalled on Samsung Android devices, DOJ FOF ¶ 792, Microsoft had every ability under the MADA to compete with Google to be the S-Browser default. And that is true even under the Samsung RSA for devices distributed by U.S. wireless carriers. *See infra* ¶ 250.

247. *Second*, Plaintiffs cite various historical analyses regarding search queries and revenue on the Google Search App and the Google Search Widget to claim that the placement of the Widget on the home screen accounts for the majority of searches on Android devices. DOJ FOF ¶¶ 783-84, 795-96. However, because “the Google Search widget is part of GSA,” DOJ FOF ¶ 785, those analyses combine the traffic originating from *both* the Search app (which is preloaded in a folder with many other Google apps) and the Widget (preloaded on the home screen). *See* UPX0146 at -388; UPX0563 at -135; UPX0660 at -369; UPX1105 at -208; UPX1107 at -732, UPX1108 at -924, UPX0131 at -250.¹² Professor Murphy disaggregated the traffic from these two distinct search access points in his analysis, and showed that the Widget by itself accounted for less than 40% of search traffic on Android devices in 2020, and much less before then. *Id.* That most search traffic on a MADA device is not attributable to the Widget

¹² Plaintiffs cite two emails with high-level statements about traffic on “widget,” but the documents do not state whether the analysis is breaking out the Google Search Widget from GSA separately, or using “widget” as imprecise, shorthand for all traffic received through both access points. *See* UPX0316 at -906; UPX0150 at -900. And when Plaintiffs raised UPX0316 with the author, Mr. Yoo clarified that “it should actually say the Google Search app. Because we don’t have a great idea of what the widget versus the rest of the app drives specifically.” Tr. 18:5-10 (Sept. 19, 2023 sealed PM session) (Yoo (Google)).

precludes a finding that the MADA's Widget placement requirement makes the MADA *de facto* exclusive.

248. *Third*, even assuming that the search traffic through the Google Search Widget would remain the same under an alternative design with rival search engines preloaded and promoted (an implausible assumption), the MADA does not comprise a *de facto* exclusive because search rivals can compete for promotion on MADA devices. Tr. 9871:4-9873:17 (Murphy); DXD-37.114. In recent years, browsers accounted for 36-37% of search revenue on Android devices with most attributable to a browser in the hotseat, and the Google Search App (preloaded in a folder) accounted for ██████%. *Id.* All of this traffic is contestable to rivals by, for example, preloading a rival search app on the default home screen and a rival browser in the hot seat. Google FOF ¶¶ 1564-69. Meanwhile, Google's RSA payments have ranged from ██████% of search revenue in the relevant periods. Tr. 9871:4-9873:17 (Murphy); DXD-37.114. As Professor Murphy explained, that's more than enough search volume for a rival to be able to profitably compete for promotion against preload search exclusivity (percentage of available traffic significantly exceeds Google's RSA percentage) on MADA devices. *Id.*

249. Ms. Kartasheva's testimony regarding UPX0150 is not to the contrary. To begin, UPX0150 itself suggests that *at least 40%* of traffic on devices subject to the MADA is contestable by rivals. The only portion of traffic Ms. Kartasheva's email attributes to the MADA is 60% flowing through the "widget" (again not clarifying what portion of this relates to the "widget" and what portion relates to the Search app in the Google app folder). As to the rest, Ms. Kartasheva's email stated that 30% was attributable to the Samsung RSA and 10% to other

access points. UPX0150 at -900. And the very document Plaintiffs examined Ms. Kartasheva on showed even more traffic available outside the MADA and RSA. UPX0131 at -250.¹³

250. Moreover, as Plaintiffs acknowledge, Ms. Kartasheva testified that her statements in UPX0150 were erroneous in multiple ways. DOJ FOF ¶ 817. *First*, Ms. Kartasheva said that she did not take into account the significant changes in traffic that would occur if a rival was preloaded on MADA devices. Tr. 2868:9-2869:6 (Kartasheva). *Second*, Ms. Kartasheva acknowledged that her email was incorrect in assuming that Samsung's RSA prevented carriers from preloading browsers with rival search engine defaults in the hotseat. Tr. 2869:7-24 (Kartasheva) ("Samsung RSA ensures nothing on the carrier ID devices. In fact, Samsung revenue share has an explicit carve-out that said on carrier ID devices, Samsung can set the browser defaults to whatever carrier tells them to.").

251. Plaintiffs misstate Ms. Kartasheva's testimony regarding her corrections to UPX0150. She did not testify that "a rival search provider could bid for only 20% of the search revenue on an Android device." DOJ FOF 817. Instead, she explained that the search traffic described in the third point in her email would be "*at least 20 percent*" based on analyses she had seen that "*only* accounts for the change in browser configuration." Tr. 2869:25-2870:6 (Kartasheva) (emphases added). She did not attempt to estimate the effect on search traffic going through the Google Search Widget if a rival search engine or browser were preloaded on the device, which would have further provided rivals with the ability to profitably offer a revenue share higher than that paid by Google under the RSAs.

¹³ For the same reasons, Google's RSAs are contestable notwithstanding the DOJ's argument to the contrary (DOJ FOF ¶¶ 814-17).

252. *Last*, reliance on the *current* traffic does not account for what would occur if a superior product became available. Plaintiffs and their expert agree that Google was the highest-quality search engine in the United States during the time of these traffic analyses. DOJ FOF ¶¶ 559-62. But the experience on Windows PCs shows that users are likely to seek out alternative search access points (such as alternative browsers) when the preloaded search provider does not meet their needs. *Supra* § III.B. There is no reason to believe that users would not do the same on MADA devices if a superior search engine became available in the United States.

2. Google’s RSAs Do Not “Lock Up” Exclusivity

253. Plaintiffs claim that Google’s RSAs have “lock[ed] up” exclusivity for Google Search on Android devices for many years. DOJ Br. at 40. The evidence at trial proves just the opposite—Google’s partners have been given a menu of options and have chosen to preload Google exclusively because it offers the highest-quality search product, and there is no evidence that the RSAs have prevented any OEM or carrier from preloading their preferred search provider on Android devices.

254. To begin, Plaintiffs gloss over and at times entirely misstate the content of Google’s RSAs with OEMs and carriers leading up to the most recent agreements. For instance, Plaintiffs state that “[t]he Motorola RSA has ensured that Google is the exclusive default search engine on Motorola devices since 2005.” DOJ FOF ¶ 304; *see also* DOJ FOF ¶ 34 (“Google and Motorola have been party to a . . . RSA continuously since . . . 2005.”). This is false. The *only* agreement that Plaintiffs cite for this proposition is JX0003, a “Directed Traffic Agreement” that applied to non-Android devices (pre-Android feature phones). That agreement was signed in December 2005, with a three-year term (expiring December 2008). JX0003 at -149, -153. Meanwhile, Android did not launch until September 2008, and Motorola’s first MADA was not

until May 2009. JX0008 (Motorola MADA (2009)). Plaintiffs provided no evidence of any RSA with Motorola on Android devices until 2017. *See* DOJ FOF ¶ 34 & n.8 (citing no Motorola RSA between JX0003 (2005) and JX0039 (2017)).

255. Plaintiffs follow a similar tactic with their summary of early RSAs with OEMs and carriers, claiming that Google’s RSAs have “ensured that Google is the exclusive search default” on the partners’ devices since the first agreement with that party, without explaining what these early agreements required or their effect. *See* DOJ FOF ¶¶ 272-75 (AT&T), 276-83 (Verizon), 284-88 (T-Mobile), 294-301 (Samsung). For each of these partners, Plaintiffs present findings of fact that specifically address only the two most recent RSAs.

256. Plaintiffs acknowledge that Google’s current RSA agreements offer partners a menu of tiers, some of which do not provide for search preload exclusivity. DOJ FOF ¶ 264. And they further acknowledge that the search preload exclusivity terms in Google’s current RSAs are device-by-device. DOJ FOF ¶¶ 273, 278, 285, 297, 305-06. Plaintiffs, however, attempt to minimize this fact by suggesting that it was Plaintiffs’ lawsuit that prompted such a change. DOJ Br. at 5 (“In 2020, with this lawsuit looming, Google retooled the RSAs to add a veneer of nonexclusive revenue tiers and device-by-device exclusivity.”).

257. Plaintiffs cannot take credit for Google offering OEMs and carriers this flexibility—the undisputed evidence shows that all but one partner (T-Mobile) had the option to preload rivals on a device-by-device basis prior to 2020. Google’s RSAs with AT&T have been device-by-device since the beginning in 2011. Google FOF ¶ 1575; DOJ FOF ¶ 275. Google’s RSAs with Samsung and Motorola have been device-by-device since 2017. Google FOF ¶¶ 1579, 1583; DOJ FOF ¶¶ 300, 309. And Verizon has had the choice to preload search rivals on some or all of its devices since 2014. Google FOF ¶ 1577; DOJ FOF ¶¶ 282-83.

258. Despite this flexibility, no RSA partner has chosen to preload a rival search service on *any* of their devices in the United States. While Plaintiffs claim that partners do not exercise this option because they want to “maximize the payments they receive from Google,” DOJ FOF ¶ 259; DOJ Br. at 5 (arguing device-by-device is “the same” as “platform exclusivity” because “to avoid losing billions from Google, carriers and OEMs had to block all of Google’s rivals from their phones”), Plaintiffs have cited no evidence showing that “an Android OEM or Android wireless carrier preferred, from a product quality standpoint, Bing or Yahoo! or DuckDuckGo to be preloaded on an Android device, but decided not to do that because of the payments they got from Google.” Tr. 10586:22-10587:7 (Whinston).¹⁴

259. The flexibility to install the Yahoo Mobile App sought by Verizon, pointed to by Plaintiffs (DOJ Br. at 41), highlights how Google gives partners options. While Plaintiffs suggest that Google “rejected” this effort, the evidence from trial showed just the opposite. In particular, while Google initially pushed back on Verizon’s request to preload Yahoo Search within the Yahoo Home application at the highest revenue share tier, Google ultimately agreed in the 2021 Verizon RSA to let Verizon do so without any reduction in revenue share paid from Google to Verizon. Google FOF ¶ 1544. The weight of the evidence shows that Verizon only sought to preload Yahoo as part of Yahoo Home application and only in addition to Google Search. Google FOF ¶ 1517.

260. Plaintiffs suggest that this was a “pyrrhic victory” for Verizon because the RSA was signed after Verizon sold Yahoo. DOJ Br. at 41 n.10. But this cuts the opposite way.

¹⁴ Plaintiffs rely on hearsay in documents, rather than testimony from partners, to claim that “Android partners have pushed back on the RSAs’ exclusivity terms.” DOJ FOF ¶ 805. Google objects to use of these hearsay statements for their truth. But in any event, none of these statements suggest that partners wished to preload a rival in the United States.

Verizon only sought to preload Yahoo Home due to the corporate affiliation with Yahoo. Tr. 1056:11-15, 1064:20-1065:1 (Higgins (Verizon)). Plaintiffs acknowledge that Verizon’s prior RSA dating back to 2014 “did not explicitly prohibit the carrier from preinstalling rival GSEs.” DOJ FOF ¶ 283. Therefore, for the entire time Verizon owned Yahoo, nothing in the RSA prevented Verizon from preloading Yahoo on its devices, and there is no evidence that Verizon ever even had any interest in preloading Yahoo (or Bing or DuckDuckGo) during that time period notwithstanding this flexibility. Google FOF ¶ 1538-44.

B. Plaintiffs Have Failed to Prove Substantial Foreclosure from the Android Agreements

261. For all the same reasons addressed above, and in Google’s initial submissions, Plaintiffs’ measure of foreclosure based on “coverage” is economically unsound and against the weight of the evidence. And Plaintiffs’ argument that it would be impossible for a superior search rival to attract more than one-third of the queries from “covered” access points cannot be squared with actual market evidence that proves that a superior rival can win far more queries against the default. *Supra* § III.B.

262. Because Plaintiffs argue that the Android agreements work together to provide Google exclusive default placement on Android devices, Plaintiffs do not even attempt to measure foreclosure of Google’s MADAs and RSAs independently. DOJ FOF ¶ 804. But whether measured separately or together, the conclusion is the same. Google’s Android agreements do not prevent rivals from accessing or competing for queries, and no substantial foreclosure results from the agreements. *Supra* § III.B; Google FOF ¶ 1599. Even conservatively measured against Plaintiffs’ own less restrictive alternative, only 0.6% of search shares would shift to rivals if a choice screen replaced Google’s agreements on Android phones in the United States. Google FOF ¶¶ 1612-13.

263. Regardless, even using Plaintiffs’ invalid “coverage” analysis, Plaintiffs acknowledge that the Android Agreements “cover” less than 20% of general search queries in the U.S., and an even lower percentage of each of the alleged advertising markets. Google FOF ¶ 1616; DOJ FOF ¶ 804. This is below the threshold courts have established as a “virtual safe harbor” for market foreclosure. Google Br. at 83.

C. Branch Metrics Is Not Evidence of Harm to Competition

264. For the reasons discussed above, Plaintiffs’ arguments regarding harm to competition relating to scale, investment incentives, and privacy are contrary to the evidence. *Supra* § III.D. Plaintiffs attempt one additional harm-to-competition argument that is Android-specific. Plaintiffs claim that Google’s RSAs inhibited Branch Metric’s “nascent technolog[y],” DOJ Br. at 33, which they claim shows evidence of harm to competition in the search markets they define, *see* DOJ FOF ¶¶ 832-62. The evidence at trial, however, showed that Branch’s Discovery technology does not compete with Google Search, nor does it threaten to do so. Preinstallation of Branch also does not conflict with the terms of any major OEM or carrier RSA, and Branch is widely deployed in the U.S. today.

1. There Is No Evidence That Branch “Threatened” Google Search

265. Plaintiffs assert that Branch posed a “threat” to Google’s alleged general search monopoly. DOJ Br. at 35; DOJ FOF ¶ 855. The evidence does not support that assertion.

266. *First*, as Plaintiffs acknowledge, Branch is not a GSE. It thus does not compete in Plaintiffs’ asserted general search services market. DOJ Br. at 34.

267. *Second*, no evidence supports Plaintiffs’ contention that Branch threatened to facilitate the entry or expansion of other GSEs, or otherwise to facilitate competition in or lower barriers to entry or expansion, in any of the markets Plaintiffs define—much less that Google perceived Branch as a threat. Google FOF ¶¶ 1628-35. The evidence at trial instead showed that

both Google and Branch viewed Branch's in-app search technology as a complement to a GSE. Google FOF ¶¶ 1634-35.

268. *Further*, Plaintiffs point to no evidence that increased use of Branch's technology would enable other GSEs to better compete with Google or facilitate new GSE entrants. Google FOF ¶¶ 1628-34; *see also* Tr. 6147:3-5 (Whinston) (“Q. And Branch Metrics has never done a deal with any search engine; correct? A. No. They wouldn't be doing that.”). Plaintiffs instead speculate that Branch's on-device search functionality might have developed to allow users to bypass general search services altogether. DOJ Br. at 35; DOJ FOF ¶ 1125. But that factually unsupported hypothetical, even if true, would not enhance competition in Plaintiffs' market for general search. *See* Google FOF ¶¶ 1628, 1632.

269. Plaintiffs' purported evidence regarding Branch is premised on a mischaracterization of Ms. Kartasheva's testimony and related documents. DOJ FOF ¶¶ 850-58. Ms. Kartasheva was not a decision-maker with respect to whether adoption of Branch technology would be in compliance with the RSAs, and did not know whether or what decisions were ever made on these topics; her job was to gather factual information to enable the relevant Google personnel to assess whether Samsung's implementation of Branch fell within the Samsung or AT&T RSAs' definitions of “Alternative Search Service.” *See* Google FOF ¶ 1671; UPX0694 at -599-600 (conveying information about Branch implementation to decision-makers and asking to be “point[ed] in the right direction” about “how [Ms. Kartasheva] should proceed”); Tr. 2810:23-2811:11 (Kartasheva) (“I thought that it was important for the search team to help us understand whether, in their opinion, the implementation that we saw constituted a service that was substantially similar to Google Search, because that would ultimately help us decide whether the implementation of Branch was consistent or not consistent with revenue share experience.”).

270. Furthermore, Ms. Kartasheva’s investigation of RSA compliance does not, without more, reflect a concern with competition in the markets Plaintiffs define. Plaintiffs admit that the relevant RSAs’ definitions of “Alternative Search Service” can encompass a service that “is not a GSE.” DOJ Br. at 34. Thus, mere concern that a service may constitute an Alternative Search Service does not indicate that Google viewed it as a nascent GSE competitor or facilitator of GSE entry or expansion.

271. Plaintiffs’ cited exhibits further undermine their contention. *See, e.g.*, DOJ FOF ¶¶ 853, 856-57 (citing UPX0694). These exhibits instead show that Google did not view Branch as a “threat,” as Google had already abandoned a similar Android on-device search experience because of low consumer usage. *See* UPX0694 at -597, -599.

272. Plaintiffs also offer no evidence that Google instructed any partner not to implement Branch as a condition of receiving revenue share. *See* Google FOF ¶ 1671. Plaintiffs’ reliance on UPX0982 to suggest that Google informed AT&T that Branch was “not permitted” is misplaced. DOJ FOF ¶¶ 852-54. In this exhibit, Google conveyed to AT&T the requirements of an “Alternative Search Service” under the RSA, and that Samsung’s S-Finder, which used Branch’s Discovery technology at the time, was “allowed if it meets [those] requirements.” UPX0982 at -686.

2. No Carrier or OEM Viewed Branch as Conflicting with the RSAs

273. Contrary to Plaintiffs’ assertion, *see, e.g.*, DOJ FOF ¶ 842, none of the major U.S. carriers or Android OEMs viewed Branch’s Discovery technology as in conflict with these partners’ RSAs. The relevant RSAs govern installation of “Alternative Search Services” only to the extent those services are similar to Google Search, and there is no evidence that carriers or OEMs, or even Branch itself, viewed Discovery as similar to Google Search. *See* Google FOF ¶¶ 1628-35; UPX0656 at -448 (Branch email with AT&T acknowledging that Branch is not

“similar to Google Search” and that Branch and Google Search are “two different delivery path[s] from the information source to the end user”).

274. Further, Plaintiffs fail to acknowledge that (1) carriers and OEMs can (and do) negotiate agreement carve outs or waivers for functionality they want to implement; and (2) *all* of the relevant RSAs allow carriers and OEMs to implement Branch on a particular device without affecting revenue share payments for all of their devices. *See* Google FOF ¶¶ 1639-40, 1644, 1648, 1653, 1656.

275. Plaintiffs’ assertion of purported carrier and OEM “concerns” relies almost entirely on inadmissible hearsay and documents not shown to any witness at trial. Plaintiffs inexplicably rely on *Branch* and *Samsung Next* statements and documents for evidence about how *carriers* and *OEMs* perceived their obligations under the RSA. *See* DOJ FOF ¶¶ 837, 840-43, 847, 849, 858, 861 (citing *Branch* and *Samsung Next* documents, including UPX0656, UPX0663, UPX0687, UPX0690, UPX0967, and UPX1064, for the truth of *Samsung* and carriers’ purported views about the Google RSA). Tellingly, Plaintiffs ask the Court to consider for the first time a host of additional exhibits on issues that were not shown to any witness at trial, and thus lack foundation. DOJ FOF ¶¶ 837-38, 842, 858 (citing UPX0654, UPX0658, UPX0687, and UPX0692, which were not shown to any witness at trial), 843, 850, 852-54 (citing UPX0967 and UPX0982, which were not shown to any witness at trial and do not involve any trial witnesses); *see also* DOJ FOF ¶¶ 837-38, 841-43 (citing testimony of Mr. Austin relaying statements from third parties on which Plaintiffs rely for the truth of those statements, at Tr. 2905:1-19 (Austin), 2918:2-11, 2919:8-21, 2921:2-16, 2921:21-2922:10, 2922:12-25, 2926:16-2928:12).

276. In addition, Plaintiffs' proffered evidence about AT&T and Samsung, even if admissible, does not support their claims, as explained below.

277. **AT&T:** The testimony Plaintiffs cite regarding AT&T's "concerns" and "understanding" cannot carry the day. DOJ FOF ¶¶ 847, 849, 854, 860. Plaintiffs omit any citation to any AT&T agreement with Google, instead relying on testimony from Mr. Ezell, who was not involved in any of the Branch discussions. *Id.* Mr. Ezell also testified that AT&T's greatest concern about partnering with Branch was not its Google RSA, but rather Branch's poor customer experience. Ezell Dep. Tr. 247:6-249:9. Plaintiffs also ignore testimony from Mr. Ezell indicating that: (1) even if Branch's technology conflicted with the RSA, AT&T could opt a device with Branch technology out of RSA payments (*id.* at 242:22-243:18); (2) Branch was not a substitute for general search (*id.* at 240:15-241:04); (3) Google did not tell AT&T that Branch was not permitted but rather that "it ultimately turns on . . . if Branch was ultimately going to go out and search the Internet versus just search things that were on the device" (*id.* at 244:10-245:3); and (4) AT&T did not speak with Google about whether Branch would violate its current RSA signed in 2021 (*id.* at 250:7-16). In sum, Plaintiffs offered no evidence that AT&T was blocked by Google from implementing any Branch technology that it was otherwise prepared to incorporate onto Android devices.

278. **Samsung:** Plaintiffs' claim that Samsung had "concern[s]" that distributing Discovery "might conflict" with Google's agreements is unsupported. DOJ FOF ¶ 837. Plaintiffs called no percipient witness to Samsung's internal decision-making with respect to Branch or with firsthand knowledge of Samsung's RSA, and instead seek to use *Branch* testimony to establish *Samsung's* views. DOJ FOF ¶¶ 837-38, 841; Google FOF ¶ 1663. Plaintiffs try to tiptoe around this deficiency by couching their proposed findings in terms of

Branch's "understanding" of Samsung's "concerns," *see* DOJ FOF ¶¶ 846, 847, 862, but Branch's understanding of another party's views is simply not relevant to any issue in the case.

279. In any event, Plaintiffs misrepresent the supposed evidence of Samsung's "concerns." The hearsay materials on which they rely, *see* DOJ FOF ¶¶ 837-38, 840-42, 858, 861 (citing UPX0658, UPX0663, UPX0687, UPX0690, UPX0692, and UPX1064, all dated between November 2018 and August 2020), predate the November 2020 signing of the Samsung RSA by at least several months; the final agreement conspicuously omits the prohibition on use of an internet connection that Plaintiffs incorrectly claim barred Branch preinstallation. *Compare* UPX2003 at -992 (2020 RSA term sheet, containing provision concerning on-device search functionality that requires an internet connection), *with* JX0071 (2020 RSA) at -394 (§ 1.5) (omitting such a provision and defining "Alternative Search Service" in relevant part as a service "that offers functionality *that is similar to Google Search*" (emphasis added)); *see also* Google FOF ¶ 1659. Samsung also continued to negotiate with Branch well after the purported "concerns" were raised and the 2020 Samsung RSA was signed, indicating that Samsung did not view the RSA as precluding a partnership with Branch. *See* DX0614 (describing negotiations as late as February 2021, three months after the Google RSA was signed).

280. Plaintiffs also ignore the overwhelming evidence of OEM and carrier concerns about Branch's technology. The evidence at trial showed that these parties either decided not to partner with Branch or not to expand existing Discovery functionality because of concerns about privacy, user experience, and/or the utility of Branch's technology. *See* Google FOF ¶¶ 1673-84. Any limitations on deployment of Branch's functionality thus are attributed to Branch's own commercial shortcomings.

3. Discovery Is Available on Millions of Devices Today

281. Plaintiffs appear to suggest that Branch has not succeeded in distributing Discovery. DOJ FOF ¶¶ 848-49, 860-61. To the contrary, as of 2022, Discovery had more than 100 million daily active users, including on devices from every major carrier and OEM in the United States. *See* Tr. 2956:6-9 (Austin (Branch)) (“I think we crossed 100 million daily active users of the LDS product in 2022.”); *see also* Google FOF ¶¶ 1636-61.

282. Furthermore, the version available today benefits from an internet connection, *see* Google FOF ¶ 1659, which is the precise attribute that Plaintiffs claim Google blocked, *see* DOJ FOF ¶¶ 844-45, 1122.

D. Plaintiffs Fail to Rebut Procompetitive Justifications in Support of Google’s MADAs and Android RSAs

283. The evidence at trial established that Google’s Android Agreements with OEMs and carriers promote search competition and expand search output in multiple ways.

284. *First*, just as with Google’s browser default search agreements, competition to be the default search engine and receive the incremental search volume available through revenue share agreements results in price and quality competition among search engines. Google FOF ¶¶ 761-72, 1435-54, 1688. Plaintiffs provide no persuasive reason to discount the benefits of that competition. *Supra* §§ III.B-C.

285. *Second*, Google’s MADAs and Android RSAs provide consumers with a consistent, high-quality out-of-the-box experience, enhancing competition with Apple and promoting search output. Google FOF ¶¶ 1697-1701.

286. Plaintiffs cannot deny that inconsistency across Android devices has weakened the ecosystem’s competitive position against iOS. *Giard Dep. Tr. 273:23-274:23* (“Consumers have gravitated towards iOS because of its consistency between the available devices operating

on iOS, and that same consistency has not existed on the Android side.”); Google FOF ¶ 1703. Plaintiffs suggest that partners have sufficient incentives to promote *consistency* themselves, DOJ FOF ¶ 1330, but in the same section state that the MADAs and RSAs “frustrate distribution partners’ ability to *differentiate* their products,” DOJ FOF ¶ 1325 (emphasis added). In fact, Google’s MADAs and RSAs accomplish both goals—they provide a consistent baseline experience on Android devices, while allowing partners to differentiate above that baseline. The record shows the immense differentiation that Android OEMs have been able to achieve with the MADAs and Android RSAs in place. Tr. 9486:2-9492:16 (Rosenberg) (explaining the differentiation that has occurred on Android devices while the MADAs and Android RSAs have been in place (discussing DXD-35)); Google FOF ¶¶ 1707, 1713.

287. The search placement provisions in Google’s MADAs provide a convenient and consistent out-of-the-box search experience with the highest-quality search engine in the U.S. and with access to a high-quality browser like Chrome, the most popular browser in the U.S., resulting in increased search usage. Google FOF ¶¶ 907, 912-13, 916, 1686-87. Plaintiffs do not contest that the Google Search Widget and Chrome are popular ways for users to access Google Search when they are preloaded on Android devices. DOJ FOF ¶ 793 (“The MADA access points—GSA/widget and Chrome—account for most of the search queries and search revenue generated by Android devices.”).

288. The placement of the Google Search Widget on the default home screen leads to a better user experience, not a poorer one as Plaintiffs claim. A 2016 Samsung study found that 72% to 80% of survey participants rated Google search as “essential,” and that “more than 60% [of] participants were satisfied with the Google Search Widget and chose to preload it as is (compared to [Samsung’s] Galaxy Essential Widget).” DX2043 at .002-.003. Confirming this

popularity as a search access point, devices with the Google Search Widget receive more overall queries than devices without. UPX0076 at -199 (“Devices without [the Widget] have up to . . . 10% fewer total search [daily active users] and 12% fewer total queries.”).

289. The only purported “complaints” that Plaintiffs cite regarding the Google Search Widget come from *one email* that Plaintiffs never asked any fact witness about, and all pertain to its visual *appearance*, not it being preloaded on the default home screen. DOJ FOF ¶ 1324 (citing UPX0128 at -547). And any user can easily remove the Widget. Google FOF ¶ 1592.

290. *Third*, Google’s zero-priced MADA and revenue share payments to OEMs and carriers result in lower-priced, higher-quality devices and wireless networks, increasing search usage and enhancing competition against Apple mobile devices. Google FOF ¶¶ 1709-15.

291. Plaintiffs claim that “Google has not established that its revenue share payments to . . . Android OEMs[] and U.S. carriers are passed through to consumers as lower retail prices for smartphones.” DOJ FOF ¶¶ 1281-93. As discussed above and in Google’s Proposed Findings of Fact, the weight of the evidence shows otherwise. *Supra* § III.E; Google FOF ¶¶ 1689, 1709; Google Br. at 88, 90-91.

292. Google’s RSA payments also directly incentivize OEMs and carriers to increase search usage, which they can do by developing lower-priced, higher-quality devices and improved wireless networks. Google FOF ¶¶ 1689-92, 1727-28.

293. Google’s free license to the high-quality GMS applications has also led to lower device prices. Google FOF ¶¶ 1709-10, 1713-14. Plaintiffs claim that “Prof. Murphy . . . acknowledged that he is not aware of data showing” a link between that license and lower device prices, DOJ FOF ¶ 1332, but this ignores Professor Murphy’s testimony that “we have . . . Apple

versus Android, and Android has facilitated the lower-priced devices. Economics would say the MADA is a part of that.” Tr. 10185:25-10186:13 (Murphy).

294. The weight of the evidence shows that Google’s free license to OEMs of eleven high-quality, highly popular applications allows OEMs to use their resources to build higher-quality devices—a benefit to users that flows from Google’s MADA. Tr. 9426:19-9427:7 (Rosenberg) (“[W]hat [the MADA] does is it enables [OEMs] to innovate in other ways, innovate on the hardware, innovate on differentiating . . . their user experience in other ways.”); *see* Google FOF ¶¶ 1697-98, 1709, 1713.

295. Plaintiffs ignore the real-world data that shows the prices of Android smartphones are consistently cheaper than the price of iPhones. Tr. 9851:2-9852:18 (Murphy) (“[T]here’s a much wider variety of Android devices . . . more than 40 percent are below \$200.”); DXD-37.095 (average price of an Android smartphone is less than half the average price of an iPhone); *see* Google FOF ¶¶ 1710-11.

296. While Google’s documents do not explicitly analyze the amount of pass through to consumers, DOJ FOF ¶ 1286, they do highlight lower Android device prices than Apple device prices and discuss RSAs as funding the ecosystem and incentivizing competition against Apple. UPX0129 at -903 (RSA “[p]rovides a mechanism to help fund the ecosystem”); *see* Google FOF ¶¶ 1694-1726. That competition comes in the form of OEMs and carriers selling better, cheaper devices, and improved data plans and wireless networks. Tr. 9855:6-9856:1 (Murphy); DXD-37.100; *see* Google FOF ¶¶ 1689, 1709-15; Google Br. at 88-93.

297. *Fourth*, and relatedly, the weight of the evidence also confirms that MADAs and Android RSAs promote inter-platform competition between Android and iOS and intra-Android

competition among high-quality differentiated devices, resulting in greater search output.

Google FOF ¶¶ 1694-1735.

298. Plaintiffs claim that even without the distribution, placement, and promotion for Google Search that Google receives in the MADAs and Android RSAs, Google still would have sufficient reasons to support the Android operating system to the same extent it does today. DOJ FOF ¶¶ 1312-17. The evidence does not support this claim.

299. Plaintiffs are correct that Google distributes non-Search, revenue-generating applications on Android. DOJ FOF ¶ 1312. But nothing in the record establishes that the distribution, placement, and promotion that Google receives for these applications generates revenues sufficient to offset the massive investment Google currently makes in the development of the Android operating system, let alone revenues sufficient to incentivize Google to continue doing so at the same levels as today. *See* Tr. 7716:1-11 (Pichai (Google)) (“[Google] provides Android for free, and [it] invest[s] tens of thousands of engineers to compete with Apple.”). To the contrary, the evidence shows that the MADA and Android RSA provisions relating to Google Search are how Google funds its investment in the Android operating system. Tr. 9427:8-25 (Rosenberg) (“most notably Search and Google Play” are the Android applications that generate revenue for Google and they do so because of the agreement provisions that “help encourage use of these services”), 9431:4-20 (absent the RSA, Google “wouldn’t have a funding mechanism for the ecosystem . . . and wouldn’t have a way to be able to invest as significantly”), 9436:5-21 (“If we don’t have the business model that we have, we can’t invest at the same levels in advancing Android.”); Google FOF ¶ 1702. That Google charges a license fee in Europe for the MADA less search and Chrome proves the point. Google FOF ¶¶ 1602-03, 1702, 1714.

300. Plaintiffs overstate the revenues Google earns from the Play Store, claiming: “In one 2020 estimate, Google projected it would earn upwards of \$ [REDACTED] billion from Play Store sales on Samsung phones over a four-year deal.” DOJ FOF ¶ 1313 (citing UPX2111 at -120). What the cited document actually shows is that Google’s projected worldwide Play Store revenues (not profits) from Samsung devices over a four-year deal term were half that, or \$ [REDACTED] billion. UPX2111 at -120. Regardless, nothing in the record establishes that these gross revenues, even combined with other non-Search applications, are sufficient (1) to offset the cost of Google’s current investment in Android, or (2) for Google to continue making the same level of investment in the future.

301. Nor does Google’s sale of Pixel devices provide a sufficient incentive for Google to maintain its current level of investment in the Android operating system. Plaintiffs’ claim that Pixel’s share of mobile device shipments in the United States ranged from 17% to 20% in 2018 and 2019 is grossly inaccurate. DOJ FOF ¶ 1315 (citing UPX0317 at -159). The document that Plaintiffs cite shows that Pixel’s true share of mobile device shipments in the United States during that period was 1%. UPX0317 at -159. The percentages that Plaintiffs refer to relate to all Android devices *other than* Pixel, LG, and Samsung. *Id.*

302. And contrary to Plaintiffs’ claim, Google’s revenue share agreements with Apple do not undermine its search-based incentives to invest in Android. *See* DOJ FOF ¶¶ 1318-20. Because Apple has strong brand recognition and a large user base, Google has the incentive to compete vigorously for incremental promotion of its search services on Apple devices. Google FOF ¶¶ 1276, 1437-39. At the same time, Google has independent reasons for promoting and supporting the success of Android. Users search more on Android devices than Apple devices (in part due to Google’s popular search widget). Tr. 9848:7-25 (Murphy) (“Android devices tend

to be what you might call searchy. You might have heard about that, they're kind of search intensive. It's not surprising, given Google's motivation for bringing Android in the first place, which is, they tend to be a little more searchy."); Google FOF ¶¶ 775, 1686, 1700. And Google's browser, Chrome, performs better on Android than iOS due to Apple's restrictions on rendering engines for third-party browsers. Tr. 7805:2-13 (Pichai) ("[W]e are obviously very focused on making sure we can build the best possible Chrome experience on Apple's products. It's much more difficult to do it on IOS. In IOS, Apple restricts other browsers from the ability to use their own rendering engines, so we have to -- we are restricted. We would have to use a web view provided by Apple, so we are limited in our ability.").

303. While Plaintiffs claim that the enhanced competition between Apple and Android does not result in enhanced competition and output in the search market, DOJ FOF ¶¶ 1339-41, they intentionally did not present an expert on the subject. *See* Tr. 10582:11-25 (Whinston) ("Q. As part of your work in this case did you conduct any analysis of competition in the U.S. smartphone market? A. No, I haven't studied it. Q. In your expert reports, you did not conduct any analysis of whether competition among smartphones in the United States has impacted search competition in the United States, correct? A. That's correct. . . . Q. In your expert reports, you did not set forth any analysis of whether competition among smartphones in the United States has impacted search usage in the United States. A. That's correct."). By contrast, the expert testimony offered by Professor Murphy explains that search is an important complement to mobile devices and mobile device platforms and therefore that enhancing Android's ability to compete with Apple expands search output. Google FOF ¶¶ 1695-96.

E. Plaintiffs’ Invalid Less Restrictive Alternatives Do Not Achieve the Same Procompetitive Benefits

304. As discussed above, Plaintiffs’ proposed less restrictive alternatives are not economically sound and would not provide the same procompetitive benefits. And the evidence shows that partners would receive significantly less in payments under a “choice screen” or “unconditional revenue share.” *Supra* § III.F.

305. As to “unconditional revenue share” in particular, Google’s tiered, device-by-device Android RSA agreements demonstrate that payments from Google would be lower on any devices where Google was not preloaded exclusively. Google offers OEMs and carriers the device-by-device choice to preload Google exclusively, and in return will pay a larger revenue share to partners for devices that are opted into the highest RSA tier. Google also offers lower RSA percentages without preinstallation exclusivity for lower RSA tiers. Google FOF ¶¶ 1483, 1487, 1492, 1497, 1502, 1550, 1574-86.

306. Plaintiffs argue that Google’s “philosophy is to pay revenue share in return for search default exclusivity” and that “Search default exclusivity with Android partners has long been the ‘primary goal’ of Google’s RSA.” DOJ FOF ¶¶ 798-800. This is hardly surprising as Microsoft and Yahoo also have competed by paying for exclusive placement on devices. Google FOF ¶¶ 416-30, 588-89, 824-25, 835-46; Tr. 340:24-341:21 (Barton (Google)), 356:18-357:9 (“I had shown the two examples of Yahoo! on AT&T and Verizon on Bing, establishing their search engines as the default -- exclusive default search on Android phones. So I’m pointing out that basically if we don’t win these deals, they will.”); UPX0134 at -865 (“You can bet that Microsoft and Yahoo will enter contracts for search on Android through carrier deals if we do not.”). While providing the option for search exclusivity has been one feature in Android RSAs, Plaintiffs cannot explain why Google would be willing to pay the same revenue share or more

without such exclusivity because doing so would not guarantee any incremental promotion of Google Search. Google FOF ¶ 802. The evidence instead showed that Google would not. Tr. 9469:22-9470:13 (Rosenberg).

307. Notably, the search agreements highlighted as “unconditional” by Plaintiffs have the same design as Google’s device-by-device RSAs. [REDACTED]

[REDACTED]

[REDACTED]. DX1005 at -158 (§ 5.1). [REDACTED]

[REDACTED]

[REDACTED] *Id.* [REDACTED]

[REDACTED]

[REDACTED] DX1011 at -307-309, -322 (§§ 1.6, 1.12, 2.1 and Ex. D).

308. Plaintiffs also cannot show that an unbundled MADA would be as effective in maintaining the low price and high quality of Android devices, or that search output would be unaffected. As Plaintiffs acknowledge, when the MADA was unbundled in Europe, Google started charging a positive license fee. DOJ FOF ¶¶ 1334; Google FOF ¶¶ 1602-03, 1702, 1714. But Plaintiffs fail to acknowledge the evidence showing that the MADA’s zero-fee license played a key role in Android’s success, or that other operating systems failed due in part to charging a license fee. Google FOF ¶¶ 1709-15.

309. For this reason, Plaintiffs’ argument that “the ‘MADA barter’ is also inefficient because it requires the same ‘price’ for every Android device,” and that “Google licensed the Play Store for different amounts depending on the country in which the device was being sold and the features that were available on the phone,” DOJ FOF ¶¶ 1333-34, gets it backwards. The MADA barter increases efficiencies by not requiring Google or OEMs to have to determine

the differential pricing that various phone models in various countries should be charged. Tr. 9851:2-9852:25 (Murphy). And it decreases other operational burdens, such as payment tracking and other logistical and regulatory issues related to transfers among global companies. Google FOF ¶ 1607. Plaintiffs' alternative would vitiate those efficiency benefits.

310. Regardless, "unbundling" the MADA would have no positive effect on search competition in the United States. Google FOF ¶ 1605.

V. GOOGLE'S SA360 CONDUCT CANNOT SUPPORT COLORADO PLAINTIFFS' SECTION 2 MONOPOLY MAINTENANCE CLAIM

A. Google Never Had a Prior Course of Dealing with Microsoft

311. Google never engaged in a course of dealing where it built, or agreed to build, every feature requested by Microsoft into SA360. Google never agreed or promised Microsoft that it would build Microsoft's auction-time bidding functionality or any other Microsoft Ads feature that Colorado Plaintiffs identified at trial, much less on any specific timeline. To the contrary, the evidence at trial established that decisions regarding SA360's feature development—for Microsoft Ads, Google Ads, and for every other advertising platform supported by SA360—were based upon customer demand, technical feasibility, and resource availability. Google FOF ¶¶ 1774-81.

312. Google's entry "into a contract with Microsoft with a binding escalation process for the two companies to resolve disputes," Colorado Br. at 34, does not establish a course of dealing mandating that SA360 incorporate any or all Microsoft Ads features and functionality. The contract to which Colorado Plaintiffs refer is an April 2016 "Settlement Agreement" that establishes a general framework by which Microsoft and Google may address future disputes between the companies. PSX00761; Tr. 3141:8-3143:15 (Tinter (Microsoft)). It has no terms or obligations referencing SA360 or SA360 features. Nothing in the agreement mentions SA360,

much less requires Google to take any action relating to SA360 or Microsoft features on SA360. PSX00761 at -083-084 (§ 6.2); *see* Colorado FOF ¶ 233.

B. There Is No Evidence That Google Sacrificed Short-Term Profits in a Manner That Was Irrational but for Injuring Competition

313. There is no evidence that Google’s decisions regarding the timing or implementation of any features into SA360 sacrificed profits, let alone were economically irrational absent maintaining a supposed monopoly and/or excluding competition.

314. Colorado Plaintiffs have not proven that integrating Microsoft auction-time bidding into SA360 more quickly after Microsoft’s request in late 2019 (if even technically feasible) would have been profitable for Google given the resources that would have been necessary to accomplish this on Microsoft’s preferred timetable, or that Google decided to forgo any amount of short-term profit in order to obtain higher profits in the long run by excluding competition. Colorado Plaintiffs contend that Microsoft Ads launched auction-time bidding in 2016, Colorado FOF ¶ 175, yet the first record of purported customer demand identified by Colorado Plaintiffs is a November 2019 document confirming that Microsoft auction-time bidding was *not* among SA360 customers’ top 20 feature requests at that time. Colorado Br. at 25; Colorado FOF ¶ 197; DX0179 at .009 (“All engines: . . . none of the top 20 items include the MSFT features above”). Without demand for Microsoft auction-time bidding, Google cannot have sacrificed profits by maintaining its normal course of business rather than attempting to build a technology with uncertain customer demand.

C. There Is No Evidence That SA360 Made Feature Development Decisions to Favor Google Ads

315. None of SA360’s feature roadmap documentation shows any consideration of the revenue or profit that Google earns from selling a Google ad as compared with a non-Google ad

on SA360. DX0132 (H1 2019 roadmap planning); PSX00289 (H1 2019 roadmap executive update); PSX01147 (H2 2019 roadmap executive review); PSX01110 (H1 2020 draft roadmap).

316. SA360's salespeople do not earn commissions based on the sale of Google Ads. Tr. 1507:7-19 (Dischler (Google)). Indeed, Colorado Plaintiffs adduced no evidence at trial that SA360 personnel had any financial or other incentives to favor Google Ads over non-Google ads platforms in making feature implementation determinations.

317. Colorado Plaintiffs contend that SA360 favors Google Ads because "Google makes over [REDACTED] times more profit" in selling Google Ads than from SA360 fees, Colorado FOF ¶¶ 141-42, but there is no evidence that SA360 ever made feature development decisions based on the relative amount of revenue or profit from Google Ads versus Microsoft Ads. Moreover, Google is incentivized to grow all spend on SA360 because it charges a fee based on a percentage of all managed spend that passes through the tool. Indacochea (Google) Dep. Tr. 130:15-19, 161:4-14; DX0238.

318. There is no evidence that revenue or profits from specific features on a SEM tool, like auction-time bidding, can even be determined on a feature-by-feature basis. To the contrary, Microsoft's executive who oversaw its relationships with SEM tools, Shirley Heath, stated that "it is difficult to do these kinds of analysis." Heath (Microsoft) Dep. Tr. 122:5-10.

319. Google's decisions regarding what SA360 features to build were soundly grounded in customer demand, not on the basis of privileging Google Ads over Microsoft Ads or other platforms. Google FOF ¶¶ 1774-81. Indeed, Google Ads features often did not make it onto the SA360 roadmap. Google FOF ¶¶ 1778, 1780.¹⁵

¹⁵ Google FOF ¶ 1826 states that the SA360 team told Microsoft in early 2020 that Google was deferring conversion testing relating to Microsoft auction-time bidding because there was insufficient customer demand at that time, and that Google did not have engineering resources

320. As to operation of SA360, former Google employee Sridhar Ramaswamy testified without contradiction that (1) SA360 had “good processes in place, both on the product side as well as the business side” to ensure that SA360 operated consistent with its obligations and responsibilities to what was best for advertisers; and (2) that SA360 “really tried hard to make sure that we always did the right thing for the advertiser and clearly represented to them that that was our obligation.” Tr. 3728:22-3730:11 (Ramaswamy (Neeva)).

D. Colorado Plaintiffs Erroneously Equate Google Ads’ and Microsoft Ads’ Auction-Time Bidding Functionalities

321. Colorado Plaintiffs repeatedly assume, without any supporting evidence, that the functionality and performance of Microsoft’s auction-time bidding is the same as SA360’s Google Ads auction-time bidding. *E.g.*, Colorado FOF ¶¶ 196, 203. There is no evidence that Microsoft’s auction-time bidding is the same as Google’s from a technical or performance perspective. *See* Google FOF ¶ 1913.

322. To the contrary, Google’s product manager Jason Krueger testified that there were functional differences. *Id.*; Tr. 6821:22-6822:24 (J. Krueger (Google)). The testimony about the performance of Microsoft auction-time bidding on Skai cited by Colorado Plaintiffs shows that an increase in conversions from Microsoft’s feature (12%) differed from, and was inferior to, the performance of Google Ads’ auction-time bidding feature in SA360’s testing (15-30% and █% increases in conversions). Colorado FOF ¶ 257; *compare* PSX00909; PSX00438 at -562.

323. Colorado Plaintiffs also conflate positive advertiser response to Google’s auction-time bidding with Microsoft’s auction-time bidding. Colorado FOF ¶¶ 195-206. Colorado Plaintiffs identified only two advertisers that tested Microsoft’s auction-time bidding and

allocated. To clarify, while it is true that Google did not have engineering resources allocated for the testing, Tr. 4342:12-21 (R. Krueger (Google)), the cited testimony does not reflect that the SA360 team discussed resource availability with Microsoft.

expressed interest in late 2020, as compared to the hundreds of advertisers who requested Google Ads' auction-time bidding in SA360. Colorado FOF ¶¶ 202-03; Google FOF ¶ 1791; Tr. 6846:14-6847:4 (J. Krueger).

E. Google Has Built and Is Testing Microsoft Auction-Time Bidding for SA360

324. Contrary to Colorado Plaintiffs' implication that SA360's integration of Microsoft auction-time bidding functionality is illusory, Colorado Br. at 24, live testimony from multiple witnesses, designated deposition testimony, and trial exhibits confirm that Google's integration of Microsoft auction-time bidding into SA360 (Project Byx) is currently in testing with advertising customers. Tr. 1246:4-13 (Dischler); Tr. 4407:9-18, 4443:8-4444:20 (R. Krueger); Tr. 4727:13-4729:2 (Varia (Google)) (discussing PSX00572); Tr. 6798:10-12 (J. Krueger); Indacochea Dep. Tr. 109:11-110:8; Tr. 7003:12-18 (Amaldoss (Colorado Plaintiffs' Expert)); PSX00572 at -749.

F. Google's Development of Microsoft Auction-Time Bidding Features Reflects Reasonable Business Judgment

325. There is no apparent dispute that—despite the availability of Microsoft auction-time bidding on Microsoft's native tool since 2016—the first notable advertiser demand for Google to develop that functionality for SA360 started in 2020. Google FOF ¶¶ 1855-66.

326. Exhibit DX0179, cited by Colorado Plaintiffs (Colorado FOF ¶ 197), is an internal Google briefing document created in the context of Microsoft's November 2019 feature parity demand. Among other things, it reports the results of a Microsoft-specific feature survey performed by Google (the "Full AMER MSFT Specific survey"). While the Microsoft-specific survey reflected six customers who expressed interest in Microsoft auction-time bidding, the document states that *none* of the features identified in the Microsoft-only survey was in the top 20 features requested overall by SA360 customers. DX0179 at .009-.010.

327. Google later began to see more customer interest in Microsoft auction-time bidding (including from ██████ and ██████ at the end of 2020). The SA360 team accordingly worked on building Microsoft auction-time bidding functionality. Google FOF ¶¶ 1855-74.

328. Within a year of Google employees becoming aware of customer demand for Microsoft auction-time bidding, Google was developing an integration of it for SA360. Tr. 4427:1-14 (R. Krueger) (seeing demand starting in late 2020); PSX00444 (February 2021 spreadsheet designating Microsoft auction-time bidding as a priority for development along with 12 other features); PSX00572 at -749 (Project Byx development ongoing in November 2021).

329. Colorado Plaintiffs cite to PSX00613—an exhibit pushed into evidence without any witness testimony—in erroneously alleging that Google has “slow roll[ed]” the building of Microsoft auction-time bidding on SA360. Colorado Br. at 24; Colorado FOF ¶¶ 243, 279. This internal Google document from fall 2021 instead shows the SA360 team bending over backwards to try to accommodate Microsoft’s demand for auction-time bidding. The exhibit identifies key components missing from Microsoft Ads, including “fractional conversions” and “campaign level conversion overrides.” PSX00613 at -952; *see also* Google FOF ¶¶ 1828-32, 1869-71. The SA360 team concluded that building Microsoft auction-time bidding for SA360 without those components was “sub-optimal.” PSX00613 at -952-953. The SA360 team considered how to proceed in view of Microsoft’s lack of support and considered three options: (1) stop all work on Project Byx (integration of Microsoft auction-time bidding); (2) build a “sub-optimal” integration, which the team would then have to “fix when Bing is ready”; or (3) continue to “doing some minimal work to keep [Project Byx] ticking over” until “we see some of the promised features are implemented with externally available [application programming interfaces] by Bing.” PSX00613 at -956. The team deemed this third option “slow-roll Byx

implementation,” referring to the fact that it would “keep Byx moving” while waiting for Microsoft to build the functionality that was missing on its end. *Id.*

330. Colorado Plaintiffs also erroneously contend that Joan Braddi, Google Vice President of Partnerships, “stepped in” to derail the Microsoft-initiated escalation of Microsoft’s feature demands for SA360. Colorado Br. at 26-28. Ms. Braddi participated in the escalation process in good faith until Microsoft terminated it in fall 2020. Google FOF ¶¶ 1840-49. Ms. Braddi, whose job responsibilities included the Google-Microsoft relationship, became involved at the request of her supervisor, Don Harrison, who would be discussing the situation with Microsoft. Tr. 5022:13-24 (Braddi (Google)).

331. The escalation process was prolonged and impaired by Microsoft’s changing demands, in particular regarding Microsoft’s shifting requests concerning the sharing of internal Google conversion data. Google FOF ¶¶ 1846-47. In this regard, a Microsoft executive noted in an internal email that it “wouldn’t be wholly unfair” for Google to complain about these changes in Microsoft’s demands as a “late ask.” *Id.*; DX2013 at .001.

332. Colorado Plaintiffs’ attacks on Ms. Braddi miscast the evidence of record.

a) Plaintiffs besmirch Ms. Braddi for not having personal knowledge of SA360 at the time of the escalation, Colorado Br. at 26, but Ms. Braddi was of course advised by SA360 team members who were intimately familiar with the product. Tr. 5033:14-22 (Braddi) (“[W]hat I was told by product is they take feature priorities based on what advertisers want to see in the tool.”); PSX00436 at -267-268 (SA360 manager Amit Varia noting he “[r]an point for product during an escalation with [Microsoft], including negotiation strategy”). In this, she was similarly positioned to Jonathan Tinter, a Microsoft executive involved in the escalation, who testified that

SA360 was “not a topic where [he] had any expertise,” so he too “very much relied on the people” who did. Tr. 3158:23-3159:9 (Tinter).

b) Colorado Plaintiffs erroneously contend that “Ms. Braddi promptly decided that Google should ‘push back’ on Microsoft’s request for feature development,” and that she “depicted SA360’s primary purpose as serving Google, not advertisers’ interest.” Colorado Br. at 26. To the contrary, Ms. Braddi actually said “[w]e are well within our rights to push back; btw SA360 is for advertisers not for ad platforms” PSX00481 at -212; *see also* PSX00377 at -456 (“I will reiterate to Jon [Tinter (Microsoft)] our process is based on our customer (advertiser) request. All of the features MS has ask[ed] us for can be done by advertisers via MS/Bing UX. If advertisers were using the Bing UX heavily, we would think adv would request support in SA360, but they don’t. Our guess is advertisers don’t care (not using). Which is why we can’t invest in building features that won’t get used or is not heavily requested.”).

c) Colorado Plaintiffs misquote PSX00482 for the proposition that Ms. Braddi “viewed SA360’s primary purpose as driving increased ad spend on Google’s search engine.” Colorado Br. at 26; Colorado FOF ¶ 222. In that internal email, Ms. Braddi asks Google employees with more product knowledge to comment on her general understanding of Google’s “ad tools.” Contrary to Colorado Plaintiffs’ citation, Ms. Braddi is not discussing only SA360, but multiple Google products that serve multiple purposes, including an analytics tool (“GA360 [Google Analytics 360]”) not at issue. Ms. Braddi confirmed this at trial. Tr. 5024:18-5025:3 (Braddi) (“When you were referring to these tools, were you referring to SA360? A. There are two tools, SA360 and GA360.”). The document does not state that Ms. Braddi believed that SA360’s primary purpose was driving increased ad spend on Google’s search engine, and Colorado Plaintiffs’ characterization is factually inaccurate. PSX00482 at -215.

333. Colorado Plaintiffs selectively quote partial sentences of PSX01111 for proof that Google viewed Microsoft’s “requests for parity / feature development” as “not aligned with [Google’s] product or business goals.” Colorado Br. at 28; Colorado FOF ¶¶ 223, 276. Exhibit PSX01111, an internal briefing memorandum, repeatedly explains what this means—Google bases its product decisions on *customer demand*, which was lacking for the Microsoft features:

Google’s decisions on product roadmaps are based strictly on *customer requests* . . . We have also repeatedly told MS that we set our product features / priorities strictly based on our *customer requests / requirements* . . . SA360 prioritizes feature investments based primarily on *feedback from our customers* . . . The lack of advertiser interest in these features on Bing’s UI is also in alignment with *feedback from our SA360 customers* . . . Google has *limited resources*, and therefore our guiding principle is that *our product roadmap is strictly based on SA360 customer requirements / requests*.

PSX01111 at -457-58 (emphases added).

334. Unrebutted testimony explains that integration of bidding features such as auction-time bidding is significantly more complex and time-consuming than integrating other features, and that doing so for Microsoft was even more complicated. Tr. 6811:7-6812:8 (J. Krueger); Tr. 1426:15-1427:22 (Dischler); Google FOF ¶¶ 1794, 1872.

G. Colorado Plaintiffs Have Provided No Evidence of Harm to Microsoft, Advertisers, or Competition; Google’s Operation of SA360 Is Procompetitive

335. There is no evidence that the launch of Google Ads auction-time bidding on SA360 caused spend to be shifted away from Microsoft Ads to Google Ads on SA360.

336. Dr. Israel’s unrebutted testimony established that Microsoft Ads was losing share prior to the introduction of Google Ads auction-time bidding on SA360, and that this trend continued after the launch of the feature. He analyzed data to “see whether there was any break from trend in various statistical tests and found there was not.” Tr. 8981:19-8982:8 (Israel (Google Expert)).

337. Starting in late 2019, advertisers' spend on Microsoft Ads through SA360 was growing, and in 2019-2020 Microsoft Ads' share of ad spend on SEM tools grew. Tr. 7159:14-7160:1 (Baker (Colorado Plaintiffs' Expert)).

338. There is no evidence that any advertiser who used SA360 decided not to spend more on Microsoft Ads as a result of any delayed adoption of Microsoft auction-time bidding. Tr. 7177:24-7178:4 (Baker). To the contrary, advertisers like Home Depot could and did utilize the Microsoft auction-time bidding functionality through Skai or directly via Microsoft's native tool. Google FOF ¶ 1769.

339. Colorado Plaintiffs' purported estimate of lost Microsoft revenue lacks any foundation or methodology. Google FOF ¶¶ 1895-1915.

340. There is no evidence supporting Colorado Plaintiffs' proposed finding that SA360's share of the "SEM tool market" makes it a "choke point" on Microsoft's search advertising business. Colorado FOF ¶¶ 151-52. Colorado Plaintiffs' expert, Professor Baker, admitted that (1) the Plaintiffs have not defined a market for SEM tools, Tr. 7153:14-18 (Baker); (2) SA360 accounts for less than 25% of total U.S.-based search ad revenue on Microsoft Ads and Google, Tr. 7155:25-7157:15 (Baker) (discussing PSXD-11 at 73); and (3) Microsoft's share of SEM tool spend grew in 2019-2020. Tr. 7159:14-7160:1 (Baker).

341. Colorado Plaintiffs' experts provided no quantitative analyses to support their proposed finding that lack of feature parity on SA360 causes ad campaign management to be "more difficult and less efficient." Colorado FOF ¶ 131; Tr. 7006:16-7007:9 (Amaldoss).

342. No SEM tool provides feature parity across all ad platforms. Google FOF ¶¶ 1879-83; Tr. 1245:8-12 (Dischler).

343. Colorado Plaintiffs have not proven that “foreclosure caused by Google’s default distribution agreements depresses demand for advertising on rival GSEs,” thereby allowing Google to operate SA360 to preference Google. Colorado FOF ¶¶ 275.

344. Google’s operation of SA360 has increased search advertising spend on Microsoft, and there is no evidence demonstrating that overall U.S. search advertising revenue or overall output in U.S. search advertising was adversely impacted by Google’s operation of SA360. Google FOF ¶¶ 1887, 1889-90.

345. Google must be free to make business decisions about how to satisfy the needs and requests of its SA360 customers to compete effectively. Customer feedback is a critical element in the SA360 team’s decisions about which features to build and is important to Google’s attempts to compete. Tr. 4731:1-18 (Varia); Google FOF ¶¶ 1774-81.

VI. COLORADO PLAINTIFFS FAILED TO PROVE THAT GOOGLE’S ALLEGED CONDUCT HAS HARMED RIVAL GSEs’ ABILITY TO PARTNER WITH SVPS OR OTHER CONTENT PROVIDERS

346. Colorado Plaintiffs have not proven that Google’s actions have hindered rivals’ ability to enter into any partnerships, much less any partnerships that would have materially impacted the quality of Bing search results. To the contrary, Microsoft has reached content agreements with hundreds of companies across a broad range of industries. Google FOF ¶¶ 1738-39 (listing partnerships); Tr. 6215:7-10 (Barrett-Bowen (Microsoft)) (“Q. It’s fair to say that Bing has entered into lots of partnerships for lots of different content with lots of different companies? A. Correct.”).

347. Microsoft’s partnerships with SVPS like TripAdvisor allow Bing to obtain rich data to provide to users in response to local queries. Tr. 2678:2-9 (Parakhin (Microsoft)) (noting that in order to provide quality responses to local queries, “Bing had to form [a] strong partnership with TripAdvisor”); Tr. 6213:18-23 (Barrett-Bowen) (“Q. And Bing gets information

from Trip Advisor along the same lines, reviews and photos and things of that nature; correct? A. That's correct.").

Tr. 6192:20-6193:3 (Barrett-Bowen).

348. Other major SVPs also have entered into "data-for-traffic" partnerships with Microsoft. *See, e.g.*, Tr. 6188:21-6189:9 (Barrett-Bowen) (testifying that Microsoft receives data from Nextdoor in return for helping Nextdoor "drive active users" and "more registrations to their network," such that traffic "is a big part of the overall conversation"), 6191:4-20 ("").

349. Even GSEs significantly smaller than Bing have been able to reach content partnerships with major SVPs. Tr. 2051:18-2052:12 (Weinberg (DuckDuckGo)) ("When we do local, we're . . . working with TripAdvisor with that[,] as well as we do some of our own crawling for that[,] as well as work with another company called Factual."); Tr. 3725:19-3726:16 (Ramaswamy (Neeva)) ("[W]e had relationships with a number of companies for local business information, for things like stock information, for weather. . . ."), 3726:17-18 ("Q. Did you have an arrangement with Yelp? A. We had an arrangement with Yelp, yes.").

350. Entering SVP partnerships is not the only way for GSEs to obtain rich data for search results. For example, Google's Google Business Profile program (formerly, Google My Business) has demonstrated for nearly 20 years that GSEs can work directly with merchants to collect and display accurate information about their locations, hours, and services. Tr. 8239:20-8241:4 (Reid (Google)).

351. Colorado Plaintiffs have not proven that if Microsoft had received an unspecified increase in user search queries, Microsoft “would be able to enter into more favorable partnerships.” Colorado FOF ¶ 295.

352. Colorado Plaintiffs’ description of Bing’s partnership with Yelp as “fail[ing] in part because of Bing’s small scale” is incomplete. Colorado FOF ¶ 294. Colorado Plaintiffs omit Yelp’s other major concern: that Microsoft was using its data in violation of the parties’ agreements. Google FOF ¶ 1741(1)(d). Yelp had previously terminated its agreement with Google over the same concern. Stoppelman (Yelp) Dep. Tr. 215:17-216:17 (“[Microsoft] similarly want[ed] to abuse our content, use it in ways that don’t drive traffic to Yelp, much like Google tried to abuse Yelp and prevent traffic from flowing. . . .”).

353. Microsoft’s scale has not prevented it from recently discussing a new agreement with Yelp. Tr. 6212:6-12 (Barrett-Bowen) (“[W]e’re having discussions with Yelp. They’re interested in working with us.”). In short, there is no evidence that Microsoft’s dealings with Yelp have been impacted by any alleged Google conduct.

354. Colorado Plaintiffs claim that “[m]ore partnership options” would lead to consumer differentiation and more innovation, citing hypothetical collaborations involving Microsoft and Expedia and TripAdvisor. Colorado FOF ¶ 300. But Microsoft already has content partnerships with Expedia and TripAdvisor, and Colorado Plaintiffs have identified no Google conduct that would impede the hypothetical innovations posited. Tr. 6214:1-2 (Barrett-Bowen) (confirming Microsoft-Expedia partnership), 6213:10-11 (confirming Microsoft-TripAdvisor partnership).

355. Google’s approach to SVP partnerships in Japan, Colorado FOF ¶ 298, shows only that it sought to accommodate Japanese consumers’ distinct preferences. Tr. 7299:25-

7300:23 (Raghavan (Google)) (“Companies like us tend to build a product and then replicate it in as many places as possible. . . . But there are many cultures where the behavior is quite distinct. . . . [A]nd the ones that are under special focus at this point are . . . Japan”); Tr. 7255:12-23 (Baker) (“Q. Did you evaluate whether Google has more significant partnerships in the U.S. than it has in Japan? A. No. . . . Q. . . . Do you have an understanding of whether Google search quality in the U.S. is greater [than] its search quality in Japan? A. That’s correct. I don’t know.”).

VII. THE COURT SHOULD REJECT PLAINTIFFS’ ACCUSATIONS REGARDING GOOGLE’S DOCUMENT PRESERVATION PRACTICES

356. Plaintiffs seek to rewrite history in their contention that Google’s long-time chats retention practices—of which they were on notice since the beginning of this litigation—evidence the purposeful “destruction” of evidence. DOJ Br. at 75-79. And, recycling arguments from their unsuccessful sanctions motion filed in Spring 2022 (*see* May 12, 2022, Minute Order), Plaintiffs spin instructions to Google employees to use care in their written communications into supposed “concealment” of evidence. DOJ Br. at 75-79. There is no basis, in fact or law, to impose sanctions on Google. Each of the Google witnesses who was questioned on these matters at trial confirmed that there was no intentional destruction of evidence, and no evidence was presented that could support the conclusion that Google concealed or destroyed relevant evidence with the intention of gaining some advantage in the litigation. Google has produced millions of documents, including all manner of formal business documents as well as more informal communications such as email, and there is no reason to believe that the record before the Court is anything less than complete.

357. Tellingly, it is only in Plaintiffs’ brief—not in their Proposed Findings of Fact or in their Conclusions of Law—that they even request sanctions, a tacit admission that there is neither a factual record nor a legal basis for such a request. DOJ Br. at 75-76 (requesting “a

presumption that deleted chats were unfavorable to Google regarding the intent behind and effect of Google's contracts; a presumption that Google's proffered justifications are pretextual; a presumption that Google intended to maintain its monopoly; a prohibition on argument by Google that the absence of evidence is evidence of its absence; and any other relief the Court finds proper"). They provide no support whatsoever for any sanction related to the supposed "misuse" of attorney-client privilege, and Google is aware of no legal basis for such a finding. With respect to Google's Chat retention policies, Plaintiffs identify no specific subject matter areas where they believe they did not receive fulsome discovery, nor do they provide any other basis for the Court to enter the requested sanctions.

A. Plaintiffs Identify No Prejudice from Google's Good-Faith Chats Policies

358. Far from supporting Plaintiffs' motion for sanctions related to Google's Chat retention policies, the trial testimony confirmed that the motion is without merit. In particular, there is no reason to believe that history-off chats created after notice of the DOJ investigation in 2019 and not otherwise preserved and produced contained material information of any significance to resolving Plaintiffs' claims. Nor is there any evidence that there was any intentional effort by Google to deprive Plaintiffs of the use of information in this litigation; after all, Google disclosed to Plaintiffs the very approach to chats preservation that they now challenge long before Plaintiffs filed their original motion. *See* ECF No. 529 at 7-17; ECF No. 576-1 at 1-2.¹⁶

359. Plaintiffs' proposed findings obfuscate these facts, and are designed to suggest—without supportive evidence, let alone actual proof—that some relevant information was lost.

¹⁶ Google incorporates by reference its prior briefing and the declarations of its witnesses on the matter. ECF Nos. 529, 576-1, 593, 603; UPX8069-82.

a) Jamie Rosenberg's cited testimony was not about search revenue share but rather Play revenue share, a detail Plaintiffs omit. DOJ FOF ¶ 1206.

b) Ryan Krueger testified that he misunderstood Google's legal hold, and that while he preserved documents and emails, he did not realize he needed to preserve chats by turning history on. Tr. 4338:19-4339:8 (R. Krueger (Google)), 4339:24-4340:8. There is no basis, however, to find that any unique, material information was lost (nor do Plaintiffs identify any, DOJ FOF ¶¶ 1207, 1209). For the short period that Mr. Krueger was under legal hold and performed any work related to SA360 auction time bidding, "[a]ny decisions [he] was proposing would have to also be in email or docs that have explicit sign off from either [his] manager or the relevant senior stakeholder on the product." Tr. 4336:1-9 (R. Krueger), 4437:9-17; *see also* Tr. 4307:12-17 (R. Krueger), 4434:21-4435:24.

c) Amit Varia testified that the matters identified in the chat introduced as Exhibit PX01195 would have been discussed elsewhere; and contrary to Plaintiffs' description (DOJ FOF ¶ 1207), he did not testify that he "routinely" used Chat to discuss SA360's feature priorities and roadmaps. Tr. 4703:23-4704:9 (Varia (Google)), 4706:21-4707:22.

d) Plaintiffs cite Mr. Pichai's testimony in supposed support of the contention that, "[t]o ensure communications would not be produced in discovery, Google employees proactively asked coworkers to change their chat settings to 'history off' to conduct substantive and sensitive business conversations," DOJ FOF ¶ 1209; *see* DOJ FOF § IX.A.4, but Mr. Pichai expressly rejected exactly the conclusion Plaintiffs urge and explained that Plaintiffs' insinuation that the subject matter referenced in UPX0973 was relevant to this litigation was wrong. Tr. 7739:21-7740:6 (Pichai), 7742:3-5. In fact, as Mr. Pichai confirmed when discussing UPX0973, the matter at issue related to an external event regarding Google Cloud. Tr. 7738:15-7739:5 (Pichai

(Google)), 7802:11-7803:4 (explaining that DX2034, notes on Mr. Pichai’s keynote for a Google Cloud event, is the document discussed in UPX0973).

e) Plaintiffs’ lone claimed support for their assertion that “Google employees on legal hold used ‘history off’ chat to discuss matters related to this litigation,” DOJ FOF ¶ 1214, is an email that pertains to contractual negotiations with Samsung about sharing Google *Play* (not search) revenue on Samsung watches and other wearable devices using WearOS (an Android-based operating system for wearable devices). Tr. 975:17-976:2 (Kolotouros (Google)) (discussing UPX0710). This document had nothing to do with Google’s MADAs or RSAs with Samsung that remain at issue in this case. Tr. 976:3-7 (Kolotouros).

360. Beyond confirming the lack of any evidence of prejudice, trial testimony also proved that Google did not act with an intent to deprive Plaintiffs of the use of relevant information in the litigation. Plaintiffs point to the 2008 decision to implement a history-off Chat default, DOJ FOF ¶ 1193 (citing UPX1101), but a decision made over fifteen years ago provides no basis for a finding of intent under Fed. R. Civ. P. 37(e)(2). ECF No. 529 at 35-36. The cited 2008 email, moreover, specifically instructs employees that “[i]f you’ve received notice that you’re subject to a litigation hold, and you must chat regarding matters covered by that hold, please make sure that those chats are ‘on the record.’” UPX1101 at -619.

361. Finally, Plaintiffs’ long-standing knowledge of exactly the policies they belatedly challenged (*see* ECF No. 529 at 7-17; ECF No. 576-1 at 1-5) belies the fundamental premise of their motion—that chats were such a likely source of unique relevant evidence that Plaintiffs would have further pursued chats during discovery had they only known Google’s preservation practice. It further undermines any argument that Google acted with an intent to subvert the discovery process here; rather, Google disclosed its approach to chats to these Plaintiffs.

B. Plaintiffs Identify No Prejudice From Google’s Privilege Labels

362. Plaintiffs’ Proposed Conclusions of Law make clear their request for sanctions is made pursuant to Rule 37(e), “Failure to Preserve Electronically Stored Information.” DOJ COL at 34-35. Rule 37(e) provides no basis for any sanction related to Google’s policies with respect to attorney-client privilege labels, as there is no evidence that any ESI that “should have been preserved in anticipation or conduct of litigation” has been lost. Fed. R. Civ. P. 37(e). Plaintiffs do not contend otherwise.

363. For all of the reasons previously explained by Google, including with supporting declarations, there is no evidence whatsoever that the practices Plaintiffs challenge led to any missing evidence. Copying in-house counsel on emails or marking emails “privileged” did not spoliage emails or otherwise exempt them from scrutiny during discovery. Plaintiffs do not argue otherwise; their contention is merely that a certain number of documents were initially withheld as privileged, prior to re-review. DOJ Br. at 79.

364. Plaintiffs mischaracterize testimony and exhibits—15 of which were not used with any witness at trial, and 21 of which predate notice of any investigation preceding this litigation, often by many years—to suggest that every discussion around confidentiality is evidence of intent to “circumvent[] Google’s document production obligations.” DOJ Br. at 78. As before, Plaintiffs misread legitimate guidance to Google employees about how to communicate with in-house counsel to request legal advice on subjects with obvious legal implications. Google will not restate its prior briefing here, but incorporates it by reference. ECF No. 327.

365. Google previously addressed the slide with confidentiality instructions (appearing in identical form in UPX0320 and UPX0697, cited in DOJ FOF ¶ 1222; *see also* DOJ Br. at 78-79) presented to Google employees dealing with contract negotiations during a two-day training,

and Plaintiffs' recycled arguments fail for the same reasons previously explained. *See* ECF No. 327 at 9-12; ECF No. 327-2 (Veer Decl. ¶¶ 10-12, 15 (addressing UPX0697)).

366. Plaintiffs' assertion that "Google employees follow their training and include attorneys on 'any written communication regarding rev share and MADA,' even when not requesting legal advice" (DOJ FOF ¶ 1223) is unsupported. Plaintiffs largely rely on documents that they either did not use at trial—notwithstanding that the relevant witnesses testified at trial—or that they did use but did not ask the witness any questions regarding the basis for the attorney-client privilege notation, and which predate the DOJ's notice of investigation in this matter.

367. In the handful of instances where Plaintiffs cite testimony given by witnesses about specific documents, they misstate the testimony. Most notable is the suggestion that Jim Kolotouros testified that "as a 'loyal' Google employee, he worked 'to protect' the company in litigation." DOJ FOF ¶ 1223. Plaintiffs completely mischaracterize the line of questioning. *See* Tr. 958:4-959:6 (Kolotouros). Plaintiffs likewise misstate the testimony of Anna Kartasheva—she did not testify that she "mark[ed] email attorney client privileged *because* it 'discussed a revenue share proposal,'" DOJ FOF ¶ 1223 (emphasis added), but rather because both in-house and outside counsel were advising Google on the matter. Tr. 2866:9-25 (Kartasheva) (the references in her testimony to "Kate" and "Rosie" are to Google in-house lawyers Kate Lee and Rosie Lipscomb).

368. Plaintiffs even misdescribe Mr. Pichai's testimony. DOJ FOF ¶ 1224. At deposition, Mr. Pichai was asked, "So there *may* have been some times when you *accidentally* put Mr. Walker's name and asked for advice when you weren't really seeking legal advice, but you were seeking confidentiality for the document, correct?" and answered, "It's a *possibility*." DOJ FOF ¶ 1224 (citing Tr. 7728:1-12 (Pichai)) (emphases added). At trial, Mr. Pichai

confirmed that typically, “if I wanted Mr. Walker’s advice, I would add him and ask him for advice.” Tr. 7726:25-7727:6 (Pichai). He further explained that where he marked emails privileged to indicate confidential, he meant “[c]onfidential as in the internal context of the company, not from a legal discovery process.” Tr. 7726:12-16 (Pichai). His testimony does not show any effort to shield documents from discovery.

369. The vast majority of exhibits cited in supposed support of Paragraph 1225 were likewise not used with any witness at trial, notwithstanding that a number of them involve witnesses who testified at trial. Rather than ask the witnesses about their intentions, Plaintiffs rely on their own misinterpretations. The two exhibits that were used with a witness, UPX0151 and UPX1101, are from 2003 and 2008, and neither supports Plaintiffs’ claims.

370. Finally, Plaintiffs make much of the fact that Google encourages employees to use “search share” or “query share” rather than “market share” because of concerns about antitrust liability. DOJ FOF ¶ 1226. However, as Dr. Varian explained, precision is warranted because “query share” and “market share” are not interchangeable. Tr. 210:21-216:7 (Varian (Google)). The fact that “market share” is “used in a very technical sense in the law and in a different sense in business and economics” further underscores the importance of using the correct terminology. *Id.* Indeed, Plaintiffs’ repeated attempts to mischaracterize and misinterpret the wording in Google documents produced in this litigation demonstrates why Google’s admonitions to employees to write clearly and precisely were appropriate.

Dated: March 22, 2024

Respectfully submitted,

WILLIAMS & CONNOLLY LLP

By: /s/ John E. Schmidlein

John E. Schmidlein (D.C. Bar No. 441261)
Benjamin M. Greenblum (D.C. Bar No. 979786)
Colette T. Connor (D.C. Bar No. 991533)
680 Maine Avenue, SW
Washington, DC 20024
Tel: 202-434-5000
jschmidlein@wc.com
bgreenblum@wc.com
cconnor@wc.com

WILSON SONSINI GOODRICH & ROSATI P.C.

Susan A. Creighton (D.C. Bar No. 978486)
Franklin M. Rubinstein (D.C. Bar No. 476674)
Wendy Huang Waszmer (D.C. Bar No. 1631078)
1700 K Street, NW
Washington, DC 20006
Tel: 202-973-8800
screighton@wsgr.com
frubinstein@wsgr.com
wwaszmer@wsgr.com

ROPES & GRAY LLP

Mark S. Popofsky (D.C. Bar No. 454213)
2099 Pennsylvania Avenue, NW
Washington, DC 20006
Tel: 202-508-4624
Mark.Popofsky@ropesgray.com

Matthew McGinnis (admitted *pro hac vice*)

Prudential Tower
800 Boylston Street
Boston, MA 02199
Tel: 617-951-7703
Matthew.McGinnis@ropesgray.com

Counsel for Defendant Google LLC