

**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 POST-TRIAL BRIEF

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INTRODUCTION

Google’s mission, “to organize the world’s information and make it universally accessible and useful,” is a never-solved problem. As the evidence at trial demonstrated, Google’s relentless commitment to improving online search in the face of extraordinary competition from a wide array of online rivals is as strong today as ever. Started out of a garage by Stanford graduate students over twenty-five years ago, Google was able to surpass much larger and well-established competitors that included Internet giants like Yahoo, AOL and Alta Vista, as well as Microsoft, one of the richest corporations in the world that for many years has contractually required the preload of its various search engines on Windows personal computers. Google surpassed these well-established rivals because of the talent, ingenuity, and hard work of an army of Google computer scientists and engineers—which today includes more than 15,000 *PhDs*.

As the evidence at trial established, Google has continued over the years to make industry-leading breakthroughs in information retrieval and artificial intelligence technologies that have advanced Google’s mission. These innovations have greatly improved search quality and powered extraordinary increases in search output—all at no cost to consumers. The Court also heard evidence about Google’s enormous investments in other innovations like the Android mobile operating system and the Chrome browser—technologies that Google provides at no cost and that have generated substantial procompetitive benefits for consumers, including improved search quality, increased search output, extraordinary improvements in browser technology, and superior mobile phone technology at lower mobile device prices.

Google’s unceasing hard work and commitment to innovation have reaped tremendous success. The evidence conclusively established that Google is the highest quality, most popular search engine in the United States, with the highest general search engine advertising

monetization. The evidence additionally established that the partners who choose to contract with Google to preload Google Search as the default search engine overwhelmingly prefer Google to any other search engine. Yet Plaintiffs would have Google punished and uniquely handicapped from competing to win these revenue share agreements. The purpose? To prop up lesser general search engine competitors in the hopes that will give them greater incentives and opportunities to improve their search quality—despite a long track record of failing to achieve such success in the past, even after they won search defaults or otherwise acquired search query scale through agreements with other search engines like the 2009 Microsoft-Yahoo agreement. That result is antithetical to U.S. antitrust law. Punishing a successful firm that has out-innovated its competitors to the benefit of consumers *harms* competition, not the other way around. For it is axiomatic, “The successful competitor, having been urged to compete, must not be turned upon when he wins.” *United States v. Microsoft Corp.*, 253 F.3d 34, 58 (D.C. Cir. 2001) (en banc) (per curiam) (quoting *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430 (2d Cir. 1945) (Hand, J.)).

The agreements Plaintiffs challenge date back to the very first release of Apple’s Safari browser and Mozilla’s Firefox browser, and to the early days of Android—when only a tiny fraction of online search queries originated from these browsers and devices. The complained-of terms in these long-standing agreements are also common in the industry. Microsoft, for instance, has long had exclusive preload search distribution deals with Windows computer manufacturers (known as original equipment manufacturers or “OEMs”), where Microsoft provides financial incentives in its licensing of the Windows operating system in exchange for an agreement to set Microsoft’s search engine as the only preinstalled search engine on the computer. As mobile phones began to incorporate online capabilities, the OEMs and carriers

who manufacture and sell those phones likewise contracted to set a single search engine as the default on the devices, in exchange for a percentage of the advertising revenue the search engine generated from search queries on the device. Microsoft and Yahoo competed for and won some of those deals many years ago, including on Android devices. But after they won the deals, their partners lost, because consumers switched to Google in droves (resulting in lost OEM and carrier search revenues) and consumer and technology press reviews were uniformly negative.

Like its rivals, Google seeks to promote its search engine and make it easily available to consumers. Occupying the default position on a browser, mobile device, or desktop computer is valuable—search engines are willing to pay for defaults because of the additional usage and promotion they receive from it. Much of Plaintiffs' cases focus on the aggregate dollar amount Google pays to its browser and Android partners, suggesting that this somehow evidences harm to competition. The evidence at trial demonstrated how backwards Plaintiffs have it—the dollar amounts that Google pays to its partners reflect competition against other search engines who also offer payments to be the default, but as importantly, these payments reflect that Apple and Android devices have proven to be extraordinarily popular with consumers and widely used by them to search online, and that Google's search advertising technologies have proven to be incredibly valuable to advertisers. The billions that Google pays each year to search partners is a textbook example of a thriving competitive marketplace, where search and search advertising quality and output have continually improved over the very time period where Plaintiffs try in vain to find antitrust violations.

Both the fact and expert witness testimony from trial could not have been more clear—defaults alone do not guarantee marketplace success or sustained usage by consumers. Where an inferior search engine is set as the default, a large proportion of users switch away. Even when a

search engine wins a default, it must compete to keep users happy, and other search engines can compete to win users away. The evidence at trial also showed that users conduct their searches through a number of different access points on mobile devices; by no means are searches confined to a preloaded browser or search widget and competitors can compete for searches on these other access points. These facts, among others, underscore that competition between general search engines does not end with the contest for default placement, and that Google's agreements do not foreclose rivals from any share of Plaintiffs' alleged markets, let alone a substantial share.

The conduct Plaintiffs challenge has generated enormous benefits for competition and for consumers. The evidence at trial demonstrated that Microsoft has for many years pitched Apple to make Bing the default search engine instead of Google for the Safari browser. In each instance, Apple took a hard look at the relative quality of Bing versus Google and concluded that Google was the superior default choice for its Safari users. That *is* competition. Microsoft should not be heard to complain that Google has been too successful or that Microsoft simply cannot invest to improve its search quality *until* Apple replaces Google with Bing as the Safari default. Similarly, Mozilla regularly evaluates whether another general search engine would be a better choice than Google for its Firefox browser. The evidence established that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED], handicapping Google by prohibiting it from

competing for browser defaults would harm, not help, competition—it would reduce the

incentives for competitors to try to out-innovate Google, thereby reducing search quality and search output.

On Android, too, Google's agreements have promoted search competition and increased search output. Google's agreements ensure users have easy access to Google Search and enable OEMs and carriers to share in the revenue that Google receives from searches conducted on the devices they sell, thereby lowering the price of mobile devices and incentivizing partners to promote and grow online search. Google's agreements also fuel Android smartphone competition with Apple, which in turn expands search output—to the benefit of search competition and consumers.

Plaintiffs' Sherman Act claims fail for the additional, independent reason that they have not proven that Google enjoys monopoly power in any relevant antitrust market. Plaintiffs' proposed markets exclude many of Google's closest competitors, ignoring the realities of how consumers find information online and how advertisers access opportunities to attract the attention of those consumers. Consumers do not rely on general search engines for all of their information needs—rather, as the evidence at trial demonstrated, consumers search using the provider that best meets their needs, whether it be a general search engine, specialized search engine (often known as a specialized vertical provider), or social media channel. Users seamlessly switch between these different providers, depending on the type of information they seek. If these services meet a user need for information better than Google, users turn to those alternate information sources; and where users go, so do advertisers. As the Court heard from the executives and engineers who testified at trial, Google is keenly aware of these realities and is continually innovating in response, including by building vertical search features and by finding new ways to present information and improve search ads technologies. Never has the

pace of technology moved faster than today, and the tremendous growth in both search queries and digital advertising cannot be squared with Plaintiffs' conception of the relevant markets and Google's place in them.

Finally, the claim brought only by the Colorado Plaintiffs relating to Google's operation of its SA360 search engine marketing tool fares no better than Plaintiffs' challenge to Google's search distribution agreements. As an initial matter, Google has no legal duty to deal with a competitor like Microsoft where, as here, there was no prior course of dealing with regards to the disputed features that Microsoft demanded that Google integrate into SA360. Moreover, when Microsoft demanded the integration of a host of Microsoft Ads features into SA360, Google responded consistent with its ordinary course practices, taking into account advertiser demand, engineering feasibility, and the resources available to build the technologies. Accordingly, even if Google had a duty to deal, the evidence established that Google had legitimate business justifications for responding as it did. In any case, the Colorado Plaintiffs failed to establish evidence of harm to competition in any market: Google has already built and launched three of the four Microsoft Ads features at issue, and the fourth is currently being tested for launch. Punishing Google's conduct here would harm, not promote, competition by diminishing Google's incentives to offer and improve its cross-platform SA360 tool in the manner most responsive to advertisers' demands.

Judgment should be entered in favor of Google on all counts.

I. PLAINTIFFS' PROFFERED RELEVANT ANTITRUST PRODUCT MARKETS FAIL.

A monopolization claim requires showing proof of the relevant market over which the defendant allegedly holds monopoly power. *See Microsoft*, 253 F.3d at 50. Plaintiffs arrive at their calculations of Google's supposed market share by excluding from their alleged markets all

manner of competitors to Google Search and Google Search Ads, large and small. The large include household names with multi-billion-dollar valuations—the likes of, for example, Amazon, Facebook, Instagram, TikTok, Expedia, Airbnb, Booking, Thumbtack, and Yelp. The small(er) are too numerous to name. The number and diversity of Google’s competitors reflect the reality that online search and digital advertising are incredibly dynamic spaces with seemingly endless potential for growth, propelled by the explosion in the amount of time Americans spend online.

Google and rival general search engines are not the only companies who users turn to for answers to their online queries. So-called specialized vertical providers (“SVPs”) have long found that they can monetize a differentiated product, which focuses on answering user queries around a particular topic. To take an analogy used at trial, while Google and other general search engines strive to be the Swiss Army knife of search, SVPs offer tools specific to the particular search task. Where an SVP provides a faster or more useful or more engaging experience, it wins users for that category of queries. SVPs have been tremendously successful, and there are no signs of that slowing. To name just one example referenced at trial, the online company Rover.com, specializing in pet care services, was acquired in November 2023 for \$2.3 billion. Further, many users today, and younger users in particular, use social media sites like Facebook, Instagram, TikTok, and X (formerly Twitter) to search for information and online content of interest to them. These social media sites are incredibly popular and successful.

Google’s search advertising business likewise faces intense competition from companies outside Plaintiffs’ cramped markets. General search engines and other online search advertising companies are by no means the only digital advertising platforms that help advertisers connect with consumers likely to be interested in their products. The success of Meta (which grew its

annual digital ads revenue more than *fourfold* between 2015 and 2021, to upwards of \$50 billion) and TikTok (which launched in the U.S. in 2018 and surpassed \$2 billion in digital ads revenue by 2021) alone underscores the competitive pressure on Google.

These companies collectively exert competitive pressure on Google to better serve its users as well as its advertisers, without which it could not provide free search. Both Google and its competitors are well aware of the fact that users and advertisers can and do substitute away from Google where someone else can better solve their information need, or better connect users with advertisers that have products or services to sell. Yet Plaintiffs would have this Court ignore all of those competitive threats. To do so would violate the law’s instruction that relevant markets must encompass “the area of effective competition,” “[t]ypically . . . the arena within which significant substitution in consumption or production occurs.” *Ohio v. Am. Express Co.*, 138 S. Ct. 2274, 2285 (2018) (internal quotation marks omitted).

A. Plaintiffs’ Proffered Product Markets Improperly Exclude Many of Google’s Most Significant Competitors.

1. Consumer online search is not confined to general search engines.

The relevant user-side product at issue in this case is providing online responses to a user’s query. Tr. 8380:7-8381:2 (Israel (Google Expert)) (“[T]he product on the user side is really answering questions, answering queries, and so the competition we’re studying is who is competing to answer those questions, those queries.”); FOF ¶ 921. Google’s business model (and that of other general search engines) is to strive to answer every user query, whatever the topic. FOF ¶¶ 77, 636-51, 968. Countless other companies follow a different model, whereby they focus on providing users with information in response to queries about a particular topic, for example, hotels or food delivery. FOF ¶¶ 652-66. Social media channels such as Instagram and TikTok follow yet another model that provides users a variety of ways to access information,

including in response to user queries. FOF ¶¶ 682, 928, 971-87. When a user poses a query, sources of competition include all alternatives able to meet the user’s needs. FOF ¶¶ 652-94, 920-87.

Plaintiffs exclude SVPs and social media channels from their product market on the ground that those providers are not “one-stop-shops” endeavoring to answer *every* query a user may have. A relevant market, however, is not confined to firms that follow the same model as the alleged monopolist, but rather “the area of effective competition.” *Am. Express*, 138 S. Ct. at 2285 (internal quotation marks omitted). In other words, courts require that “the relevant market . . . include *all* products ‘reasonably interchangeable by consumers for the same purposes.’” *Microsoft*, 253 F.3d at 52 (emphasis added); *see also FTC v. Facebook, Inc.*, 560 F. Supp. 3d 1, 14 (D.D.C. 2021) (relevant market in a monopolization case “must use, as its denominator, all products ‘roughly equivalent to another for the use to which they are put’” (brackets omitted)). Because users turn to all manner of search providers for their information needs, not just general search engines, and because those other search providers exert intense competitive pressure on Google as a result, Plaintiffs’ product market is legally infirm.

a. Plaintiffs’ general search services product market cannot be squared with user search behavior.

Plaintiffs’ “one-stop-shop” general search services product market suffers numerous flaws. To begin with, user search behavior reveals that users do not conduct “one-stop-shop” searching, that is, search across a variety of topics in one sitting using a single search provider. Instead, when searching online, users typically search for information in single-topic visits. Where a search visit includes more than one query, the queries are usually topically similar or otherwise within the same vertical segment. Tr. 8419:11-15 (Israel); DXD-29.025-.026; FOF ¶¶ 922-24; *see also* FOF ¶ 940.

Plaintiffs’ one-stop-shop thesis also ignores that users select a search provider on a query-by-query or vertical basis, and are able to seamlessly switch between providers. As explained by Dr. Mark Israel, “People decide, as they need to search, who can fulfill that query[,]” and “each query made by a user is a meaningfully distinct choice about where to go get information.” Tr. 8392:2-8393:19 (Israel); FOF ¶ 925. This observation resonates with lived experience: think of Zappos for finding shoes, or Expedia for flights. It is also confirmed by Dr. Israel’s Google panels data analysis, which shows that users make different search decisions across the different verticals: reliance on general search engines, as opposed to SVPs, differs significantly by vertical. DXD-29.018; FOF ¶¶ 926-29. Because users make a choice for each category of queries, if another online firm can provide more helpful information than Google for such queries, Google stands to lose those queries to competition. FOF ¶¶ 680-94, 920-87. This reality is all the more true with the proliferation of mobile apps, where users have immediate access to a different app (or apps) for different information needs—and can easily bypass general search engines altogether. FOF ¶¶ 179, 665, 672, 682, 932-41, 983-87.

That users make separate decisions about where to find information online makes sense given that user information needs differ across vertical categories. FOF ¶¶ 636-54, 920-30. And because user information needs differ, the competition differs across verticals. FOF ¶¶ 652-66, 680-94, 945-67. Particularly in verticals where queries are monetizable, websites and mobile apps offered by countless other companies compete with Google to provide responses to user queries. FOF ¶¶ 635, 652-55, 930-44. Consumers turn to these competing products for the same purpose that they use Google: namely, to answer their discrete questions. That users may *start* on a general search engine does not render SVPs uncompetitive for those queries—SVPs exert competitive pressure on Google to provide a more compelling or useful experience, lest Google

lose the follow-on queries. FOF ¶¶ 680-94, 952, 961, 967. Indeed, the ability of SVPs to tailor their experiences and results to particular vertical categories or sub-categories enables them to be *more* competitive substitutes for Google than other general search engines. FOF ¶¶ 941-44. SVPs can compete within a segment, without having to build systems to answer queries across the entire landscape, and are able to take advantage of their narrower subject matters to direct their investment and innovation most effectively. *Id.*

Dr. Israel's query analysis confirmed that users easily can and do go to SVPs for their information needs in the verticals served by those providers, and further that these search providers are the closest competitive constraints on Google Search in their areas of focus. FOF ¶¶ 953-65. In particular, his analysis revealed that Google faces greater competition for users with shopping queries from Amazon than it does from Microsoft's Bing, and greater competition for users with local queries from Yelp than it does from Bing. FOF ¶¶ 960, 964.

Figure 1 (DXD-29.020):

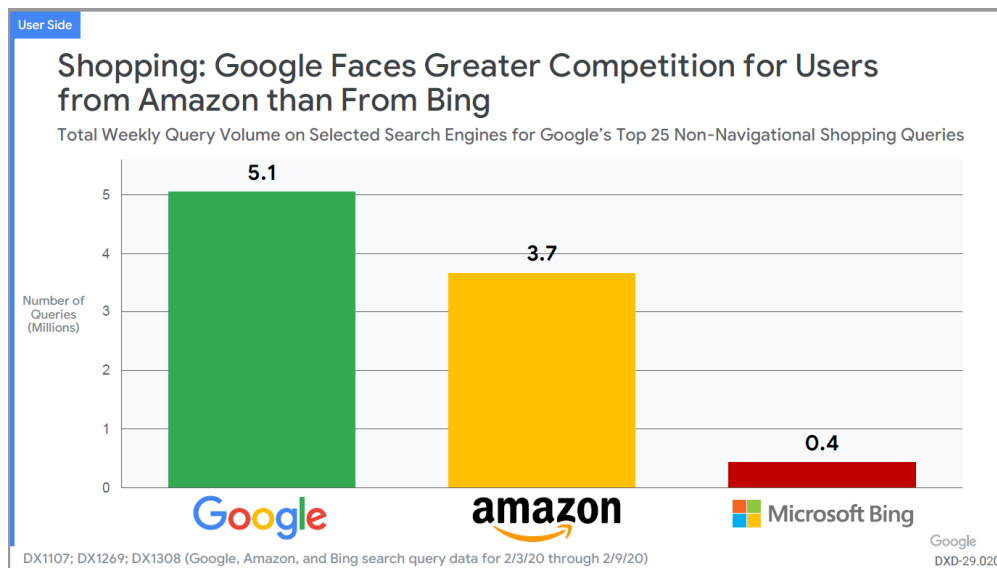
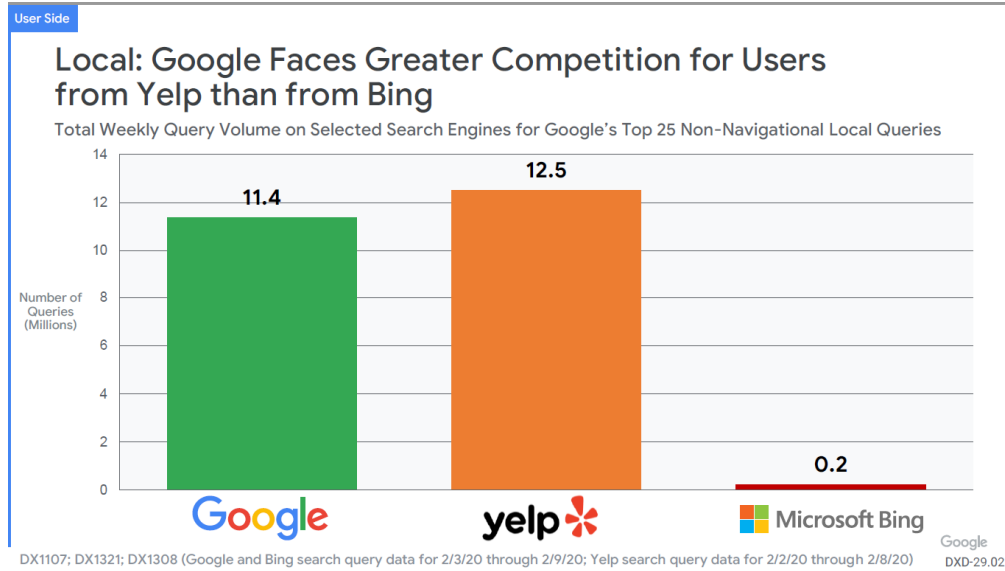


Figure 2 (DXD-29.021):

Indeed, Yelp received more local queries than Google did. These competitors constrain Google for queries in these information categories to a larger extent than Bing, and thus a market that includes Bing should also include Amazon and Yelp.

Social media channels, for their part, have their own advantages. Most notably, social media channels have wildly popular mobile apps, on which users spend enormous amounts of time, and which provide a convenient place for users to perform a broad range of searches while on the channel. FOF ¶¶ 983-87.

In sum, because Plaintiffs' proposed product market is at odds with how users search for information, it is not a valid antitrust market.

b. Plaintiffs' general search services product market is also contradicted by the conduct of both Google and its competitor search providers.

Trial testimony of Google and third-party witnesses confirms that Plaintiffs' proposed product market ignores on-the-ground competitive realities.

Google’s own internal analyses and product development—in particular, Google’s development of vertical search experiences and Google’s response to the rise of social media apps—confirm that SVPs and social media channels serve as strong competitive constraints on Google Search. Google developed vertical search experiences in response to competition from SVPs successfully “cherry-picking” categories of queries from general search engines like Google, causing a decline in Google search queries in certain important commercial verticals. Tr. 9155:12-9156:7 (Holden (Google)); FOF ¶¶ 685-94. For example, with respect to travel-related queries, Richard Holden, former VP for Google Travel, testified that Google’s query analysis signaled that Google was “losing relevance with consumers,” who “were going elsewhere to get their answers related to travel queries.” Tr. 9153:13-9154:2 (Holden); DX046.007; FOF ¶ 689. Google devoted substantial resources to building out its travel vertical in response to this demand, and continues to focus substantial efforts on it today. FOF ¶¶ 693-94; *see also* FOF ¶¶ 719-60. Today, Google views its key competitors for travel queries as Booking.com, Expedia, TripAdvisor, Kayak, Trivago, and Airbnb, with increasing competition from social media platforms like Facebook and TikTok. Tr. 9189:10-23 (Holden); FOF ¶¶ 694, 945-52. Testimony regarding Google’s shopping and local verticals likewise confirms that SVPs in those verticals serve as strong competitive constraints on Google. Tr. 8252:19-8253:13 (Reid (Google)) (describing the dramatic increase in competition in the local vertical since Google first launched local search, driven in large part by the proliferation of mobile apps); *see also* Tr. 8251:19-8252:18 (Reid); Tr. 7314:2-7315:6 (Raghavan (Google)) (describing competition with Amazon); FOF ¶¶ 694, 953-67.

Social media channels such as Facebook, Instagram, Pinterest, and TikTok are a significant source of competition for Google as well, as those social media channels are an

increasingly popular place for users to turn to for their information needs. FOF ¶¶ 971-87; Tr. 8202:11-8203:5 (Reid). The increasing usage of social media channels, including for the sort of queries that had not historically been thought of as a target of social media channels, was the focus of a 2021 presentation that Vice Presidents of Search Elizabeth Reid and Pandu Nayak gave to the Alphabet Board. FOF ¶¶ 976-77; Tr. 8203:23-8210:18 (Reid). Among the findings presented to the Board was Google’s user research that showed “63% of daily TikTok users age 18 to 24 stated that they use[d] TikTok as a search engine in the last week.” Tr. 8205:9-23 (Reid); DX0241 at .010.

Third-party evidence similarly confirms that SVPs and social media channels compete with Google for user queries. Evidence presented at trial showed that for online shopping searches, users are twice as likely to begin their search on Amazon than they are Google. FOF ¶ 956; DXD-29.028 (2020 Bank of America study reporting that, in response to the question, “Which website do you search first when you want to buy something online?”, 58% of users said Amazon, compared to only 25% who responded Google). In the travel and local spaces as well, SVPs identify Google in their securities filings and elsewhere as a primary competitor. FOF ¶¶ 951, 966. Moreover, SVPs like Expedia, Booking.com, Yelp, OpenTable, Thumbtack, and Amazon are continuing to grow their revenues and online traffic at significant rates. FOF ¶¶ 667-79. Indeed, the very existence and success of specialized search engines is predicated on the fact that users regularly bring their queries to those specialized platforms, and often come to those platforms directly. FOF ¶¶ 672, 933-35, 955-56, 963-64.

In short, the notion that Google substantially competes only with other general search engines cannot be squared with present-day commercial realities. Users take their information needs (*i.e.*, queries) to wherever they believe they will be best served, and the pressure that

Google faces from SVPs and social media channels has only grown over the last decade, as mobile phones and apps have become ubiquitous. FOF ¶¶ 179, 665, 672, 682, 932-41, 983-87.

2. Today’s digital advertising enables advertisers to shift spend among ad types and channels to maximize their return on investment.

Plaintiffs’ advertising markets fail to account for the vigorous competition that Google faces from other advertising platforms that, although outside their cramped markets, provide advertisers the ability to connect with potential customers. Plaintiffs’ product markets exclude, most notably, (1) behaviorally targeted ads on social media platforms (such as Facebook, Instagram, and TikTok); (2) ads on product pages on retailer websites such as Amazon that are informed by users’ purchase intent; and (3) display ads on websites across the Internet that likewise account for users’ interests and intent. Defining a relevant market in terms of a single ad type, as Plaintiffs urge the Court to do, ignores “the ‘commercial realities’ faced by” advertisers. *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 482 (1992) (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 572 (1966)). A product need not be “fungible to be considered in the relevant market.” *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 394 (1956). Rather, “the outer boundaries of a relevant market are determined by reasonable interchangeability of use,” which “implies that one product is roughly equivalent to another for the use to which it is put,” even if “there may be some degree of preference for the one over the other.” *Queen City Pizza, Inc. v. Domino’s Pizza, Inc.*, 124 F.3d 430, 437 (3d Cir. 1997) (internal quotation marks omitted). Because the evidence demonstrates the reasonable interchangeability of other forms of digital advertising (such as social media and digital display ads), Plaintiffs have failed to carry their burden to define a relevant advertising product market. *Microsoft*, 253 F.3d at 50, 52; *see, e.g., Hicks v. PGA Tour, Inc.*, 897 F.3d 1109, 1123 (9th Cir.

2018) (observing that “many courts have rejected antitrust claims reliant on proposed advertising markets limited to a single form of advertising”).

a. That advertisers can substitute other ad types for search ads is confirmed by their ability and willingness to shift spend across ad types to maximize ROI.

The trial evidence confirms that advertisers shift their budgets from one type of ad (such as a search ad on Google) to another (such a social media ad on Facebook) to optimize their return on investment (“ROI”) or return on ad spend (“ROAS”). If the quality-adjusted price of search ads increased significantly, then advertisers could and would reallocate their budgets to pursue the same business objectives using other ad types. That is a sure sign Plaintiffs have defined the asserted markets too narrowly. *See, e.g., Microsoft*, 253 F.3d at 52 (“[T]he relevant market must include all products ‘reasonably interchangeable by consumers for the same purposes.’”); Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* at ¶ 562 (5th ed. 2022) (“[A]ctual shifts between two products in response to—or even without—changes in their relative prices indicate a single market.”).

Advertisers’ testimony and ordinary-course records confirm their willingness and ability to shift spend in and out of Plaintiffs’ alleged markets to maximize their ROI or ROAS. FOF ¶¶ 1001-15; 1045-53, 1060-64. For example, even a major buyer of search ads like Booking.com is “agnostic” when it comes to choosing advertising “channels”—such as search, social, or display—meaning that it “will go to whatever channel is generating the best ROI.” Tr. 5342:7-19 (Dijk (Booking)); *see* FOF ¶ 1003.

Companies that sell advertising space on their digital platforms likewise confirmed that advertisers are willing and able to substitute search ads for other forms of digital ads. As a Meta executive put it, “[W]hile there may be categories that are created by agencies or departments or consultants to try to classify [ad] spend, most advertisers or agencies are quite dynamic in how

they'll move budgets around to try to get the best results possible." Levy (Meta) Dep. Tr. 224:8-18; FOF ¶ 1003.

b. That advertisers can substitute other ad types for search ads is further confirmed by the fact that the next best alternatives for advertisers are outside Plaintiffs' markets.

Plaintiffs' product market definitions are flawed for another reason: they exclude the next-best alternatives for an advertiser to reach the same audience they were hoping to find on Google. Audience overlap impacts substitution, as DOJ Plaintiffs' expert Professor Michael Whinston acknowledged. Tr. 4634:24-4635:11 (Whinston) ("[T]he overlap between the audiences is really important for the amount of substitution there will be between ad products."). To extend the analogy Professor Whinston offered to illustrate the point, an advertiser will tend to view placing an ad in *The New York Times* as a substitute for placing an ad in *Sports Illustrated* to the extent that many of the same consumers read both publications. See Tr. 4634:24-4635:11 (Whinston). But if *Sports Illustrated* readers rarely pick up *The New York Times*, then an advertiser seeking to reach *Sports Illustrated* readers might find advertising on ESPN or sports talk radio to be closer substitutes than advertising in *The New York Times*. Notably, TV or radio networks can be closer substitutes than another print publication even though they look and feel different from a consumer's perspective and involve a different buying process and pricing scheme for the advertiser. See, e.g., *Berlyn Inc. v. The Gazette Newspapers, Inc.*, 73 F. App'x 576, 583 (4th Cir. 2003) (concluding that radio and print advertising "are within the same product market"); *Midwest Radio Co. v. Forum Publ'g Co.*, 942 F.2d 1294, 1297 (8th Cir. 1991) (rejecting an alleged market that included only a daily newspaper, radio, and television because "it should include other competitive advertising media, such as billboards, weekly newspapers, and direct mail").

Plaintiffs' ads markets exclude forms of digital advertising that feature a high degree of audience overlap while including those with less overlap. As Dr. Israel explained, empirical data shows that consumers frequently visit a Meta platform (Facebook or Instagram), Amazon, or a series of other websites during the same web session in which they search on Google. It is far more unusual, however, for a consumer to visit Google Search and another general search engine (e.g., Bing or DuckDuckGo) within that same session. Tr. 8522:18-8524:13 (Israel); *see* DXD-29.092; FOF ¶¶ 1042-44. For this reason, an advertiser who wants to reach Google Search users that are currently in the market for a particular product would view advertising on Meta, Amazon, or websites visited by those users as a better alternative than advertising on Bing or DuckDuckGo. There is thus no sound basis for constructing a market that omits many or all ads sold by the likes of Meta and Amazon.

c. The purported differences between search ads and other ad types do not support Plaintiffs' alleged markets.

Rather than address the market evidence, Plaintiffs place great weight on a theoretical construct: the "marketing funnel." Even if that construct could be considered to have utility today, the trial record revealed that the role played by different digital ads types transcends any fixed position in a funnel.

Plaintiffs contend that search ads occupy a particular position in the marketing funnel (what position is a point of disagreement between their experts) and argue that this means other ad types are not substitutable. The trial evidence confirms, however, that consumers no longer make decisions in the linear fashion envisioned by the funnel, with search ads allegedly driving only final purchasing decisions. Consumers are driven to purchase a product by a variety of ad types across a number of settings. FOF ¶¶ 1065-78. This fact is not lost on advertisers, who use multiple types of digital ads to achieve the same objectives. *See, e.g.*, FOF ¶¶ 1065-78.

Advertisers buy search ads for awareness and brand recognition, as well as for consideration and to drive purchases. FOF ¶¶ 1076-78. Even among Plaintiffs' own experts, there is no consensus about what the funnel looks like or how it purportedly informs the asserted market definitions. FOF ¶¶ 1071-72; *compare* Tr. 5443:1-5444:4 (Jerath (DOJ Expert)) (characterizing search ads as a "bottom of the funnel" form of advertising), *with* Tr. 7034:19-7035:5 (Baker (States Expert)) (characterizing general search ad as part of the "middle stage" of the funnel). With good reason: the evidence shows that major advertising platforms Plaintiffs exclude from their markets compete at multiple levels of the funnel, including the stages where search ads, general search ads, and general search text ads purportedly reside. *E.g.*, FOF ¶¶ 1069-70, 1075-78.

In connection with their reliance on the marketing funnel, Plaintiffs assert that search ads uniquely benefit from a user's expressed intent in the form of a search query. *E.g.*, Tr. 4637:9-4638:12 (Whinston). But ad types that Plaintiffs exclude from their alleged markets likewise benefit from strong signals that allow advertisers to infer user intent and interest. For example, ads appearing on Amazon product pages reflect signals such as what the user is shopping for at that moment and what other users purchased instead of or in addition to the product the user is viewing. Tr. 8457:25-8460:4 (Israel); *see* DXD-29.108; FOF ¶ 1037. Such ads account for approximately one-third of Amazon's blockbuster ads business, and Plaintiffs offer no reasonable basis for concluding that these (and similar ads from other SVPs) are less effective than search ads at identifying a user's intent and targeting an ad accordingly. FOF ¶ 1196.

Nor is there merit to Plaintiffs' exclusion of all ads appearing on social media platforms such as Instagram and TikTok. Social media users provide valuable intent signals by, among other things, interacting with and liking content, and these platforms have built vast ads businesses on a highly sophisticated ability to digest signals of users' purchase intent and serve

ads accordingly. FOF ¶¶ 1036-40; *see, e.g.*, Tr. 8453:21-8456:10, 8541:5-8542:8 (Israel).

Beyond these forms of direct engagement, social media ads can be targeted based on a wealth of user information furnished by advertisers and their ad technology partners, including expressions of intent such as having recently browsed the advertiser’s webpage or shopped for comparable products. *See, e.g.*, Levy Dep. Tr. 240:1-240:13; Tr. 6646:5-6647:8 (Vallez (Skai)). And these social media ads often are designed to navigate the user seamlessly through a purchase and have proven highly effective in doing so—a commercial reality that further dissolves the purported distinctions on which Plaintiffs define their alleged product markets. FOF ¶¶ 1032-33; Tr. 8461:23-8464:12 (Israel) (discussing DXD-29.062); Tr. 3930:18-3931:4 (Lowcock (IPG)).

The trial evidence further confirms that the executives responsible for Google’s search advertising business view social media and other non-search digital ads as significant competitive threats to search ads and have introduced search ads innovations in response to those competitive forces. FOF ¶¶ 246-52, 1018-33, 1126, 1130, 1208; *see, e.g.*, Tr. 7386:10-7388:5 (Raghavan) (describing competition with Meta, TikTok, and Amazon, including an example of “merchants [who] are consistently getting more traffic by advertising on Facebook than from [Google]”).

B. In the Face of the Evidence That Users and Advertisers Actively Substitute Into and Out of the Proffered Markets, Plaintiffs Offer No Empirical Analysis Supporting Their Proposed Market Definitions.

All of the evidence described above—from Google witnesses, third-party witnesses, Google’s expert Dr. Israel, and even Plaintiffs’ own experts—reveals that users and advertisers can and do substitute products in Plaintiffs’ asserted markets with those Plaintiffs have carved out of their markets. In the face of this real-world evidence, including Dr. Israel’s empirical analyses, Plaintiffs offer little by way of quantitative or empirical evidence. Antitrust plaintiffs do not meet their “burden of persuasion” on the validity of a relevant market where they fail to

demonstrate “why . . . other products are not reasonable substitutes.” *Microsoft*, 253 F.3d at 82. To meet that burden, neither anecdotal evidence nor conjecture is an adequate substitute for empirical evidence. *See, e.g., FTC v. Tenet Health Care Corp.*, 186 F.3d 1045, 1053 (8th Cir. 1999) (reversing a decision to grant injunctive relief for government where “statistical evidence did not establish” the government’s market, despite presence of “anecdotal evidence”); *Jacobs v. Tempur-Pedic Int’l, Inc.*, 626 F.3d 1327, 1338 (11th Cir. 2010) (“[T]he broader economic significance of a submarket must be supported by demonstrable empirical evidence.” (cleaned up)); *United States v. Sungard Data Sys., Inc.*, 172 F. Supp. 2d 172, 182-83 (D.D.C. 2001) (government did not meet its burden where there was only “equivocal evidence” of how consumers used the products within the alleged market and their potential substitutes).

The lone quantitative evidence DOJ Plaintiffs’ expert Professor Whinston offers in support of the user-side market definition suffers significant methodological flaws. He relies on Comscore search panel data for the proposition that 77% of search sessions begin on general search engines; he contends this demonstrates that users “one stop shop” by using general search engines as a “gateway to the internet.” Tr. 4614:9-4615:16; FOF ¶¶ 937-39. The Comscore data sample, however, was taken from Windows PCs, and thus is not indicative of user search behavior more broadly. It fails to account for mobile queries on general search engines (which outnumber desktop queries), and the usage of mobile apps, including SVP apps that serve as a starting point for user queries in many commercial verticals. FOF ¶¶ 937-39; Tr. 5876:1-9 (Whinston). Even as to user desktop behavior in particular, Professor Whinston’s calculation is inflated because it includes all instances where a user typed the name of an SVP into the browser/search bar and immediately navigated to the SVP’s website. Tr. 5878:8-15 (Whinston); FOF ¶ 939. Users in those scenarios are effectively conducting their searches on the SVP, not

the general search engine. In sum, for multiple reasons, the Comscore data does not address user search behavior, especially as to queries in the commercial vertical categories where SVPs compete.

Far from supporting Plaintiffs' market definition, the user-side quantitative analysis Colorado Plaintiffs' expert Professor Jonathan Baker offers confirms Dr. Israel's finding that users search in discrete visits focused on specific topics. Professor Baker's analysis of user search behavior on Google showed that nearly 80% of user visits—with a visit defined as a series of user actions followed by at least five minutes of user inactivity—involve a single vertical category. Another 15% involve just two vertical categories. It is only by looking at all user searches over a 24-hour period that Professor Baker finds that users often search in more than one vertical, and even then, more than 70% of users search in three or fewer verticals. DXD-29.026; FOF ¶ 940.

Professor Whinston offers no empirical evidence whatsoever regarding how users actually engage with potential substitutes—including when and how they use specialized search engines and other websites to obtain information in response to queries. The lone analysis Professor Baker provided is the single example of a search for “UFO” on Google, Amazon, Expedia, and HomeAdvisor. PSXD-11.021. Unsurprisingly, he found Expedia and HomeAdvisor had no results, and that Amazon's results described products related to UFOs that might be purchased, whereas Google offered more results and a greater diversity of information. *Id.* This example says nothing about the intense competition that Google faces for queries within the vertical the SVP specializes in; as Dr. Israel explained, that Google and SVPs use different competitive strengths (*e.g.*, breadth versus depth of information) is no basis on which to define a relevant market. Tr. 8428:22-8431:1 (Israel); DXD-29.032-.034; FOF ¶¶ 941-42.

Similarly with respect to their advertising markets, Plaintiffs eschew empirical evidence regarding substitutability. Professor Kinshuk Jerath failed to conduct any empirical analysis to test his assertion that other digital advertising options are less effective than search ads at targeting consumers lower in the funnel. Tr. 5589:25-5590:4 (Jerath); FOF ¶ 1065.

In sum, the limited empirical evidence Plaintiffs offer suffers from significant methodological problems, and falls far short of proof of any relevant antitrust product market.

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

All of Plaintiffs' claims fail not only for lack of valid relevant markets, but also because Plaintiffs have not demonstrated that Google possesses monopoly power—which, like market definition, is “a necessary element of a monopolization charge.” *Microsoft*, 253 F.3d at 51; *see E.I. du Pont de Nemours & Co.*, 351 U.S. at 381.

With respect to Plaintiffs' proposed general search services product market, the evidence adduced at trial confirms the tremendous growth of general search engine output (*i.e.*, search queries), as well as Google's relentless pursuit of improvements to its search engine that push its quality to new heights year after year.

Figure 3 (DXD-29.045):

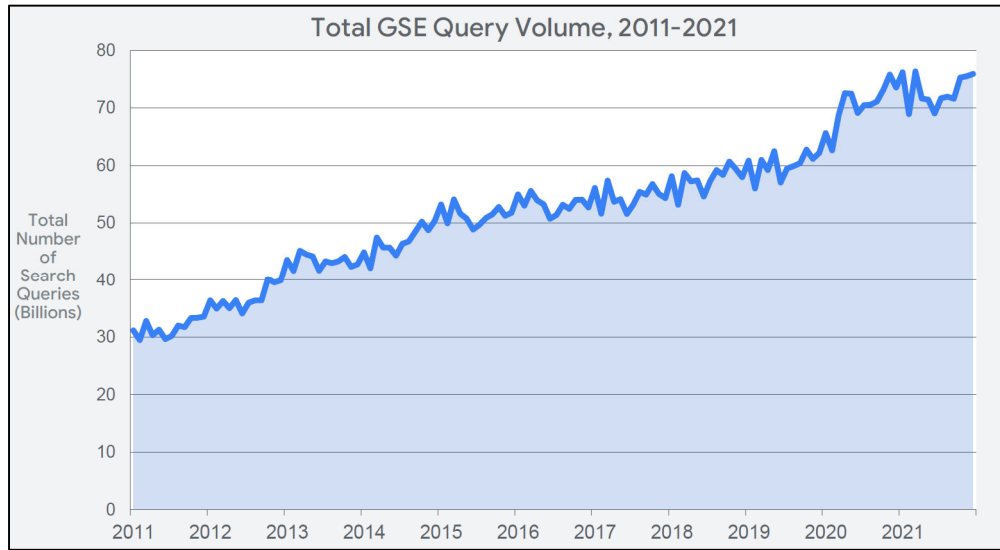
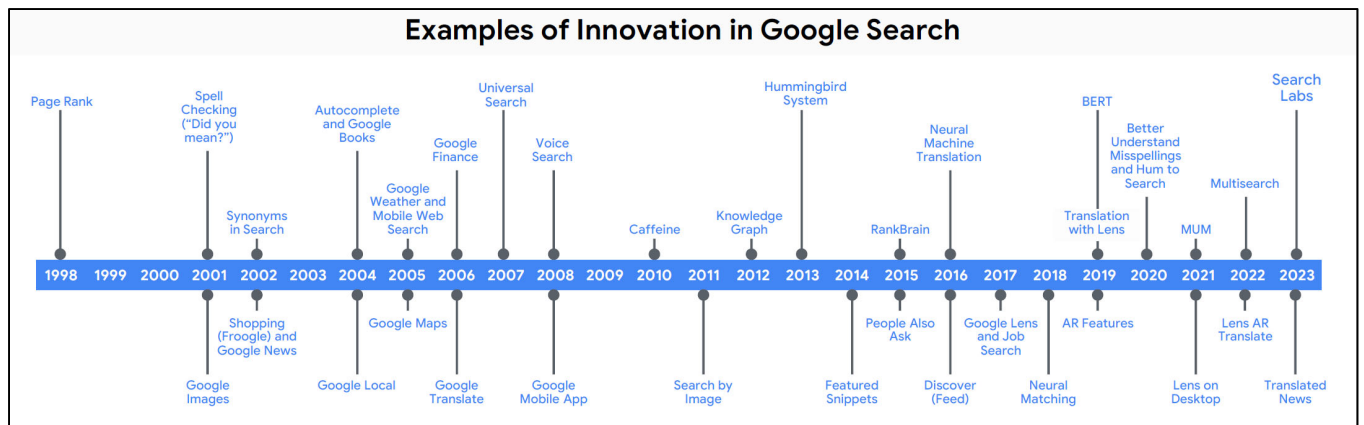


Figure 4 (DXD-37.140):



In short, Google is the antithesis of a company exercising monopoly power. And with respect to barriers to entry, the evidence reflects that they are not sufficiently “significant” and are crumbling due to technological developments (many of which Google has pioneered and made available to competitors for free). *See Microsoft*, 253 F.3d at 82.

Plaintiffs fare no better in their contention that Google possesses monopoly power in the alleged advertising markets. Even taking Plaintiffs’ ads markets as given, output has expanded significantly, and there is no evidence of the kind of supply restriction that is indicative of

monopoly power. Plaintiffs' contentions regarding purported increases in the price of search ads fail on multiple levels, including due to a lack of consideration of the effect of quality gains on nominal price. Indeed, the evidence demonstrates that the quality-adjusted price of Google search ads has *decreased*. Finally, as with the alleged general search services market, Plaintiffs have not proved that the alleged ads markets are protected by significant barriers to entry.

A. Output in Plaintiffs' Markets Has Not Been Restricted, But Rather Has Increased Throughout the Relevant Period.

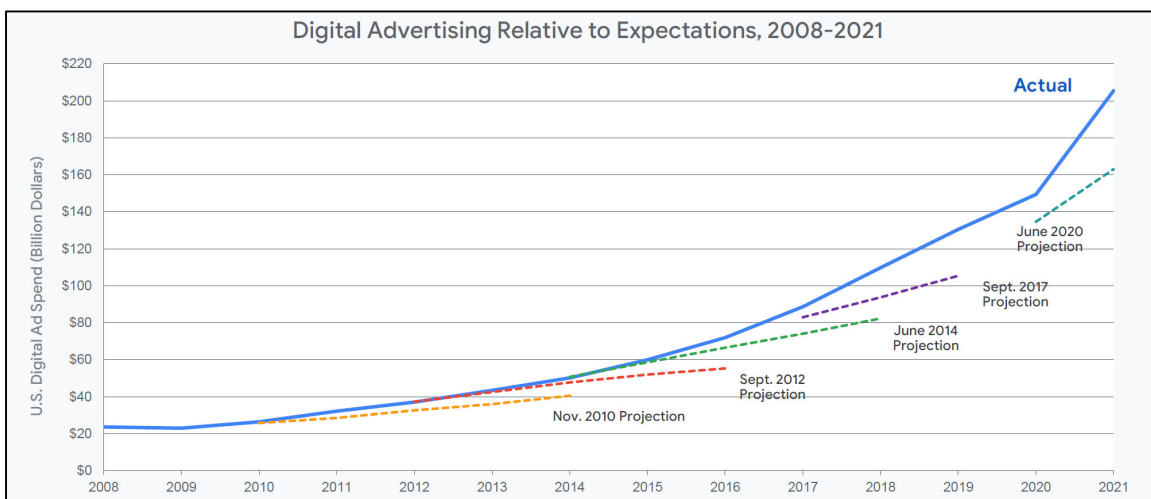
"Market power is the ability to raise price profitably *by restricting output*." *Am. Express*, 138 S. Ct. at 2288; *accord Microsoft*, 253 F.3d at 51; Tr. 8387:22-8388:22 (Israel); Tr. 10451:16-10453:10 (Whinston); FOF ¶ 1079. In this case, however, the trial evidence confirms that output has grown consistently and substantially in Plaintiffs' alleged markets. *E.g.*, Tr. 8442:17-8443:11 (Israel); DXD-29.045. And Plaintiffs offered no evidence that output purportedly would have increased more quickly if not for the challenged conduct. *E.g.*, Tr. 6036:8-11 (Whinston). Accordingly, Plaintiffs have not proved that Google possesses monopoly power "through direct evidence of supracompetitive prices and restricted output." *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 307 (3d Cir. 2007); *see Eastman Kodak*, 504 U.S. at 464, 481 (explaining that "[m]arket power . . . has been defined as 'the ability of a single seller to raise price and restrict output,'" and adding that "[m]onopoly power under § 2 requires, of course, something greater than market power under § 1").

The extraordinary growth in output in Plaintiffs' user-side market is undeniable. The number of general search queries has more than doubled in the ten years between 2011 and 2021, from about 30 billion in 2011 to above 70 billion by 2021. *See supra* Figure 3; FOF ¶ 1084. That is the opposite of what would occur in a market under the thumb of a monopolist. *E.g.*, *Am.*

Express, 138 S. Ct. at 2288 (concluding no evidence of market power where “[t]he output of credit-card transactions grew dramatically from 2008 to 2013, increasing 30%”).

The alleged advertising markets are likewise unequivocal success stories, characterized by quality-driven output expansion that has transformed digital commerce. As discussed in § I.A.2, a proper consideration of the relevant markets would fully account for the unbridled growth of Google’s closest competitors for advertisers’ dollars, including digital advertising behemoths Meta, Amazon, and TikTok. Digital advertising output has grown even faster than projected, as depicted in Figure 5.

Figure 5 (DXD-29.120):



Even limiting the inquiry to Plaintiffs’ markets, there is likewise no evidence of an output restriction, just as there is no evidence of a restriction on the output of queries that result in the ads at issue. FOF ¶¶ 1084; *see* DXD-29.045 (detailing the sustained growth in general search queries, a portion of which result in the display of search ads, general search ads, and general search text ads).

Because Plaintiffs have not proved a restriction on output in any of the alleged markets, they have not proved the exercise of monopoly power through direct evidence.

B. Plaintiffs Have Not Proven That Search Quality Has Dropped, or That Ads Prices Have Increased, and Indeed There is Substantial Evidence That Quality Has Improved and Prices Have Decreased.

1. Search quality has increased significantly throughout the relevant period.

The undisputed evidence contradicts any assertion that Google has wielded monopoly power by degrading search quality or search ads quality below competitive levels. As Plaintiffs acknowledge, Google is the highest quality general search engine in the U.S. and has been since before Plaintiffs claim it began violating Section 2. FOF ¶ 1081. Google's search quality has continuously improved over its twenty-five years as a search engine as Google has continuously innovated. FOF ¶¶ 79-106, 112-241, 695-760. And Google unceasingly strives to better its search quality, annually setting goals to improve its search quality as measured by IS score. FOF ¶¶ 227-37. The record is replete with evidence of Google's search innovations, which range from paradigm-shifting breakthroughs in artificial intelligence to an endless stream of improvements to specific categories of queries based on insights from its teams of search quality engineers and human raters. *See supra* Figure 4; FOF ¶¶ 9-15, 77-241, 695-760. As Microsoft CEO Satya Nadella put it, Google is "competing every day to improve search," and "on search, I think the competition is pretty intense." Tr. 3532:20-3533:2 (Nadella (Microsoft)). That is hardly the description of a stagnant market hindered by the exercise of monopoly power.

2. Plaintiffs' cherry-picked anecdotes fail to show search quality degradation.

Plaintiffs seek to ignore Google's extraordinary innovations and investments to improve search quality on the theory that, if the general search market were more competitive, Google would have tried even harder and been even better. At a minimum, that kind of theory demands empirical analysis and evidence of what likely would have occurred in the absence of the challenged conduct. *E.g., Kochert v. Greater Lafayette Health Servs., Inc.*, 463 F.3d 710, 719

(7th Cir. 2006) (plaintiff's reliance on anecdote and failure to introduce empirical comparative analysis insufficient to prove diminution in quality of care). Plaintiffs offer none. *See, e.g.*, Tr. 6092:6-6093:7 (Whinston) (indicating that he did not “study the quality gap between Google and rivals in a period before alleged anti-competitive conduct versus after alleged anti-competitive conduct”), 6144:1-8; Tr. 7249:5-10 (J. Baker); FOF ¶¶ 1085-87.

Lacking any empirical analysis of changes in search quality over time or any comparison to a competitive benchmark, Plaintiffs instead rely on a pair of wholly uninformative anecdotes to claim that Google has only responded to competition twice in the relevant period. *First*, Professor Whinston contends that Google competed vigorously when Bing entered the market in 2009. But Plaintiffs have not shown that Google was not competing vigorously in the years before 2009 or that Google has taken its foot off the gas in the years since. The evidence Google presented at trial belies any such contention. Google is relentless in its commitment to the user experience and to improving its ability to offer useful search results, even going so far as to expand the modes by which users are able to search (*e.g.*, Google Lens) and inventing artificial intelligence models that completely transformed search. FOF ¶¶ 77-252, *see also* FOF ¶¶ 695-760.

Second, Plaintiffs point to Google's response to the introduction of a search engine choice screen on Android devices in Europe. Plaintiffs presented no analysis of how Google's “Go Big in Europe” initiative compared to its historical investments in Europe or its contemporaneous investments in the U.S., and they offered no evidence that any other general search engine increased its investments as a result of being included in the European choice screen. FOF ¶¶ 1094-96; Tr. 6142:15-19 (Whinston) (“Q. And you haven't tried to compare the -- the innovative significance of the two episodes you describe here in 2009 and 2018 versus the

myriad of other innovations Google has brought to market; correct? A. I have not made that -- done a comparison, no.”); *see also* FOF ¶¶ 238-40.

Finally, Plaintiffs have not established that Google has refrained from launching any particular search improvement that it purportedly would have in a different competitive environment, including privacy-related changes identified by Plaintiffs. Consistent with its overall approach to privacy, Google gives Search users a range of easily accessible settings—such as the ability to turn off ads personalization or delete their search history—while regularly evaluating additional features to determine whether they will improve (or degrade) the user experience. FOF ¶¶ 1103-16. The fact that Google has not adopted all of the proposals it has considered is not an exercise of monopoly power, but rather an inherent part of competitive product development. That is especially true of the privacy-related features identified by Plaintiffs because of the indisputable tradeoffs they entail, including to search quality and the ability to detect fraud or other malicious conduct. FOF ¶¶ 1113-23. Google’s decision to preserve features that have a positive impact on search quality while offering customizable settings to suit users’ privacy preferences is a reasoned business judgment consistent with a competitive marketplace, not a degradation of product quality that evidences monopoly power.

3. The quality-adjusted price of Google Search ads has decreased.

Plaintiffs’ assertion that Google charges monopoly ad rates in the asserted ads markets hinges in large part on their misinterpretation of Google’s “search ads price index.” *E.g.*, Tr. 4782:22-4784:20 (Whinston). Most notably, the index cited by Plaintiffs does not account for quality improvements, or, for that matter, any other condition that spurs increased demand or affects changes in nominal price over time. FOF ¶¶ 1135-43; Tr. 6022:15-6023:5 (Whinston); *Freeland v. AT&T Corp.*, 238 F.R.D. 130, 149 (S.D.N.Y. 2006) (observing that “[a]n analysis of price change in a product must account for changes in the product over time ‘so that only real

price changes will be measured,” and noting that “[t]he lack of any attempt to include an independent variable for quality in an investigation of price changes is especially remarkable” in an antitrust case).

When properly viewed, the evidence demonstrates that prices have *decreased* on a quality-adjusted basis. In other words, Google’s ability to deliver increased value to advertisers through improving the quality of its search ads has outpaced the alleged increase in advertiser costs per click. FOF ¶¶ 1132-43; *see, e.g.*, Tr. 8584:14-8585:22 (Israel). In the same way that Google has continuously improved search quality throughout the alleged monopoly maintenance period, leading to significant increases in search output, it is beyond dispute that Google has introduced numerous innovative changes to search ads, including new ad types that are attractive to both users and advertisers as well as new tools that allow advertisers to more efficiently manage their campaigns to achieve their objectives. FOF ¶¶ 242-52, 1011-13, 1160-65, 1199-1205, 1208-10.

4. The purported price increases identified by Plaintiffs are not evidence of monopoly power.

Finally, Plaintiffs do not move the needle by identifying specific instances where they contend that Google raised search ad prices. Google is by no means alone in its adjustment of search ad prices to catch up to quality improvements—its competitors who run ad auctions, including Microsoft, also employ “pricing knobs” and “squashing.” FOF ¶¶ 1178, 1183; *see, e.g.*, Tr. 6028:10-14 (Whinston).

Plaintiffs attempt to characterize certain of Google’s ad quality launches as price increases; in actuality, these launches are Google’s competitive response to the decrease in costs per click resulting from its investment and innovation in quality improvements. FOF ¶¶ 1167-87. That is a predictable response to a quality improvement under competitive conditions, and

advertisers and users would be worse off if a firm's incentives to make investments and pursue innovations that improve ad quality were diminished because it could not share in the value resulting from those improvements. *See, e.g.*, Tr. 8577:24-8581:9 (Israel); *Blue Cross & Blue Shield United of Wis. v. Marshfield Clinic*, 65 F.3d 1406, 1411-12 (7th Cir. 1995) (observing that “[g]enerally you must pay more for higher quality” in rejecting a theory of monopoly power predicated on “high prices, and high rate of return, relative to the prices and rates of return of [] competitors”).¹

In short, there is no sound basis on which to conclude that Google has charged supracompetitive prices, and no direct evidence it possesses monopoly power in any of Plaintiffs' product markets.

C. Barriers to Entry Are Not Significant and Are Falling Rapidly.

1. General search engines can compete successfully with only a small share of the alleged market.

Without direct evidence of monopoly power, Plaintiffs point to the number of user queries that Google receives in relation to other general search engines. Those share figures are of course tied to Plaintiffs' flawed definition of a market for general search services, and if they have not carried their burden in proving the existence of that alleged market, then their market share figures are inapposite. Tr. 5870:2-6 (Whinston), 5911:23-5912:1.

¹ Because Google facilitates an auction to determine the prices of search ads rather than setting them unilaterally, it has *less* ability to affect price than a firm that sells a conventional good or service and simply dictates its price increases. FOF ¶¶ 1144-51; *see, e.g.*, Tr. 8564:2-8566:19 (Israel). Furthermore, because Google runs a second-price auction that accounts for the quality of the ads and the quality of advertisers' landing pages, improvements to quality often paradoxically cause CPC to *decrease* rather than remaining flat or increasing. FOF ¶¶ 1160-62, 1167-70.

Even under Plaintiffs' proposed general search services market, however, their market share figures would not be reliable evidence of monopoly power. Under a range of circumstances, "a firm's share of current sales does not reflect an ability to reduce the total output in the market, and therefore it does not convey power over price." *Ball Mem'l Hosp., Inc. v. Mutual Hosp. Ins.*, 784 F.2d 1325, 1335 (7th Cir. 1986). In particular, "a firm cannot possess monopoly power in a market unless that market is also protected by significant barriers to entry," *i.e.*, "factors (such as certain regulatory requirements) that prevent new rivals from timely responding to an increase in price above the competitive level." *Microsoft*, 253 F.3d at 51, 82. Plaintiffs have not established the presence of significant entry barriers in this case.

For example, rival DuckDuckGo was started by a single person with less than [REDACTED] in up-front investments. FOF ¶¶ 540-43. The company has been profitable every year for nearly a decade despite having fewer than twenty people working on improving its search engine as of 2018, and despite spending only a miniscule fraction of the capital available to it on the company's operations. FOF ¶¶ 544-55. By 2020, DuckDuckGo was valued at [REDACTED]. FOF ¶ 550. Professor Whinston did not account for evidence of this kind. *E.g.*, Tr. 5917:4-9 (Whinston) ("Q. Do you have a sense of how much DuckDuckGo has spent on fixed and sunk capital costs over the years? A. I don't think I've seen that number. Q. Do you know how much money they've spent on an annual basis to operate the DuckDuckGo search engine? A. I don't know, no.").

To offer another example, Neeva built and launched a full-fledged general search engine using venture capital before being acquired in 2023 for approximately \$185 million, more than double the amount invested in the company. FOF ¶¶ 605-31. As a start-up with limited resources and no pre-existing customers, Neeva built, among many other things, a web index that

allowed it to compete with Google in responding to general search queries. FOF ¶¶ 605-15; *see* Tr. 3776:7-9 (Ramaswamy (Neeva)). Neeva also deployed modern machine learning techniques to develop its own systems for ranking search results without access to the volumes of user interaction data available to established search engines. FOF ¶¶ 329-32, 616-20; *see, e.g.*, Tr. 3783:24-3784:10. Although Neeva’s business model of charging consumers for a traditionally free service proved unsuccessful, the search engine attracted millions of monthly users, and its founder confirmed that Neeva could compete successfully on search quality with Google in the U.S. with approximately 2.5% of general search users. FOF ¶¶ 610, 621-25. Again, Professor Whinston failed to account for this evidence in offering his opinion on entry barriers. *E.g.*, Tr. 4765:12-25 (Whinston) (asserting that “if you want to have an index of the web, that’s extremely expensive and, from what I gather, in the billions,” even though Neeva built such an index for a small fraction of that amount), 5917:13-16 (“Q. Are you aware of how much money Neeva spent in capital costs to have a competing search engine? A. I don’t remember the testimony on that and I haven’t seen numbers -- I don’t think I had seen numbers on it before.”).

If these examples were not enough, one need look no further than [REDACTED]

[REDACTED]

[REDACTED]

DX0430 at .002 (emphases added).

Plaintiffs’ argument that barriers to entry protect supposed monopoly power fails to account for the technological developments that have rapidly eroded the very barriers they

mistakenly identify. Notably, Professor Whinston offered no opinion about “whether or not artificial intelligence advances have lowered the barriers to entry.” Tr. 5918:25-5919:4 (Whinston); *see also* Tr. 4765:12-25 (Whinston); FOF ¶ 1083. While entry barriers that support a finding of monopoly power typically consist of “additional long-run costs that were *not* incurred by incumbent firms but must be incurred by new entrants,” *Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421, 1439 (9th Cir. 1995) (emphasis added), this case presents the opposite scenario, as new general search engines can avoid many of the costs historically borne by an incumbent like Google. As Neeva recognized, advances in the ability of computers to understand language “could be used as a short circuit to make ranking better,” and “when it comes to figuring out concepts for a query, related queries, or correcting misspellings that people often have when they type in or speak queries, [Neeva was] able to very, very successfully do that.” Tr. 3781:23-3783:20 (Ramaswamy); *see* FOF ¶¶ 331-32, 616-20.

Moreover, Google’s own success in displacing established players through product quality, and its success on Windows despite Microsoft’s ability to ensure preinstallation of its search engine on Windows PCs, forcefully demonstrate that the distribution agreements Plaintiffs challenge are not barriers to a superior rival. FOF ¶¶ 16-36, 47-52. That general search rivals have failed to invest in quality to the same extent as Google does not evidence significant barriers to entry. *See, e.g., United States v. Baker Hughes Inc.*, 908 F.2d 981, 987 (D.C. Cir. 1990) (rejecting the notion that a defendant must “prove that new competitors will ‘quickly’ or ‘effectively’ enter” in response to supracompetitive pricing); *United States v. Syufy Enters.*, 903 F.2d 659, 668 (9th Cir. 1990) (observing that “when a producer deters competitors by supplying a better product at a lower price . . . the goals of competition are served, even if no actual competitors see fit to enter the market at a particular time”).

2. Rival digital advertisers are profitable and successful.

Finally, Plaintiffs have not presented evidence sufficient to infer that Google possesses monopoly power in any of the alleged advertising markets, even taking them as given. Their assessment of purported entry barriers in those markets largely tracked their flawed analysis in connection with the alleged market for general search services. *See, e.g.*, Tr. 4781:11-19 (Whinston) (referencing “the same kind of barriers to entry that we talked about” in relation to the alleged general search services market and asserting without specificity or support that “it’s very expensive to run an ad platform”). Monopoly power should not be lightly inferred, as “[a] court will draw an inference of monopoly power only after full consideration of the relationship between market share and other relevant market characteristics.” *Tops Markets, Inc. v. Quality Markets, Inc.*, 142 F.3d 90, 98 (2d Cir. 1998).

Among the flaws in Plaintiffs’ analysis with respect to the alleged market for search advertising is their failure to account for the ease with which SVPs have launched and expanded a search ads business. By Plaintiffs’ own measure, Google’s share of revenue in the alleged market for search advertising declined each year beginning in 2017. *See* UPXD102 at 63; *see also* FOF ¶¶ 990-93. That reflects the rapidly expanding search ads businesses of larger SVPs such as Amazon as well as the regular emergence of smaller SVPs that focus on delivering content and ads in response to a particular category of informational need. Plaintiffs offer no evidence that SVPs face significant entry barriers in selling search ads, and the record reflects that they frequently emerge and expand by selling ads that are within Plaintiffs’ alleged market for search advertising. FOF ¶¶ 990-98, 1018-35, 1192-98; *see, e.g.*, Tr. 8557:1-12 (Israel); *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1059 (8th Cir. 2000) (concluding that defendants lacked market power where plaintiffs “presented scant evidence that firms have difficulty entering the [alleged] market” even though it “is a capital intensive business”).

Plaintiffs also have not adduced evidence of significant barriers to entry to the alleged markets for general search advertising (advanced solely by the Colorado Plaintiffs) and general search text advertising. As with the asserted general search services market, Plaintiffs' experts have not accounted for the ability of a search engine such as DuckDuckGo to attract a growing number of queries and profitably serve all three types of ads at issue during the period of alleged monopoly maintenance. *E.g.*, Tr. 5913:6-8 (Whinston), 5921:18-21.

For all of the foregoing reasons, the evidence adduced at trial confirms that Google lacks monopoly power in the alleged markets.

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

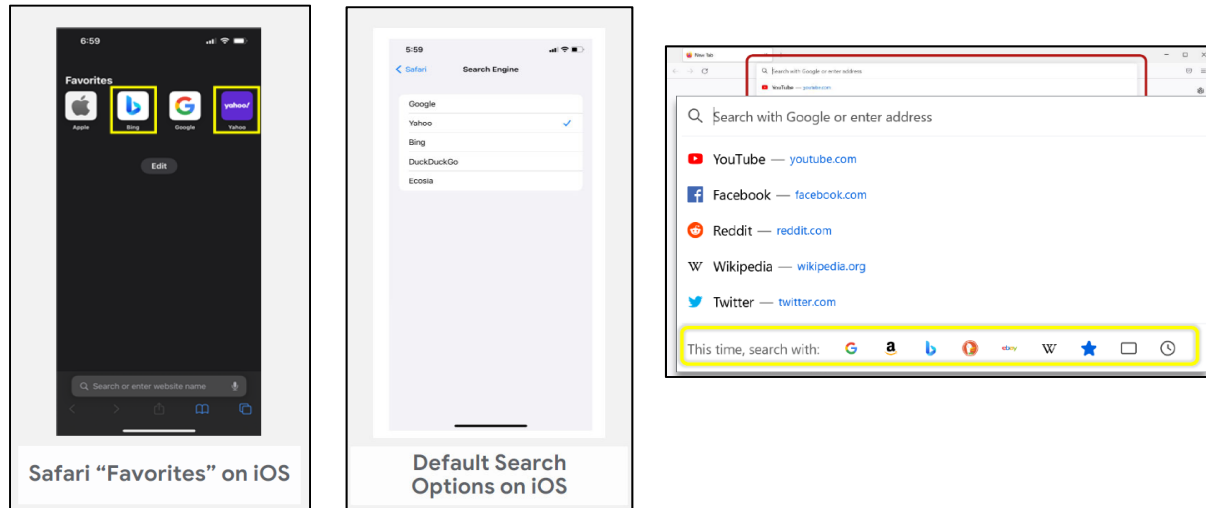
Plaintiffs have consistently characterized Google's browser default search agreements with Apple, Mozilla, and others as "exclusive" dealing arrangements. Courts have developed a particular method of analysis to determine whether an agreement qualifies as "exclusionary" conduct that has a substantial anticompetitive effect prohibited by Section 2 of the Sherman Act. To begin with, "exclusive dealing contracts are not disfavored by the antitrust laws." *United States v. Google LLC*, 2023 WL 4999901, at *14 (D.D.C. Aug. 4, 2023) (quoting *E. Food Servs., Inc. v. Pontifical Cath. Univ. Servs. Ass'n*, 357 F.3d 1, 8 (1st Cir. 2004)). To prevail, Plaintiffs must establish that the agreements at issue were in fact exclusive agreements, that the agreements foreclosed a substantial share of the relevant market, that competition was substantially harmed, and monopoly power maintained. *Id.* Plaintiffs have failed on all accounts. And even if Plaintiffs could meet their *prima facie* burden, any claim of harm is well outweighed by the procompetitive benefits flowing from these agreements, which were the product of rigorous competition on the merits resulting in the indisputably highest-quality search

engine being set as the default by the very browser developers who designed their product and chose Google to best serve their users.

A. Plaintiffs Have Not Established an Exclusive or *De Facto* Exclusive Arrangement.

The defining characteristic of exclusive dealing arrangements is that the agreement's terms prevent customers from accessing rivals through an intermediary. *See Areeda & Hovenkamp* at ¶ 1800 (an exclusive dealing agreement in general means an agreement that by its terms “forbids the buyer of the defendant’s goods from purchasing similar goods from a rival as well”); *ZF Meritor, LLC v. Eaton Corp.*, 696 F.3d 254, 270 (3d Cir. 2012) (noting that “[a]n exclusive dealing arrangement is an agreement in which a buyer agrees to purchase certain goods or services only from a particular seller for a certain period of time”); *Simon & Simon, P.C. v. Align Tech., Inc.*, 533 F. Supp. 3d 904, 916 (N.D. Cal. 2021) (describing “de facto exclusive” deals as “arrangements that have the ‘practical effect’ of preventing buyers from doing business with the monopolist’s competitors”).

Google’s browser default agreements with Apple and Mozilla lack this defining characteristic in several important respects. *First*, 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 such promotional deals, including with Microsoft, Yahoo, and DuckDuckGo. FOF ¶¶ 1280-92, 1351-55, 1401-11. As the evidence at trial demonstrated (and as set forth below), Apple and Mozilla have contracts with these rival search engines in which they agreed, among other things, to (1) provide a readily available and easily discoverable option for the user to change the default search engine in the browser and (2) provide other places in the browser where users can easily access these search engines, such as Apple’s bookmarks or Mozilla’s “[t]his time, search with” feature. FOF ¶¶ 1280-92, 1351-55, 1401-11.

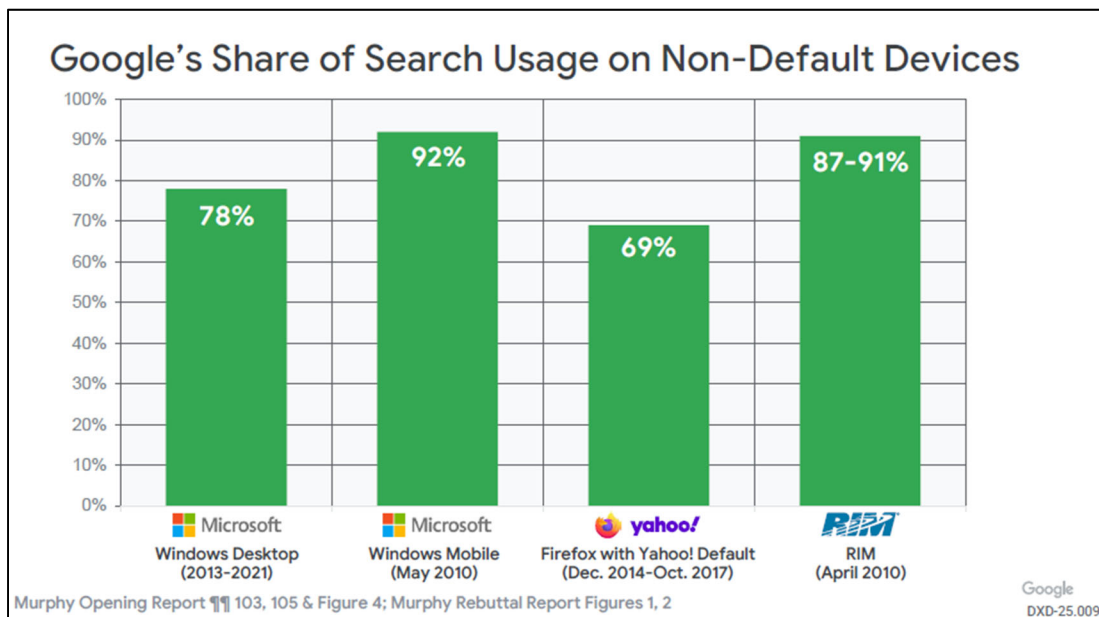
Figure 6 (DXD-37.047, .049):

Second, Google’s agreement with Apple does not include any restriction on Apple’s ability to preinstall another company’s search application or another browser that defaults to a rival search engine on Apple devices. FOF ¶¶ 1280, 1402-03. And Mozilla’s Firefox browser is not preinstalled on any of the major mobile or desktop devices; as such, Firefox users download Firefox onto their device, just as they could download Microsoft’s Edge browser with Bing as the default (or Google’s Chrome browser) onto their device. FOF ¶ 1410. Nothing about Google’s agreement with Mozilla impacts users’ ability to access rival search engines.

Third, the evidence at trial confirmed that users’ search behavior was not consistent with Plaintiffs’ assertion that the agreements were exclusive or *de facto* exclusive. Search engine usage data from Apple devices reflected that nearly █████ of all search queries on iOS devices came from a search access point other than the Safari default. FOF ¶ 1413. This fact, alone, confirms that the Safari agreement is not exclusive. Moreover, when Mozilla changed the default search engine on Firefox from Google to Yahoo in 2014, the large majority of search queries on Firefox returned to Google—and other Firefox users “switched back” by accessing Google through the Chrome browser. FOF ¶¶ 769, 783-86, 1372-74, 1414. This also confirms

that the preinstalled default search engine for a browser is not the equivalent of an exclusive dealing arrangement. Additionally, one needs to look no further than Google’s long history of success on Windows computers to confirm that a search rival offering users a high-quality experience is not foreclosed from users, notwithstanding lack of default status on any browser. For years, Google has received nearly **80%** of queries on Windows PCs in the U.S. *even though Bing is the default search engine on every pre-installed access point.* FOF ¶¶ 420-29, 444, 488, 770, 778-79, 824-31. Actual user behavior—not speculative guesses found in internal best-or-worst case modeling documents—tells the story, and it flatly contradicts Plaintiffs’ assertion that browser default agreements are the equivalent of an exclusive distribution agreement. As evidenced by Google’s success where it is not the default (as depicted in Figure 7, below), users can and do switch to alternative general search engines both on the same browser and on the same device. FOF ¶¶ 496-98, 769-70, 777-88, 1425.

Figure 7 (DXD-25.009):



Fourth, Google’s browser default agreements cannot be characterized as exclusive arrangements because they place no restrictions on the extent to which users can navigate to

search rivals, whether by changing the default in the browser, downloading an alternative browser or search application, or some other means. The evidence at trial showed that Apple, Mozilla, and others design their browsers to offer a pre-set default precisely because it offers users the benefits of a default with ready access to alternatives—the opposite of exclusive dealing. FOF ¶¶ 860-68, 1220-40, 1348-57. Further illustrating the contrast with exclusive dealing contacts, there is no contractual limit on the number of end customers that a rival may serve. Compare FOF ¶¶ 764-70, 777-87, 1280-91, 1350-55, 1401-14, with *Microsoft*, 253 F.3d at 68 (describing AOL’s agreement to “not promote any non-Microsoft browser, nor provide software using any non-Microsoft browser except at the customer’s request, and even then AOL will not supply more than 15% of its subscribers with a browser other than IE”). Unlike an exclusive dealing arrangement that puts the counter-party to an “all or nothing” choice (or nearly all or nothing, as was the AOL deal in *Microsoft*), the trial evidence confirmed that the default search engine selection by a browser does not prohibit user access to rivals or even guarantee any particular amount of traffic to the default search engine. FOF ¶¶ 764-70, 777-87, 1401-14. The default winner must compete to keep users, and the default losers can still compete to win users. FOF ¶¶ 54-58, 1401-14. Search engines thus can compete not only to win default placement or other promotion in third-party browsers such as Safari, but also by appealing to consumers directly to navigate to their search engine, whether by switching the default in the third-party browser or downloading their own search application or browser. FOF ¶¶ 1385-1414. These characteristics of defaults enable less widely used search engines to be effective competitors, a circumstance that further sharpens the contrast with exclusive dealing.

Given these undisputed factual circumstances, Google’s agreement to secure a single commercial opportunity—a browser default—that does not otherwise exclude rivals from

securing other opportunities on either the same browser or the same device cannot be characterized as actual or *de facto* exclusive dealing. *See Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 836 F.3d 1171, 1182 (9th Cir. 2016) (holding that “at bottom, a plaintiff must still show that contracts that were induced were exclusive rather than run-of-the-mill contracts, which inevitably foreclose or exclude alternative sellers from some portion of the market, namely the portion consisting of what was bought” (internal quotation marks, brackets, and citation omitted)). Plaintiffs’ failure to demonstrate exclusive dealing requires rejecting their attempt to impose Section 2 liability based on the Browser Agreements.

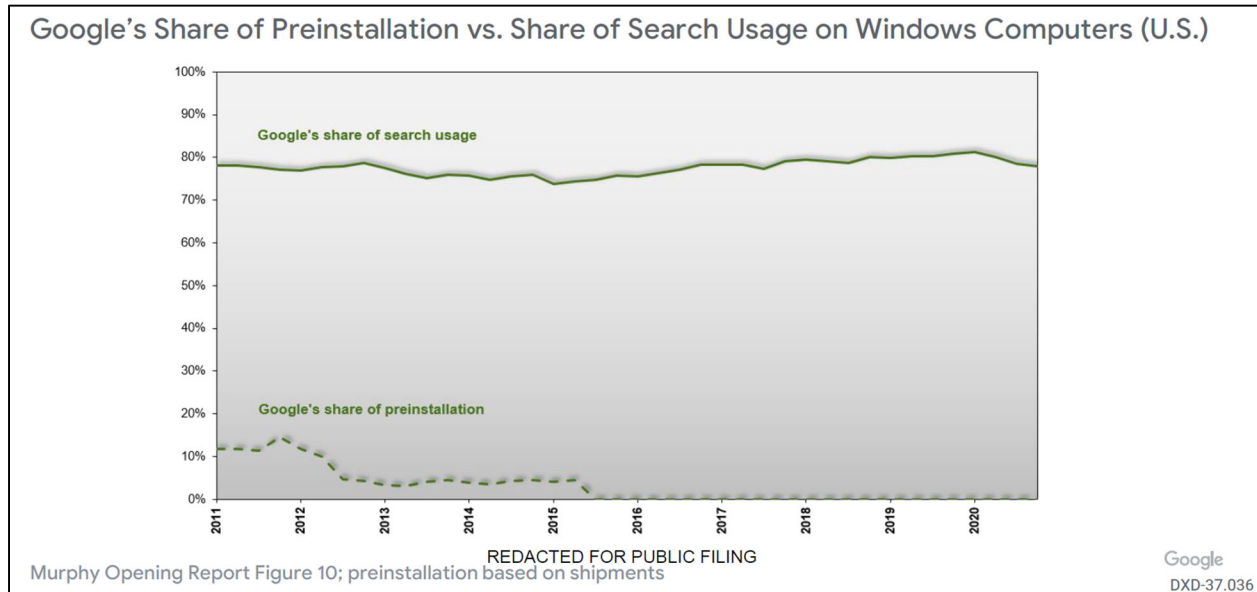
B. Plaintiffs Have Not Proven Substantial Foreclosure or Competitive Harm.

The Browser Agreements cannot form a basis for liability under Section 2 for the independent reason that they do not foreclose a “substantial share” of any alleged relevant market. *Microsoft*, 253 F.3d at 69 (“The share of the market foreclosed is important because, for the contract to have an adverse effect upon competition, ‘the opportunities for other traders to enter into or remain in that market must be significantly limited.’”).

Indeed, Google’s agreements with browser developers do not foreclose *any* share of the alleged relevant markets, let alone the “substantial share” that the law requires. Foreclosure is about whether rivals have the opportunity to compete, and because rivals can compete even for those users who access search through the browser default, there is no foreclosure. *See Eisai, Inc. v. Sanofi Aventis U.S., LLC*, 821 F.3d 394, 403 (3d Cir. 2016) (“In analyzing the amount of foreclosure, our concern is not about which products a consumer chooses to purchase, but about which products are reasonably available to that consumer. For example, if customers are free to switch to a different product in the marketplace but choose not to do so, competition has not been thwarted—even if a competitor remains unable to increase its market share.”); *Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP*, 592 F.3d 991, 998 (9th Cir. 2010) (concluding that

“[p]laintiffs did not present evidence that [defendant’s] market-share and sole-source contracts foreclosed competition in a substantial share of the market” where “[v]endors of generic sensors remained able to compete for [defendant’s] customers by offering their products at better prices”); *CDC Techs., Inc. v. IDEXX Labs., Inc.*, 7 F. Supp. 2d 119, 121-22 (D. Conn. 1998) (granting summary judgment to defendant on exclusive dealing claim because its alleged “foreclosure of 65% of the distributor outlet market” was “inadequate to support the inference of anti-competitiveness that [its] magnitude would suggest at first blush” in light of “undisputed evidence of numerous alternatives on which [plaintiff] can, and did, rely to pursue direct sales to the customers”), *aff’d*, 186 F.3d 74 (2d Cir. 1999).

Here, rivals can compete for 100% of all queries—first by competing to be the default, and second by competing for users if even they fail to win the default. On Plaintiffs’ theory, Microsoft would be considered to have foreclosed the overwhelming majority of general search queries on Windows PCs by virtue of its agreements to set Bing as the default on every preinstalled access point on such devices. Yet, notwithstanding Microsoft’s agreements and whatever “foreclosure” one could argue resulted, Google competed for all of those users, and in fact won a substantial majority of user queries conducted on Windows PCs, as shown in Figure 8. FOF ¶¶ 47-52, 416-29, 442-44, 770, 778-79, 824-31.

Figure 8 (DXD-37.036):

Likewise on Apple devices, the fact there is a default on the Safari browser does not prevent rivals from competing for queries (and the same for the Firefox browser, which users access by downloading to their devices). And to the extent that a rival is not able to win particular users, it is still exerting competitive pressure on other search engines by trying to win those queries.

Plaintiffs' foreclosure theory, and foreclosure share calculations, are flawed in at least three additional respects. *First*, the reason that antitrust courts examine "foreclosure" in exclusive dealing cases is because it provides a starting point in assessing whether or not the agreement at issue has a substantial anticompetitive effect in the market. *E.g., McWane, Inc. v. FTC*, 783 F.3d 814, 835 (11th Cir. 2015) (explaining that "foreclosure is usually no longer sufficient by itself" but rather "'serves a useful screening function' as a proxy for anticompetitive harm," while "[t]he ultimate question remains whether the defendant's conduct harmed competition" (quoting *Microsoft*, 253 F.3d at 69)). As Professor Whinston acknowledged, assessing anticompetitive effects that flow from an exclusive agreement should be measured against a valid but-for world where the agreements do not exist. Tr. 6085:15-19 (Whinston) ("Q.

The likely competitive effects of Google's behavior, locking up search access points through the challenged agreements, is ideally examined relative to a but-for world? A. Yes. Your question asked about competitive effects, and I agree with that.”); *see Rambus Inc. v. FTC*, 522 F.3d 456, 466-67 (D.C. Cir. 2008) (concluding that “the Commission failed to demonstrate that Rambus’s conduct was exclusionary” because “if [a third party], in the world that would have existed but for Rambus’s deception, would have standardized the very same technologies, Rambus’s alleged deception cannot be said to have had an effect on competition in violation of the antitrust laws”).

But Plaintiffs and their experts offered no but-for world at all. And to the extent that they offered “thought experiments” hypothesizing potential alternative forms of Google conduct—so-called “unconditional” revenue sharing and parity promotion—there is no evidence that any of these imagined worlds are outcomes that competition likely would generate. FOF ¶¶ 793-823, 1235-37, 1357; *see also infra* § III.F. In any event, no substantial foreclosure as to Google’s Browser Agreements was proven at trial even using these inapplicable “thought experiments.” Indeed, Plaintiffs did not attempt to calculate the degree of alleged foreclosure if all browser developers offered a choice screen instead of setting Google as the default. Under Professor Kevin Murphy’s calculation, using a choice screen as a conservative upper bound for foreclosure based on Plaintiffs’ theory that a choice screen is a proxy for some notion of “parity,” the Browser Agreements account for a share shift of just 0.9% of search queries. FOF ¶¶ 1426-32.

Second, Plaintiffs’ calculation of the percentage of queries “covered by” the challenged agreements is inapposite because the agreements indisputably affect only a fraction of the search queries that flow through the “covered” access points. Every empirical event analyzed in this case—and even every “thought experiment” relied upon by Plaintiffs’ experts—reflects the reality that a majority of consumers will use Google even if another search engine is

“exclusively” pre-installed or set as the default. *See supra* § III.A. Under these circumstances, “coverage” cannot be a legally cognizable measure of foreclosure. *See, e.g., Church & Dwight Co. v. Mayer Labs., Inc.*, 868 F. Supp. 2d 876, 914 (N.D. Cal. 2012) (concluding that “if there is any tax effect or coercive impact due to the [challenged] program, it does not exist with respect to the entire shelf space covered by the program” because “the vast majority of shelf space devoted to [defendant] would have been stocked with [defendant’s] product even in the absence of the [challenged] program”), *vacated in part on other grounds*, 2012 WL 1745592 (N.D. Cal. May 16, 2012); *United States v. Hammermill Paper Co.*, 429 F. Supp. 1271, 1282 (W.D. Pa. 1977) (explaining that “the market share represented by [defendant’s] previous supply to [two merchants] is not subject to foreclosure” in light of evidence “that this relationship was likely to continue” even without the challenged merger).

Third, the alternative quantification of foreclosure that Professor Whinston improperly presented for the first time at trial is contrary to what has happened in the real world when an inferior search engine is preinstalled or set as the default. Professor Whinston’s foreclosure calculation of 33% of general search queries (aggregated across browsers and Android) is based on the assumption that two-thirds of all queries subject to Google’s agreements are unavailable to be won by a superior rival. FOF ¶¶ 1423-24. As Figure 7 above reflects, the evidence of user switching where Google is not the preset default proves that a superior rival can win far more queries than Professor Whinston allows for; indeed, the evidence shows that a *majority* of users find a way to use their preferred search engine when it is not set as the default. FOF ¶¶ 496-98, 769-70, 777-88, 1425. Given that rivals can compete to win users away from the default, Plaintiffs’ calculation does not represent a “substantial share” of any of the alleged markets. *See, e.g., Microsoft*, 253 F.3d at 70 (“[A] monopolist’s use of exclusive contracts, *in certain*

circumstances, may give rise to a § 2 violation even though the contracts foreclose less than the roughly 40% or 50% share usually required in order to establish a § 1 violation.” (emphasis added)); Areeda & Hovenkamp at ¶ 1807d (explaining that “[t]he discussion of exclusive dealing suggest[ing] that minimum market shares in the range of 30 to 40 percent are required for condemnation . . . presume[s] outright exclusive dealing,” and “[w]hen the restraint in question excludes less . . . then foreclosure percentages must reflect those facts”). Moreover, Plaintiffs’ 33% figure also ignores the fact that a superior rival would not only compete successfully by convincing users to switch away from whichever search engine was set as the default (as Google long has on Windows through superior quality), but also by convincing browser developers such as Apple and Mozilla to set it as the default in their browsers at the next competition for the default agreement.

Regardless of the validity of their foreclosure shares, Plaintiffs cannot show harm to competition, let alone harm that contributes to maintenance of supposed monopoly power. Foreclosure is not only a *quantitative*, but also a *qualitative* analysis. As the authorities cited above reflect, what the foreclosure *means* to competition is the ultimate inquiry. Here, Plaintiffs have not shown that any asserted “foreclosure” of rivals from the browser default agreements impairs either (1) rivals’ ability to compete by denying them scale or (2) incentives of rivals and Google to compete and innovate—Plaintiffs’ two asserted mechanisms of competitive harm. *See infra* § III.E. Without evidence translating supposed foreclosure percentages into substantial competitive harm in search, Plaintiffs fail to establish exclusionary conduct. *See, e.g., Omega Env’t, Inc. v. Gilbarco, Inc.*, 127 F.3d 1157, 1162-63 (9th Cir. 1997) (holding that “[i]f competitors can reach the ultimate consumers of the product by employing existing or potential alternative channels of distribution, it is unclear whether such restrictions foreclose from

competition *any part of the relevant market*”); *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 237-38 (1st Cir. 1983) (upholding partial requirements contract with leading supplier); *R.J. Reynolds Tobacco Co. v. Philip Morris Inc.*, 199 F. Supp. 2d 362, 387-91 (M.D.N.C. 2002) (no harm to competition shown despite assumed 34% foreclosure); *CDC Techs., Inc.*, 7 F. Supp. 2d at 121-22.

C. The Browser Agreements Are the Product of Competition on the Merits and Therefore Are Not Exclusionary Conduct.

The Browser Agreements do not comprise exclusionary conduct for the independent reason that they reflect the outcome of competition to fulfill a demand that browser suppliers create. For many of the same reasons they are not properly characterized as exclusive dealing, those agreements reflect the competitive process at work rather than “harm [to] the competitive process.” *Microsoft*, 253 F.3d at 58.²

The trial record makes clear that for decades, browser developers like Apple and Mozilla have designed their browsers to have a single default search engine that can be easily changed by a user to any one of several other search providers pre-populated in a drop-down menu in the browser. FOF ¶¶ 1229-33, 1348-53, 1356-1411. Apple and Mozilla executives confirmed that this browser product design—which is followed by numerous other browser developers, including Microsoft, who sets its own search engine as the default in the Edge browser, FOF ¶¶ 805, 860-64—has generated undisputed benefits to users by providing browsers that work seamlessly upon first use. FOF ¶¶ 865-66, 1221, 1236, 1349, 1356-57. From this single default product design, Apple and Mozilla have conducted competitions among leading search engines

² Google recognizes that the Court at summary judgment held that, if the Browser Agreements were deemed a form of exclusive dealing, the Court would analyze competition for the contract as part of the business justification analysis. *Google*, 2023 WL 4999901, at *18. Google provides that analysis in Section III.D, *infra*.

to be the default. FOF ¶¶ 1242, 1277-79, 1292, 1304-39, 1360-79, 1386-1400. This competition, based on product quality and search advertising monetization, has resulted in the highest-quality search engine being set as the default and has generated significant revenue sharing that provides funds necessary to pay for ongoing browser and smartphone innovations and to lower the cost of Apple devices. FOF ¶¶ 1386-1400, 1435-67.

Plaintiffs' theory of exclusive dealing and marketplace foreclosure cannot be squared with the fact that Apple and Mozilla—whose products depend upon a search engine for both browser performance and consumer enjoyment—chose to have a default search engine in their browsers because they believe it is best for users, and have chosen Google to be in that default position because Google provides the best services to users. FOF ¶¶ 1277-79, 1292, 1304-39, 1360-79, 1386-1400, 1456-59. There is no precedent for concluding that an agreement born from intense competition on quality and price, and yielding promotion and easy access for the undisputed highest-quality product, constitutes exclusionary conduct that harms competition. Rather, agreements reflecting the outcome of such contests reflect the “competition on the merits” that the antitrust laws uphold. *Microsoft*, 253 F.3d at 62 (condemning conduct as anticompetitive only after concluding that it “has a substantial effect in protecting Microsoft’s market power, *and does so through a means other than competition on the merits*” (emphasis added)); *id.* at 65 (determining that “Microsoft’s conduct, *through something other than competition on the merits*, has the effect of significantly reducing usage of rivals’ products and hence protecting its own operating system monopoly” before turning to “the question whether it is nonetheless justified” (emphasis added)); *id.* at 68 (upholding Microsoft’s payment of bounties for convert users to Internet Explorer as not exclusionary as a matter of law irrespective of their impact on rivals and explaining that “the antitrust laws do not condemn even a monopolist for

offering its product at an attractive price”); *In re EpiPen Mktg., Sales Practices & Antitrust Litig.*, 44 F.4th 959, 989 (10th Cir. 2022) (affirming judgment for alleged monopolist where “exclusive rebate agreements were a normal competitive tool in the . . . market” such that a rival firm “need only offer a better product or a better deal to reverse, and possibly wield, exclusivity” (internal quotation marks omitted)); *Stearns Airport Equip. Co. v. FMC Corp.*, 170 F.3d 518, 524 (5th Cir. 1999) (affirming judgment for alleged monopolist where “the decision to sole-source a contract or adopt a particular specification was always ultimately in the hands of the consumer,” *i.e.*, the counterparty to the exclusive agreement).

D. Google’s Successful Competition to Win These Default Browser Agreements Is Supported By Legitimate Business Justifications Generating Procompetitive Benefits.

Even if the Court were to conclude that Google’s Browser Agreements were exclusive dealing agreements *and* that they had some anticompetitive effects, Google’s successful competition to win these default Browser Agreements is supported by legitimate business justifications generating procompetitive benefits that well outweigh any claimed harm. The competition among general search engines to be the default search engine on third-party browsers such as Apple and Mozilla has resulted in the highest-quality search functionality for users (*i.e.*, Google) that generates more search and search advertising output. This competition also has incentivized search engines to innovate more and build more compelling products so that they can both compete to win the default, and compete against the default. Competition to win browser defaults also has generated significant revenues for browsers—revenues that are critical for browser developers like Mozilla to remain as viable competitors and that provide Apple with significant resources to innovate and build better devices that in turn result in more search and search advertising output.

Plaintiffs would have this Court interfere with marketplace competition on quality and price and force browsers to set inferior search engines as the default, or require that no default be set. Plaintiffs invite such unprecedented intervention in the speculative hope that consumers (perhaps unwittingly) will use inferior products and such increased usage will better incentivize rivals and enable them to improve their products. This argument is both factually and legally infirm. For one, there is no reason to believe that market intervention would result in any sustained increase in usage of Google's rivals. Historically, where competitors have been the default, users have flocked back to Google. *See, e.g.,* Figure 7, *supra*. And even if rivals could somehow overcome their repeated failed experiences of the past and retain some substantial portion of users, there is no support for the notion that the incremental usage rivals would receive would better incentivize them or otherwise translate to any meaningful quality improvement.

There also is no legal support for the notion that scale benefits achieved from winning customers' business based on competition on the merits turns an otherwise lawful agreement into an unlawful one. Courts have long rejected the argument that supposed long-term benefits of artificially propping up rivals can justify interfering with the competitive process, potentially raising price or reducing quality in the short and long term. *See, e.g., Barry Wright Corp.*, 724 F.2d at 234 (rejecting as a matter of law a challenge to above-cost pricing in part because that "[t]he antitrust laws very rarely reject such beneficial 'birds in hand' for the sake of more speculative (future low-price) 'birds in the bush'"); *Pac. Bell Tel. Co. v. linkLine Commc 'ns, Inc.*, 555 U.S. 438, 451-52 (2009) (rejecting price-squeeze claim because it would induce firms to avoid aggressive price competition); *Novell, Inc. v. Microsoft Corp.*, 731 F.3d 1064, 1072 (10th Cir. 2013) ("Forcing monopolists to 'hold[] an umbrella over inefficient competitors' might make rivals happy but it usually leaves consumers paying more for less.").

For all of these reasons, and more, as further explained below, Plaintiffs' argument fails.

1. The universal browser design of a search engine default, and the distribution agreements that arise from it, benefit competition and consumers.

Although Plaintiffs try to avoid framing their case as an attack on the product design that browser developers (not Google) have driven, it is precisely that. The design of a browser with a default search engine inherently allows for only one default set at any given time. Yet agreements to fulfill the requirements for that design comprise what Plaintiffs claim to be exclusionary conduct, even though they generate beneficial competition among search providers to win incremental search traffic, and additionally benefit users (and increase search usage) by allowing the browser's search functionality to work effectively out of the box. For a litany of reasons, the procompetitive benefits flowing from the browser default revenue share agreements overwhelm any possible claim of anticompetitive harm.

Browsers with a single default search engine are not a product design that was first driven by Google as a means to maintain a monopoly in any market. Rather, it is the long-standing, consistent design practice of all browser developers—including from Apple's initial launch of Safari browser. FOF ¶¶ 860-64, 1228-29, 1242. Mozilla also adopted and maintained this product design decades ago. FOF ¶ 1348. Indeed, this product design has likewise been true of first-party browser developers, including Microsoft and DuckDuckGo—all U.S. browsers have a single preset default search engine. FOF ¶¶ 805-06, 860-64.

The fact that this design has been consistent across browser developers for so many years confirms that these agreements benefit consumers and is not a tool of exclusion, whether characterized as exclusive or otherwise. *See, e.g., EpiPen*, 44 F.4th at 989 (affirming judgment for alleged monopolist because "[t]he widespread use of exclusive rebate agreements in the epinephrine auto-injector market—and the pharmaceutical drug market more broadly—does not

suggest [defendant] acted anticompetitively,” but “[r]ather, this demonstrates the market was functioning properly”); *Barry Wright Corp.*, 724 F.2d at 237-38 (reasoning that if the counterparty to an arguably exclusive agreement with an alleged monopolist “believed that the long-term nature of the contracts significantly interfered with new entry, or inhibited the development of a new source of supply, it is difficult to understand why it would have sought the agreements”).

Testimony from Apple and Mozilla executives confirmed that their long-standing browser design is the design *they chose* and have continued to employ because it best addresses the *search* needs of all of their customers. As Mr. Cue of Apple testified, “[W]e’re trying to address all of our customers. . . . [W]e want customers to have an experience that doesn’t force them to understand all these different search engines that potentially are there. Secondly, to pick the best search engine that there is out there for it so that when you do this it just works. If at some point later on you decide that you prefer a different search engine or there’s a different one that you want to use, then it’s fine, you can switch it over.” Tr. 2624:10-2625:10 (Cue (Apple)); FOF ¶¶ 886, 1220-29, 1236, 1436. Mozilla CEO Mitchell Baker likewise testified, “You want the browser to work when it starts, and so the default -- in Firefox, the default in the search box, the awesome bar in Firefox, is what happens if the user makes no choice.” Baker (Mozilla) Dep. Tr. 46:24-47:23; FOF ¶¶ 1348-49, 1356-57. Neither Apple nor Mozilla has ever had a choice screen selection, and neither company wishes to configure their device/browser with one. FOF ¶¶ 1235-37, 1348, 1357; *see, e.g., EpiPen*, 44 F.4th at 995; *Menasha Corp. v. News Am. Mktg. In-Store, Inc.*, 354 F.3d 661, 663 (7th Cir. 2004) (“When the consumers favor a product or practice, and only rivals squawk, the most natural inference is that the complained-of practice

promotes rather than undermines competition, for what helps consumers often harms other producers[.]”); *Stearns Airport Equip. Co.*, 170 F.3d at 524.

A number of procompetitive benefits flow from this universal design and the distribution agreements that arise from it. *First*, the agreements ensure convenience for Safari and Firefox users by enabling streamlined search functionality that works out of the box. FOF ¶¶ 773-76, 1221-25, 1229, 1236, 1349, 1357, 1436. That alone is a compelling procompetitive justification, especially in light of the fact that some users are inclined to stick with the default search engine on the browser. In addition, as to price, although Google does not charge consumers to use its search engine, the revenue share payments paid by Google are equivalent to lowering the wholesale price of search. Tr. 9703:2-9707:1 (Murphy (Google Expert)); DXD-37.015; FOF ¶¶ 71-73, 1442-43.

Second, the contest to be the default presents search engines the opportunity to (1) win a segment of consumers who are inclined to stick with the default and (2) receive the endorsement of a browser developer as meriting the default selection. FOF ¶¶ 761-72, 1437-38. The agreements thus incentivize search engines to make quality improvements to compete for the default position, knowing that winning the default will enable them to win customers. FOF ¶¶ 1439-41. This is true for both the search engine presently in the default position—which hopes to win the contract at the next negotiation as well as to retain users of the browser (*i.e.*, avoid churn)—and for rival search engines. FOF ¶¶ 1437-41, 1451-52.

Third, monetization of the default position via these agreements introduces price competition that would not otherwise exist given that search engines are available to users at no cost. FOF ¶¶ 71-76, 1437-39, 1442-44. In this way, search engines have an incentive to compete on multiple dimensions to be the default in a browser. FOF ¶¶ 71-76, 1439-44; *see*

Microsoft, 253 F.3d at 59 (noting that “greater efficiency” is an example of a procompetitive justification). This price competition can also reduce barriers to entry or expansion and facilitate entry from new rivals by allowing them to “buy” their way into the market. Tr. 9728:21-9730:23 (Murphy); FOF ¶¶ 75, 1444. Further, default agreements enable price competition to occur even when weaker rivals do not win. FOF ¶¶ 74, 1443. For instance, Microsoft’s attempts to win the Safari default generated price competition even though Google remains the default. Tr. 3245:6-3246:18 (Tinter (Microsoft)) (“So very clearly, even though we weren’t winning, we were helping Apple get more money, and it was costing Google more money.”); Tr. 3504:18-3505:23 (Nadella) (“It’s in their [Apple’s] long-term interest to have at least two suppliers because, quite frankly, they’re getting the benefits of having two suppliers . . . to bid up the price.”); FOF ¶¶ 74, 1443.

Fourth, the browser default agreements also benefit the browsers themselves, which in turn enhances competition in search because the two are complements: higher-quality browsers encourage users to use the web more, which increases online search. FOF ¶¶ 1224-25, 1456-59, 1464-65. Because browsers are generally offered to consumers for “free,” much of the funding to support investments in browsers comes from the ability to partner with search providers. FOF ¶¶ 1460-62. For instance, in 2020, Mozilla’s search revenues accounted for 89% of its total revenues. FOF ¶¶ 1358, 1461-62. Browser investment allows browsers to innovate and create a better browser to attract more customers, and to expand the use of search from existing customers. Tr. 9703:2-9707:1 (Murphy); FOF ¶¶ 1465-67.

Because the revenue browsers earn from the agreements is tied to how much searching users do, browser developers have every incentive to earn more money by making improvements that encourage more searching. Thus, beyond incentivizing browsers to select the highest-

quality search engine, the agreements also incentivize browser developers to improve the browser's speed, stability, ease of use, and other attributes that encourage users to conduct more searches (and thereby generate more revenue to be shared with the browser developer). FOF ¶¶ 771, 1465.

Finally, some of Google's search revenue share payments are passed on directly to consumers via lower device prices, which ultimately generates more search output. FOF ¶¶ 1466-67. For instance, evidence shows that Apple has passed on some of Google's search revenue share payments in the form of lower prices for Apple devices. Tr. 9709:19-9712:22 (Murphy); DXD-37.017; FOF ¶ 1466.

2. Apple and Mozilla choose Google for their browser defaults because of its superior quality, benefiting consumers.

The evidence also shows that Google won competitions to provide the preset default that browser suppliers conduct based on quality and price.

The evidence at trial conclusively established that Google Search's quality and monetization are, and have been for many years prior to any alleged unlawful conduct, superior to its rivals. Plaintiffs' expert Professor Whinston admits as much, acknowledging Google's "[s]earch services quality advantage," "[b]rand image and reputation advantage," and "[m]onetization advantages." UPXD102 at 55; FOF ¶ 1388. Testimony from Apple and Mozilla witnesses confirmed that they selected Google as default because Google provided a better user experience than that of rival search engines, and that their companies did not wish to have any other search engine as the preset default. FOF ¶¶ 1277-79, 1292, 1310-39, 1360-79, 1388-1400. Apple and Mozilla testimonial and documentary evidence further demonstrated that both companies regularly evaluate Google's search quality against that of its rivals for the purpose of determining whether their browsers and users would benefit from a different search engine

default. FOF ¶¶ 506, 1304-47, 1367-79, 1397-99. This evaluation—including conducting experiments to assess search quality and analyzing offers from rivals—evidences the quality and price competition among search engines.

In short, Google has repeatedly outcompeted its rivals for the default position on the basis of its superior quality and monetization. Safari and Firefox users have, in turn, enjoyed convenient access to the world’s best search engine. This is a quintessential form of pro-competitive competition for the contract, and it stands in sharp contrast to circumstances where a counterparty is compelled to accept an inferior offering due to coercion or fear of retaliation. *See, e.g., EpiPen*, 44 F.4th at 996 (explaining that the “presence of coercion” often accounts for decisions against defendants in exclusive dealing cases); *Microsoft*, 253 F.3d at 59-62, 73 (describing how Microsoft used its Windows operating system license to limit OEMs’ ability to promote a superior browser instead of Microsoft’s Internet Explorer and then used its Office software “as a club” to convince Apple to do the same).

a. Google has long won the Safari default over Bing and other rival search engines on Apple’s determination it is best for Apple’s users.

Before the initial launch of the Safari browser in 2002, Apple conducted a search for the best search engine. Apple settled on Google as providing the highest-quality services for Safari users. DX0267 at .001 (press release touting “Google search capabilities built into the user interface for convenient and quick searching on the web’s most popular search engine”); FOF ¶¶ 1241-43. Google and Apple amended this agreement to provide for a revenue share payment in 2005, and when Apple released the iPhone in 2007, Apple chose Google as the default search engine on the mobile version of the Safari browser preinstalled on iPhones. FOF ¶¶ 1245-49. Apple made this decision based on its determination that Google was the best search engine, and ever since, Apple has consistently concluded that Google is the best search engine in the U.S.

and thus the right search engine for Apple to set as the default on its browser for its customers. FOF ¶¶ 1248, 1277-79, 1388-92. Apple's selection of Google is not universal across all markets: in those countries where Apple determined that another search engine provided superior search quality to Google, Apple chose a different search engine and carved those countries out of its agreement with Google. FOF ¶¶ 1260, 1394.

Since 2009, Microsoft has approached Apple a number of times to propose that Bing become Safari's default search engine. Each time—in 2009, 2013, 2015 to 2016, 2018, and 2020—Apple declined to do a default deal with Bing out of concerns regarding Bing's product quality. FOF ¶¶ 1304-39, 1391. Apple arrived at this conclusion again and again after taking into account information from Microsoft regarding its plans for improvement and investment, as well as Apple's own internal assessments of Google's search quality compared to Bing's. *Id.*

When Microsoft first approached Apple regarding a default deal in 2009, Apple was unwilling to take what it perceived as a “significant customer experience risk” on Bing, which Microsoft had only recently launched. FOF ¶¶ 1306-07. When Microsoft approached Apple again in 2013, Apple remained not interested in a Bing default deal on Safari due to concern with Bing's product quality and the risk to Apple's brand from choosing an inferior search engine to associate with the user's Safari browsing experience. FOF ¶¶ 1308-09. Following Microsoft's outreach to Apple again in 2015, Apple again determined that Bing's search quality and monetization were not strong enough to be a viable option. FOF ¶¶ 1310-17. Specifically, Apple concluded that Bing was inferior to Google in search quality and search monetization, and that Microsoft had failed to adequately improve Bing's search quality and search monetization over the years. FOF ¶¶ 1310-17.

Microsoft approached Apple again in 2018, representing to Apple that its search quality had improved since the 2015 to 2016 discussions, and offering to sell Bing to Apple or enter into a joint venture regarding Bing. FOF ¶¶ 1318-1332. After evaluation, Apple concluded that Bing’s search quality had failed to improve, and that little credence should be given to Microsoft’s representation of improved quality. FOF ¶ 1318-1332. Mr. Cue summarized Apple’s conclusion: “Microsoft search quality, their investment in search, everything was not significant at all. And so everything was lower. So the search quality itself wasn’t as good. They weren’t investing at any level comparable to Google or to what Microsoft could invest in. And their advertising organization and how they monetize was not very good either.” Tr. 2511:22-2512:19 (Cue); FOF ¶ 1391. Apple’s evaluation is also memorialized in an email from Tim Cook to his team of senior executives; among Mr. Cook’s bulleted observations are the following: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] DX0376 at .001; FOF ¶¶ 1328-31. Finally, in 2020, Apple conducted a head-to-head evaluation, which confirmed that Google continued to have a strong lead in search relevance. FOF ¶¶ 1334-36.³

³ Apple has had similar concerns with setting DuckDuckGo as the default search engine because DuckDuckGo is dependent on Bing for most of its search results. FOF ¶¶ 1340-44.

b. Google has won the Firefox default based on Mozilla's determination it is best for Firefox users.

Mozilla also evaluated search engine quality before selecting a default search engine for its initial release of the Firefox browser in 2004. Mozilla concluded that Google offered the highest-quality search experience, and that setting it as the default search engine would be the best option for Firefox and its customers. FOF ¶¶ 1361-62. As Mozilla CEO Mitchell Baker recounted, “When we entered this agreement, there was nothing in the world like Google. Prior to Google, there had been Excite and Infoseek and the Yahoo! directory. I am not sure if Microsoft had started their search at this time, but Google was way ahead. Like search in those days was miraculous and so there was nothing like Google. I mean, it's hard to remember how earth-shattering search was when Google changed the game with their page rank from what, you know, Yahoo! had been doing or the other things that we called search.” Baker (Mozilla) Dep. Tr. 52:4-6, 52:8-19; FOF ¶ 1362.

Mozilla and Google negotiated five amendments to the 2004 agreement between 2005 and 2011, extending the essential terms until 2014, when Mozilla switched its preset default search engine for Firefox in the United States from Google to Yahoo. FOF ¶¶ 1363-65. During the years Yahoo was the default search engine, Mozilla observed a decline in both (1) usage of the default search functionality in Firefox and (2) the number of users of the Firefox browser. As a result, Mozilla concluded that “Yahoo! was not delivering the search experience that we needed and had contracted for and our users were telling us that,” and terminated its agreement with Yahoo. Baker (Mozilla) Dep. Tr. 77:18-78:02, 78:9-12; FOF ¶¶ 783-86, 1370-74.

When determining which search provider to replace Yahoo with, Mozilla evaluated various options and chose Google on the basis that it was “what [their] users want.” Baker (Mozilla) Dep. Tr. 79:20-80:06, 80:15-80:24; FOF ¶¶ 1375-76. Mozilla has continued to

evaluate rival search engines and user preferences, particularly in advance of the expiration of its agreement with Google. FOF ¶¶ 1378-79. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

DXD-37.026; FOF ¶¶ 787, 1379, 1399, 1459.

Mozilla’s preference for Google as the default search engine and its view about the importance of having competition among search providers for the Firefox default could not be more clear. Mozilla advised the Department of Justice, in a letter sent weeks before this lawsuit was filed, that it would be significantly harmed in its ability to compete were it not permitted to enter into a default search agreement with Google, because Google provides the best user experience and is preferred by Firefox users, whereas Bing has poor retention, lower search volume, and lower monetization rates. FOF ¶¶ 1380-83, 1463; DX0547.

In sum, Google has won the competition to be the preset default on the Safari and Firefox browsers based solely on Google’s superior product quality and monetization.

3. Google has legitimate business justifications for winning browser default agreements, which benefit competition and consumers.

Google’s prevailing on quality and price also creates procompetitive incentives for search suppliers to compete harder—that is, to engage in the very price and quality competition universally recognized as competition on the merits. Tr. 6051:13-16 (Whinston) (agreeing that “competition on the merits refers to competition based on the quality of a firm’s product and the efficiency of its production”).

Google competes to be the default in third-party browsers because making Google Search easily accessible to consumers and receiving the endorsement of widely respected product

developers such as Apple and Mozilla contribute to increased search usage. FOF ¶¶ 761-71, 1437-39. That same rationale applied nearly two decades ago, well before Plaintiffs contend that agreements to set Google as the default harmed competition. And it is the same reason why other search engines have long competed to be the default in a host of third-party browsers. FOF ¶¶ 761-71, 1439-43.

When Google has succeeded in the competition to be the default in a particular browser, it has done so by offering the best product at the best price. Those are not only the terms established by browser developers in selecting a default search engine, but also the hallmarks of competition on the merits. *See, e.g., Microsoft*, 253 F.3d. at 68 (“[A] monopolist does not violate the Sherman Act simply by developing an attractive product.”); *id.* (“The rare case of price predation aside, the antitrust laws do not condemn even a monopolist for offering its product at an attractive price[.]”).

The antitrust laws do not condemn competition for an attractive promotional opportunity, even if the resulting agreement could be characterized as exclusive or the firm that prevails is an alleged monopolist. To the contrary, “[i]t is well established that competition among businesses to serve as an exclusive supplier should actually be *encouraged*.” *Race Tires Am., Inc. v. Hoosier Racing Tire Corp.*, 614 F.3d 57, 83 (3d Cir. 2010). “Competition-for-the-contract is a form of competition that antitrust laws protect rather than proscribe” because even if “[e]xclusive contracts make the market hard to enter in” the interim, they “cannot stifle competition over the longer run,” while “competition of this kind drives down the price . . . to the ultimate benefit of consumers.” *Paddock Publ’ns, Inc. v. Chi. Trib. Co.*, 103 F.3d 42, 45 (7th Cir. 1996). These benefits to consumers are apparent here, as the period Plaintiffs focus on has featured continuous improvements to search and search ads quality, explosive growth in search and search ads

output, and significant price competition in the form of revenue share payments to browser developers.

4. Search default agreements also promote browser competition.

Google’s search default agreements with browser providers not only produce benefits for search, but also for browser competition. *See* FOF ¶¶ 1455-1467. Search is an essential feature of a browser, making it an economic complement. FOF ¶¶ 1456-59. It is for this reason that browsers are outfitted with default search engines—the default enables streamlined browser functionality that works out of the box for consumers. FOF ¶¶ 1221-25, 1229, 1236, 1349, 1357, 1436. In addition, the quality of the search engine has a significant impact on the browser experience. (The reverse is equally true: as noted above, higher-quality browsers expand search output, and thus search providers have strong incentives to improve browsing.) FOF ¶¶ 1457-59, 1464. Relatedly, users rely on browser developers to choose a high-quality search engine; the search engine is part of the product offered to users. FOF ¶¶ 763, 1239-40, 1438, 1457-58. Thus the browser’s recommendation of a search engine is an important part of the overall experience that comes with a browser. FOF ¶¶ 1457-58. Finally, monetization comes from the search side of the market—and so browser providers seek to share in that monetization, and search providers compete to partner with browser providers to promote and enhance sales of their product. FOF ¶¶ 1460-62.

Mozilla’s letter to the Department of Justice specified the harms that would flow from prohibiting browser companies from entering deals with Google: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] DX0547 at
.001.

Because search engines and browsers are highly complementary, the procompetitive benefits to browser competition are fully cognizable here, wholly apart from how improving browser competition also redounds to the benefit of search competition. *See Microsoft*, 253 F.3d at 96 (concluding that on remand of Plaintiffs’ tying claim, Microsoft “may offer *the same* procompetitive justification for the override” in the *operating system* market even though plaintiffs would seek to show anticompetitive effects “in the *browser* market” that are “greater than these benefits” (first emphasis added)); *Eastman Kodak*, 504 U.S. at 483-84 (conduct that promoted interbrand copier competition accepted as a “valid business justification[]” under Section 2 that could outweigh purported harm to competition in distinct markets for copier service and parts); *NCAA v. Bd. of Regents of Univ. of Okla.*, 468 U.S. 85, 111, 115-17 (1984) (considering whether NCAA’s asserted interest in protecting live attendance justified restraints in the distinct “college football broadcast[]” market); *Mozart Co. v. Mercedes-Benz of N. Am., Inc.*, 833 F.2d 1342, 1348-51 (9th Cir. 1987) (affirming verdict based on finding that restrictions on the replacement parts market were justified by enhancing quality in the market for the sale of cars); *M & H Tire Co. v. Hoosier Racing Tire Corp.*, 733 F.2d 973, 985-86 (1st Cir. 1984) (concluding a “single tire rule” that had “the effect of imposing some limits upon competition among tire makers” was justified in part because standardization reduced the costs of auto racing); *see generally Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 989 (9th Cir. 2023) (observing that courts have “considered cross-market rationales in Rule of Reason and

monopolization cases”). When markets are highly complementary, netting competitive harms and benefits across markets does not present a problem of comparing apples and oranges, and denying consumers the benefits of intensified competition in a complementary market because of a smaller asserted harm in the alleged market would “chill the very procompetitive conduct the antitrust laws are designed to protect.” *NCAA v. Alston*, 141 S. Ct. 2141, 2161 (2021) (internal quotation marks omitted); see *Sullivan v. Nat’l Football League*, 34 F.3d 1091, 1112 (1st Cir. 1994) (“Arguably, the market put forward by the NFL—that is the market for NFL football in competition with other forms of entertainment—is closely related to the relevant market found by the jury such that the procompetitive benefits in one can be compared to the anticompetitive harms in the other.”).

E. Plaintiffs’ Theories of Anticompetitive Harm Are Both Factually and Legally Flawed.

At bottom, Plaintiffs’ case is predicated on a misguided conviction that competition would be enhanced if other search engines received more queries by restricting Google from competing aggressively. But the Sherman Act concerns itself with whether “a monopolist’s act . . . harm[s] the competitive *process* and thereby harm[s] consumers,” *Microsoft*, 253 F.3d at 58, and it neither seeks to restrain a market leader from drawing upon all of its advantages nor authorizes a reallocation of market opportunities in an effort to encourage less efficient rivals to catch up.

Plaintiffs proffer two theories of harm: first, that when rivals lose the default to Google, they have less scale, and that reduced scale negatively impacts their quality, weakening them as competitors; and second, that the default agreements reduce incentives for price and quality competition. Both theories are legally and factually flawed.

The legal infirmity is straightforward. Unless scale or incentives result from *exclusionary* conduct, they are not “anticompetitive” effects as a matter of law. Hard competition on the merits produces exactly the same impact on competitors. This is why Section 2 liability cannot be found absent “harm to the competitive *process*.” *Microsoft*, 253 F.3d at 58. The facts of this case confirm the importance of maintaining steadfast adherence to this bedrock principle of antitrust law. Plaintiffs imagine that if Google were restrained in its ability to compete to be the default search engine on third-party browsers, then less-efficient, lower-quality rivals would have a better chance at securing those opportunities. And if inferior rivals received more queries, then their quality might someday improve, their investments might increase, or they might spur Google to do even more to improve upon its already substantial quality advantage. But restraining Google from competing hard on the merits to prop up rivals would harm users in the short term (and likely longer), antithetical to the very purpose of the antitrust laws. *Novell*, 731 F.3d at 1072; *Olympia Equip. Leasing Co. v. W. Union Tel. Co.*, 797 F.2d 370, 375 (7th Cir. 1986) (explaining that “[a] monopolist, no less than any other competitor, is permitted and indeed encouraged to compete aggressively on the merits” (internal quotation marks omitted)).

Without exclusionary conduct, any Google scale advantage cannot serve as a predicate for imposing antitrust liability. Plaintiffs do not contend that Google unlawfully acquired a monopoly in any alleged market, and “[a] firm that has lawfully acquired a monopoly position is not barred from taking advantage of scale economies by constructing, for example, a large and efficient factory.” *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 274 (2d Cir. 1979) (adding that “[t]hese benefits are a consequence of size and not an exercise of power over the market”). The deployment of additional resources—whether in the form of dollars, engineering

talent, or user interaction data—to develop a better product or produce it more efficiently is a manifestation of competition on the merits, even if the firm with a scale advantage is purportedly a monopolist. *E.g., Foremost Pro Color, Inc. v. Eastman Kodak Co.*, 703 F.2d 534, 545 (9th Cir. 1983) (“[A] monopolist is not forbidden from improving his efficiency in manufacturing or marketing, even though the effect of doing so will be to maintain or improve his sales.” (internal quotation marks and citation omitted)), *overruled on other grounds as recognized in Chroma Lighting v. GTE Prods. Corp.*, 111 F.3d 653, 657 (9th Cir. 1997).

In any event, the evidence failed to support either Plaintiffs’ scale or incentives arguments. As to scale: Plaintiffs have not shown that shifting queries to an inferior search engine would have resulted in long-term quality improvements that would have ultimately redounded to the benefit of consumers. As Professor Murphy explained, market evidence refutes the claim that a small change in scale would have led to substantially larger changes in market outcomes. FOF ¶¶ 333-43. Prior increases in scale have *not* translated to larger share shifts. Microsoft’s own data reveals that when it more than doubled its scale overnight by syndicating results to Yahoo, it saw no material increase in quality. FOF ¶¶ 334-41. Notably, (i) this doubling of scale was six times greater than the additional volume (1.5%, aggregating Apple and Android) rivals could have received were a choice screen to be implemented, (ii) this occurred when Windows PCs, on which Microsoft had virtually all preinstallation, made up the vast majority of search usage, and (iii) this occurred well before today’s modern large language models emerged with their considerably lessened need for user data. FOF ¶¶ 312-332, 1432, 1449, 1612. Market evidence also shows that although Yahoo initially increased its query volume when it became the Firefox default, that gain in share eroded during the period it was the default. FOF ¶¶ 342-43.

The fact that prior increases in scale have not translated into share shifts is consistent with both the law of diminishing returns and the record evidence of all the factors that impact search quality that have nothing to do with user interaction data. FOF ¶¶ 253-332. To be sure, *some* user interaction data is useful to search engines, but beyond a certain point, the utility diminishes such that there is no additional meaningful utility in the data. Plaintiffs presented no evidence that quantities of user interaction data beyond what Microsoft already has would have any meaningful impact on a search engine's ability to serve high-quality results to its users. Indeed, Dr. Ramaswamy testified that Neeva—which built a modern search engine that relied on machine learning techniques—could compete successfully with Google with approximately 2.5% of general search users. FOF ¶¶ 608-10, 616-20.

Professor Edward Fox's experiment puts to rest any contention that Microsoft's failure to outcompete Google is a function of its smaller query stream, as opposed to its failure to invest and innovate in search as Google has.⁴ The results of his experiment demonstrate that both Google and Bing are already at the point of diminishing returns, and thus the consistent quality gap between the two search engines cannot be attributed to the fact that Google receives more queries than Bing. A company as efficient as Google could have search quality similar to Google even at Microsoft's scale, and conversely a company as efficient as Google but with Microsoft's scale would not meaningfully benefit from an increase in user interaction data. FOF ¶¶ 344-88.

Plaintiffs nonetheless at trial tried to make much of Google's own use of the user data it receives. In particular, Plaintiffs seize on internal references to the value of that user interaction data. But again, Professor Fox's experiment disproved the contention that this data gives Google

⁴ Plaintiffs' *Daubert* Motion is addressed in § VI, *infra*, and should be denied.

an insurmountable advantage: the overwhelming majority of the quality gap between Google and Bing cannot be explained by the different volumes of user interaction data available. FOF ¶¶ 349, 351-88. And the testimony of Google engineers confirmed that Google's use of user interaction data has always been but one of many inputs into Google's systems, has decreased over time, and that the reliance on that data is in the midst of a dramatic change given the rise of large language models that employ fundamentally different techniques to solve the same task, *i.e.*, predicting the usefulness of documents given the query. FOF ¶¶ 253-332. For all of these reasons, there is no evidence that any share shift would generate any meaningful quality improvement.

Professor Whinston's investment incentives theory—that rivals would somehow invest more if they were guaranteed winning the default because Google could not—fares no better. As with scale, market evidence refutes the theory that, absent the challenged agreements, rivals (or Google) would have invested substantially more in improving the quality of their services. DXD-37.121; FOF ¶¶ 1446-52. Despite having the vast majority of preinstallation on Windows PCs, and significant preinstallation on early mobile devices, Microsoft failed to invest and innovate to retain users or gain search share. DXD-37.132; FOF ¶¶ 457-86, 1448-49. In fact, in 2011, Microsoft had exactly the advantages that Professor Whinston claims would enable rivals to benefit from an increase in scale (*i.e.*, the majority of search occurred on Windows computers; Bing was preinstalled on the majority of Windows computers; and Internet Explorer was the most popular browser on Windows computers), and yet Microsoft nonetheless failed to gain share. DXD-37.133; FOF ¶ 1449. And despite winning the Firefox default in 2014, Yahoo failed to improve its search quality and to meet its investment obligations in its Mozilla agreement. DXD-37.135; FOF ¶¶ 1366-70, 1450.

And during this same time, the record is clear that no competitor invested in improving search quality more than Google. Microsoft's defaults on Windows PCs did not deter Google from competing to win a substantial majority of queries on Windows through investing in Google Search and its complements (such as Google Chrome) without any guarantee of success. FOF ¶¶ 16-52, 778-79, 904-19. Nor was Google deterred from competing to win Firefox users after it lost the default. FOF ¶¶ 783-87. The evidence also refutes the suggestion that Google only innovates when new competitive threats arise. FOF ¶¶ 77-241, 1085-1102.

F. Plaintiffs Have Not Identified a Valid Substantially Less Restrictive Alternative for Achieving These Procompetitive Benefits.

For all the reasons above, the browser default agreements are justified by numerous procompetitive benefits in the alleged markets that stand unrebutted, and these procompetitive benefits outweigh any speculative and unquantified anticompetitive effects. In addition, Plaintiffs have not identified a valid substantially less restrictive alternative for achieving these procompetitive benefits. To rebut these clear procompetitive benefits, as set forth above, Plaintiffs must “prove that ‘*substantially* less restrictive alternative rules’ existed to achieve the *same* procompetitive benefits.” *Alston*, 141 S. Ct. at 2162 (emphases added). Plaintiff must also show that the alternative does so without significantly increased costs and that the alternative was *ex ante* a reasonable alternative—not the *least* restrictive option—for the defendant to implement. *See id.* at 2161 (explaining that “antitrust law does not require businesses to use anything like the least restrictive means of achieving legitimate business purposes,” as “mistaken condemnations of legitimate business arrangements are especially costly, because they chill the very procompetitive conduct the antitrust laws are designed to protect” (internal quotation marks omitted)); *see also Epic Games*, 67 F.4th at 990 (a valid less restrictive alternative “must be virtually as effective in serving the defendant’s procompetitive purposes . . . without significantly

increased cost” (brackets and internal quotation marks omitted)); *Cnty. of Tuolumne v. Sonoma Cnty. Hosp.*, 236 F.3d 1148, 1159 (9th Cir. 2001) (same); *Am. Motor Inns, Inc. v. Holiday Inn, Inc.*, 521 F.2d 1230, 1250 (3d Cir. 1975) (firms should not be “made guarantors that the imaginations of lawyers could not conjure up some method of achieving the business purpose in question”). Plaintiffs come nowhere near to meeting their burden of proving one.

Plaintiffs posit hypothetical agreements providing for “unconditional” revenue share payments or a “most-favored supplier contract” (which Plaintiffs equate to a choice screen), contending that such never-before-seen agreements would provide for more competition than the customary agreements entered into by all browsers with search engine providers. But there is no reason to think that those scenarios are plausible market outcomes, *i.e.*, agreements between browser suppliers and search providers that would arise in competition. Search providers pay revenue share for the incremental users generated by the promotion; without any commitment for promotion, there is no reason to think they would be willing to pay. FOF ¶¶ 761-72, 799-802, 814-16. Microsoft has not entered these kinds of theoretical arrangements for Bing with Windows OEMs, and its existing agreements to pay revenue share in exchange for being integrated into browsers such as Safari and Firefox are not “unconditional.” FOF ¶¶ 797-98, 804-05, 1282, 1354, 1405-06. Indeed, no browser developer in the U.S. has these arrangements, and there is no evidence that any browser developer would prefer such arrangements such that there was a realistic chance of them emerging absent regulatory intervention. To the contrary, Apple and Mozilla definitively testified that they did not want a choice screen. FOF ¶¶ 1235-36, 1357. Because Plaintiffs’ proffered alternatives have no real-world basis, they cannot serve as substantially less restrictive alternatives. *See Alston*, 141 S. Ct. at 2161-62.

The implausibility of these alternative agreements also bears on whether they could achieve all of the procompetitive benefits that Google’s browser default agreements today provide. Plaintiffs presented no evidence—and there is no reason to believe—that an “unconditional” revenue share or most-favored supplier arrangement would generate anywhere near the revenue that is currently available to browser developers under today’s agreements. Specifically, a search engine would have no incentive to make substantial payments to fund improvements to the browser without any assurance of reaping a portion of the benefits (*i.e.*, the increased search output) resulting from the browsers’ improvements. FOF ¶¶ 761-72, 799-802, 814-16. Similarly, choice screens reduce price competition among search providers because it can be expected that popular search engines will not have to compete on price to be included on a choice screen. FOF ¶ 1445. In addition, because choice screens offer multiple search engines to choose from, they eliminate many of the benefits of default arrangements, including providing incremental volume and the value of being the recommended default. *Tr. 9797:16-9801:10 (Murphy); DXD-37.076; FOF ¶¶ 761-72, 814-16, 1445.* On these facts, Plaintiffs fall well short of meeting their burden to show that the less-restrictive alternatives achieve the same procompetitive benefits. *Alston*, 141 S. Ct. at 2162.

For all of these reasons, Google’s Browser Agreements do not violate Section 2.

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

Plaintiffs’ Section 2 burden is the same with respect to Google’s Android MADAs and RSAs (“the Android Agreements”⁵) as laid out above with respect to the Browser Agreements: Plaintiffs must establish that the agreements at issue were in fact exclusive agreements, that the

⁵ “MADA” stands for Mobile Application Distribution Agreement, and “RSA” stands for Revenue Share Agreement.

agreements foreclosed a substantial share of the relevant market, that competition in the relevant market was substantially harmed, and that Google’s conduct thereby helped to maintain Google’s purported monopoly power. *Google*, 2023 WL 4999901, at *14. Plaintiffs have not met their *prima facie* burden.

The MADAs allow for the preloading of rival search engines—and beyond that, are device-by-device. FOF ¶¶ 1474-78, 1560-64. Ample search traffic remains available for rivals to win. FOF ¶¶ 1563-73. And Google’s RSAs provide OEMs and carriers flexibility to reach preinstallation deals with rivals. The RSAs are also device-by-device, and the preinstallation exclusivity terms apply only if a partner chooses to opt the device into the top payment tier. FOF ¶¶ 1483, 1487, 1492, 1497, 1502, 1550, 1574-86. An Android OEM or carrier who wishes to enter a deal with a rival search engine while also maintaining a substantial revenue stream from Google has multiple options for doing so. FOF ¶¶ 1574-86. Finally, regardless of whether rival search engines win preinstallation on an Android device, users can always access any search engine they would like to use (*e.g.*, by changing the default in the Chrome browser or downloading a rival search widget or app). FOF ¶¶ 1587-89. Under these circumstances, the Android Agreements do not amount to “exclusive” dealing arrangements.

Nor do the agreements foreclose a substantial share of any relevant search market. Google Search is overwhelmingly popular on Android. As a result, less than 1% of U.S. search queries would shift to rivals were a choice screen to be implemented on Android devices. FOF ¶ 1613. Even in Plaintiffs’ hypothetical scenario where Google received no preinstallation whatsoever on Android devices in the U.S.—a scenario at odds with the overwhelming OEM and carrier preference for Google Search—and a rival search engine was exclusively preinstalled on all search access points on every Android device, DOJ Plaintiffs’ expert calculates the resulting

share shift as only 11.6% to 13.5% of U.S. search queries. FOF ¶ 1617. Even by using a “coverage” number—an invalid method of calculating foreclosure in this case—MADA and RSA devices cover only 19.4% of Plaintiffs’ alleged search market. FOF ¶ 1616. Given that the RSAs provide for, at most, only preinstallation exclusivity (and even then device-by-device), those low numbers do not comprise substantial foreclosure; indeed, they are below thresholds courts recognize as “virtual” safe harbors. *Minn. Mining & Mfg. Co. v. Appleton Papers, Inc.*, 35 F. Supp. 2d 1138, 1143 (D. Minn. 1999).

Finally, as with the Browser Agreements, any claim of anticompetitive harm is decisively outweighed by the Android Agreements’ procompetitive benefits, which include, *inter alia*, the enhanced consumer appeal resulting from a convenient out-of-the-box search functionality featuring Google Search; increased search usage; enhanced competition both within the Android ecosystem and vis-à-vis Apple devices (boosting search output); and lower-cost, higher-quality mobile devices (also boosting search output). FOF ¶¶ 1685-1735.

A. Plaintiffs Have Not Established an Exclusive or *De Facto* Exclusive Arrangement.

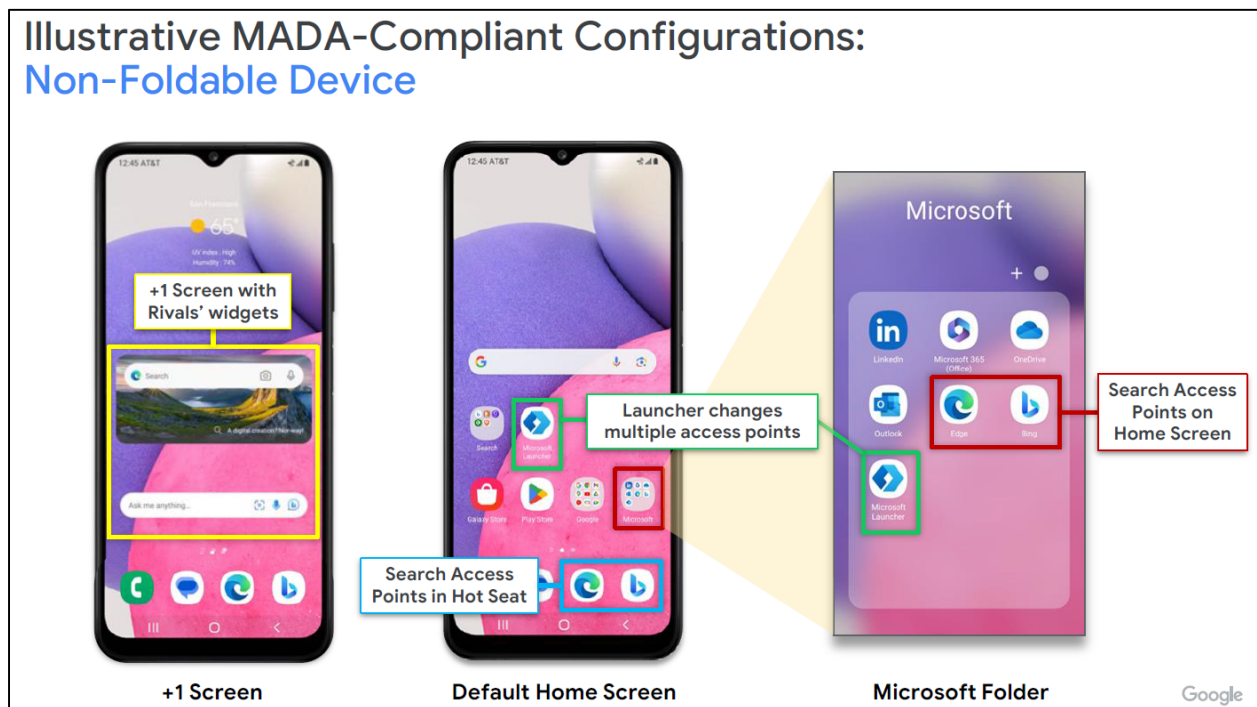
Plaintiffs contend that Google’s MADAs with Android OEMs and RSAs with Android OEMs and wireless carriers are anticompetitive exclusive or *de facto* exclusive dealing arrangements. But unlike exclusive dealing arrangements, Google’s MADAs and RSAs do not prevent rival search engines from reaching users of Android devices covered by those agreements.

1. Google’s MADAs allow for the preloading of rival search engines and thus cannot be considered exclusive dealing arrangements.

Google’s MADAs with OEMs are not exclusive, either by their terms or by their effect. To begin, Google’s MADAs with OEMs are device-by-device agreements, and therefore an OEM may choose whether to preload Google’s services on some or all of their devices. FOF ¶¶

1474, 1561. For those devices on which OEMs choose to preload Google's services, the MADAs contain no restrictions whatsoever with regards to the preloading of rivals alongside Google. FOF ¶¶ 1476-78, 1560, 1562-73. While the MADA's search-related preload requirements do require certain placement requirements for Google Search (a Google Search Widget on the default home screen, and Chrome and the Google Search App in a Google folder on the default home screen), rival search providers can obtain prominent and significant preloading. FOF ¶¶ 1476-78, 1560, 1562-73.

Figure 9 (DXD-02.003):



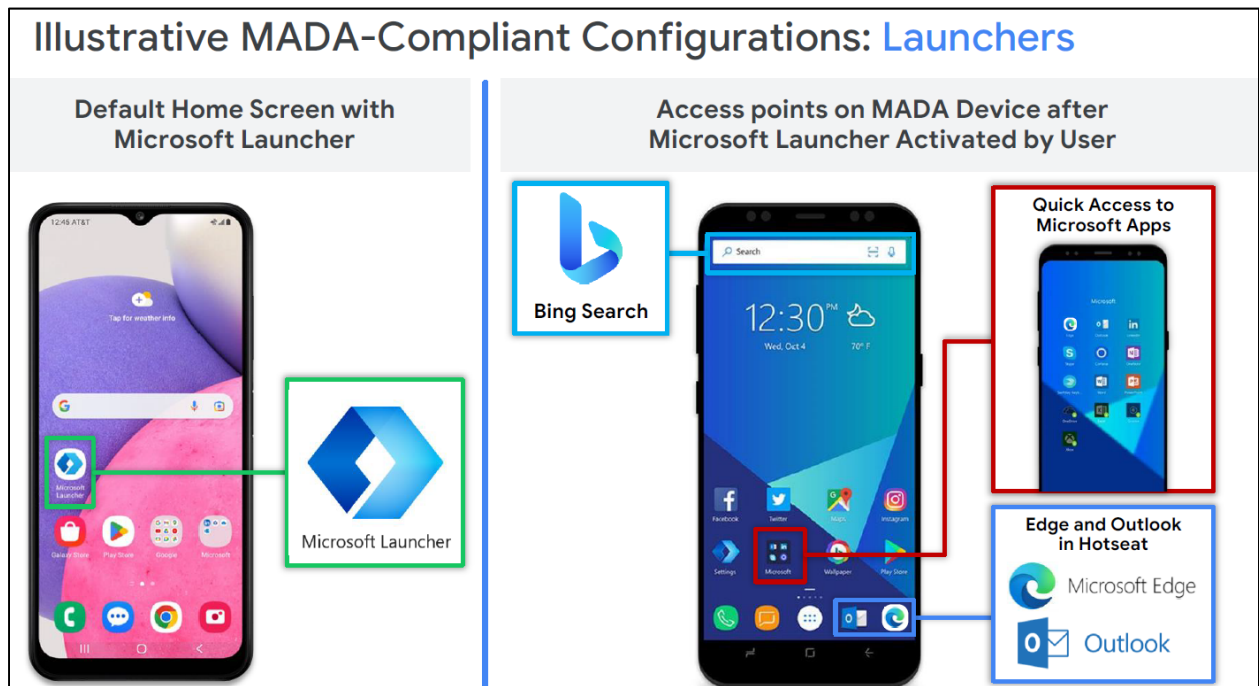
As the testimony regarding Figure 9 above (DXD-02.003) confirmed at trial:

- Rivals can be the default search engine in a browser in the “hotseat” and in the default browser. The hotseat is one of the most significant places for the placement of browsers on an Android device. Browsers have accounted for 36-37% of search revenue on Android devices in recent years, and most of that is attributable to a browser preloaded in the hotseat. FOF ¶¶ 1564-65.

- OEMs can also preload a rival’s search engine widget and/or search app anywhere on an Android device, including on the home screen and in the hotseat. FOF ¶¶ 1566-67.

In addition to preloading rivals’ competing search apps, widgets, and browsers on MADA devices, OEMs can preload a rival’s user-activated application “launcher” anywhere on the device. FOF ¶ 1568. A launcher allows a user to change multiple search access points on a device all at once, including (1) removing the Google Search Widget and Google application folder from the default home screen; (2) placing a rival search widget and rival application folder on the default home screen; and (3) placing a rival’s search app and browser in the hotseat. FOF ¶ 1569. Figure 10 (DXD-02.005) below depicts an Android device after the user activates the Microsoft launcher.

Figure 10 (DXD-02.005):



This flexibility is not merely theoretical. Microsoft signed a MADA with Google for the Surface Duo, under which it preloads Google’s Search Widget and the Google folder (containing

Chrome and the Google Search App) on the default home screens, and yet Microsoft still prominently promotes its rival search services on those devices. FOF ¶¶ 1570-71. The Surface Duo prominently displays search access points with Bing as the default in several places, including: (1) Microsoft's Edge Browser preloaded in the hotseat; (2) Microsoft's Edge Browser set as the default browser for the device; (3) a Microsoft folder containing the Bing Search App preloaded on the default home screen; (4) a Bing Search box preloaded on the minus 1 screen; and (5) a Bing search bar accessed by swiping down from the home screen. FOF ¶ 1572.

Figure 11 (DXD-37.108):



Separately from whatever preinstallation rivals obtain on a MADA device, users who wish to use a rival search service can download its app, widget, or browser, or change the default in the preloaded Chrome browser (or, on Samsung Devices, Samsung's preloaded S-Browser). FOF ¶¶ 1587-89, 1595-97. Users can also easily remove the Google Search Widget by long pressing on the Widget and selecting delete. FOF ¶¶ 1590-93.

Because Google’s MADAs with OEMs do not prevent those OEMs from preloading rivals on any device and do not prevent users from accessing rivals on any device, Plaintiffs failed to prove the MADAs constitute exclusive dealing under federal antitrust law.

2. Google’s RSAs at most provide an option for OEMs and carriers to choose device-by-device preinstallation exclusivity, which is not sufficient to be considered exclusive dealing.

Google’s RSAs with OEMs and carriers also do not resemble exclusive distribution agreements that have been condemned as exclusionary conduct under the antitrust laws. To begin, Google’s current RSAs with Motorola, Samsung, Verizon, AT&T, and T-Mobile allow these partners the choice to preload search rivals on any device that they wish, while still earning the highest tier search revenue payments on those devices for which the partner has chosen to preload Google exclusively. FOF ¶¶ 1574-86.

Unlike an exclusive dealing arrangement, this device-by-device structure allows partners the flexibility to enter into a search partnership with rivals while concurrently maintaining their deal with Google for other devices. *See* Areeda & Hovenkamp at ¶ 1800 (exclusive dealing “forbids the buyer of the defendant’s goods from purchasing similar goods from a rival as well” (emphases added)); *ZF Meritor*, 696 F.3d at 270 (noting that “[a]n exclusive dealing arrangement is an agreement in which a buyer agrees to purchase certain goods or services *only from a particular seller* for a certain period of time” (emphasis added)). Partners are not prevented from preloading rivals on any devices (and any amount of devices) of their choosing—the only result of doing so is that the partner will not receive the highest revenue share on those devices. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Allied Orthopedic, 592 F.3d 991, is instructive on this issue. There, the court addressed agreements under which Tyco would offer a deeper discount to members of a Group Purchasing Organization (“GPO”) in exchange for agreement by the GPO not to enter into a purchasing contract with any other vendor of pulse oximetry products. *Id.* at 996. The court found “significant” the fact that the GPO’s members were under no contractual obligation to purchase anything from Tyco; rather, they were free at any time to purchase from another vendor, and “could simply forego the negotiated discounts with Tyco.” *Id.* at 996-97. Under these circumstances, the court held that the agreements did “not foreclose competition.” *Id.* at 997.

So too here. Google’s device-by-device RSAs with Android OEMs and carriers do not obligate those partners to exclusively preload Google search on any device. At any time, an OEM or carrier can forgo the highest tier revenue share payment on any device, and choose to preload an alternative search engine.⁶ Indeed, the RSAs here provide even greater flexibility than the contract at issue in *Allied*, which limited the GPO members’ ability to seek competing group discounts from rival vendors, as OEMs and carriers are free to enter a competing agreement with any search rival at any time, for any volume of devices. Evidence also showed that ample search volume remains available for a rival—whether equally or even less efficient than Google—to allow rivals to compete against the RSA on Android devices. FOF ¶¶ 1574-97. Because OEMs and carriers have flexibility to deal with search engine rivals on any device, Plaintiffs have failed to prove Google’s RSAs constitute exclusive dealing.

⁶ Notably, in its 2018 case, the European Commission did not challenge Google’s device-by-device RSAs, and the Commission’s invalidation of Google’s portfolio-based RSAs was overturned on appeal. *See* Case T-604/18, *Google LLC and Alphabet, Inc. v. European Commission*, ECLI:EU:T:2022:54, ¶¶ 800-802 (Sept. 14, 2022), available at <https://curia.europa.eu/juris/document/document.jsf?text=&docid=265421&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=5792>.

The RSAs are not exclusive dealing for another reason as well: users can easily access rival search engines on any Android device directly or via the Google Play store or any number of other app stores, regardless of the RSA tier in which a device is enrolled. *See Allied Orthopedic*, 592 F.3d at 997 (“If competitors can reach the ultimate consumers of the product by employing existing or potential alternative channels of distribution, it is unclear whether such restrictions foreclose from competition *any* part of the relevant market.” (internal quotation marks omitted)); *see also supra* at 41-42 (citing, e.g., *CDC Techs., Inc.*, 7 F. Supp. 2d at 121-22). For those devices that an OEM or carrier chooses to enroll at the highest tier revenue share, Google’s RSAs generally require the counterparty to refrain from preinstalling general search rivals on the device upon first use. FOF ¶¶ 1483, 1487, 1489-90, 1494, 1499, 1505, 1585. But these out-of-the-box promotional requirements do not prevent users from accessing rival search engines directly in all the ways addressed above. Plaintiffs’ experts offered no opinion that any significant number of users wish to use an alternative search provider on Android phones, but have not been able to do so because of Google’s RSAs. Tr. 708:6-14 (Rangel (DOJ Expert)); Tr. 6045:12-20 (Whinston). Just as Google has competed successfully on Windows devices where Microsoft is the only preloaded search engine, search rivals are able to compete for users on any Android device by convincing users to download the rivals’ search apps, browsers, or widgets, or to change the default on the preloaded browser. FOF ¶¶ 778-81, 824-31, 1589, 1595-97.

Because Google’s RSAs do not prevent rival search providers from competing to obtain preinstallation on any Android device or users from accessing rivals on any Android device, the agreements do not constitute exclusive dealing.

B. Plaintiffs Have Not Proven Substantial Foreclosure or Competitive Harm.

Even if Google’s MADAs and RSAs were considered exclusive dealing arrangements, Plaintiffs have failed to prove substantial foreclosure. For all the same reasons as with respect to

the browser deals, there is *no* foreclosure. Rival search engines can compete for incremental promotion on MADA devices, and the device-by-device nature of the RSAs allows rivals to compete for preinstallation on any of the OEM's or carrier's devices. And even if they are not successful in competing for promotion or preinstallation, rival search engines can compete for users directly. Under these circumstances, there is no foreclosure.

As with the Browser Agreements, Plaintiffs' foreclosure arguments suffer from independent infirmities, addressed below. Even if these agreements could be considered exclusive dealing arrangements that had some foreclosure effect, they do not *substantially* foreclose competition. Conservatively measured against a choice screen alternative that no OEM or wireless carrier has ever sought to employ, DOJ Plaintiffs' expert admits the agreements foreclosed less than 1% of Plaintiffs' alleged general search services market in the U.S. FOF ¶ 1613. And even using Plaintiffs' other flawed hypothetical (that all Android devices came preinstalled exclusively with a rival search engine) yields a foreclosure of 11.6% to 13.5% of U.S. general search engine queries—a percentage that no court has ever condemned as amounting to substantial foreclosure. FOF ¶ 1617.

1. Google's MADAs effectuate no foreclosure of search competition.

At trial, Plaintiffs and their experts did not provide a foreclosure analysis specific to Google's MADAs, instead aggregating both of Google's Android Agreements into a single foreclosure analysis. Google's MADAs and RSAs are not the same agreement, however, and Google's MADA in particular does not have any restriction on preloading rival search engines. Because Plaintiffs failed to provide any measure of foreclosure as to the MADAs alone, Plaintiffs have not met their burden to prove that the MADAs foreclose competition. *Microsoft*, 253 F.3d at 69 (“[I]n all cases, the plaintiff must . . . prove the degree of foreclosure.”).

Although Plaintiffs and their experts have not argued that the MADA constitutes an unlawful tie, Tr. 6084:20-23 (Whinston), Plaintiffs suggest that the preload requirements in the MADA that are a condition for licensing the Google “bundle,” including the Google Play Store, prevent rival search providers from being preloaded on Android devices, Tr. 5714:15-5715:17 (Whinston). Real-world evidence, however, shows that an “unbundled” MADA would not change any preinstallation decisions by OEMs with respect to Google Search or Chrome, and thus the MADA preinstallation and placement requirements cannot be considered to have foreclosed competition.

Following a July 2018 decision by the European Commission, Google “unbundled” the Google Search Widget, Google Search App, and Chrome browser from the rest of the MADA in the European Union. FOF ¶ 1602. Under this new structure, called the “eMADA,” OEMs were charged a positive license fee for each device that preloaded Google Mobile Services, and Google separately licensed Search and Chrome royalty-free and offered OEMs a bounty for placing those services as in the MADA (*i.e.*, the Google Search Widget on the home screen; Chrome in a folder). FOF ¶¶ 1603-04. Despite having the option to take the remaining MADA apps without Google Search and Chrome, no OEMs have entered into the eMADA without also separately licensing both Google Search and Chrome and taking the placement bounty. FOF ¶ 1605. In fact, even Microsoft chose to preload Google Search and Chrome on the Surface Duo in Europe, *including placing the Google Search Widget on the device’s home screen*, despite having the option (1) to preload Bing and its widget exclusively or (2) to preload Google Search and Chrome but not give them prominent placement. FOF ¶ 1606; *see also* DX0393 [REDACTED]

[REDACTED]. In the face of this real world

evidence, Plaintiffs have provided no evidence that any OEMs or carriers would have chosen to sell any device with an “unbundled” MADA that did not include Google Search. Therefore, Google’s MADA cannot be found to have foreclosed rival search providers from distribution on any Android mobile devices.

2. Even under Plaintiffs’ legally invalid and counterfactual measures, Google’s Android RSAs do not foreclose a substantial share.

Plaintiffs also have not met their burden to show that the Google Android RSAs (whether considered with the MADAs or separately) foreclosed a “substantial share” of any of the alleged relevant markets.

To begin, because the Browser Agreements addressed above do not constitute exclusionary conduct, Plaintiffs cannot aggregate foreclosure from those agreements with the Android Agreements. In *Microsoft*, the D.C. Circuit held that it was impermissible to aggregate the effects of acts which “are not in themselves unlawful” together with other conduct. 253 F.3d at 67-68, 78; *see also Eaton Ergonomics, Inc. v. Rsch. in Motion Corp.*, 826 F. Supp. 2d 705, 710 (S.D.N.Y. 2011) (rejecting “the unworkable proposition that business conduct that does not offend the antitrust laws may violate the Sherman Act once it is combined with other lawful business conduct”).

Thus, Plaintiffs must show that the Android Agreements, standing alone, foreclose a substantial share of the market. Plaintiffs have failed to do so. Even if the Court were to conclude Google’s MADAs and RSAs resulted in *some* foreclosure, Plaintiffs have not shown *substantial* foreclosure. *See supra* at 41-42 (citing cases requiring substantial foreclosure). Plaintiffs’ foreclosure arguments suffer all of the same problems as set forth above with respect to the Browser Agreements: namely, (i) despite acknowledging that any anticompetitive effects flowing from an exclusive agreement should be measured against a valid but-for world,

Plaintiffs' expert Professor Whinston offers no but-for world at all; (ii) the "coverage" analysis is improper because it ignores the reality that many consumers continue to use Google even when another search engine receives exclusive preinstallation; and (iii) Plaintiffs' foreclosure quantification is likewise contrary to the real world.

Even on Plaintiffs' inflated and invalid "coverage" analysis, the Android Agreements only "cover" 19.4% of general search queries in the U.S., and a lower percentage of each of the alleged advertising markets. FOF ¶ 1616. Although exclusive dealing arrangements "in certain circumstances, may give rise to a § 2 violation even though the contracts foreclose less than the roughly 40% or 50% share usually required in order to establish a § 1 violation," *Microsoft*, 253 F.3d at 70, "judicial decisions have established a virtual safe harbor for market foreclosure of 20 percent or less," *Minn. Mining & Mfg.*, 35 F. Supp. 2d at 1143 (citation and internal quotation marks omitted). *See also R.J. Reynolds*, 199 F. Supp. 2d at 388 (observing that "[c]ourts have condemned provisions involving foreclosure as low as 24% while provisions involving foreclosure as high as 50% have been upheld" (emphasis added)); *Sterling Merch., Inc. v. Nestle, S.A.*, 656 F.3d 112, 123-24 (1st Cir. 2011) ("As a practical matter, in applying the rule of reason calculus to exclusive dealing arrangements, foreclosure levels are unlikely to be of concern where they are less than 30 or 40 percent, and while high numbers do not guarantee success for an antitrust claim, low numbers make dismissal easy." (internal quotation marks omitted)).

The Android foreclosure quantification Plaintiffs presented at trial—that 11.6% to 13.5% of all U.S. queries would have shifted away from Google were a rival search engine to win exclusive preinstallation on all search access points on all Android device, Tr. 6161:16-6164:10 (Whinston)—likewise falls well below the threshold for substantial. Beyond that, it contains a number of flawed assumptions and in any event fails to show substantial foreclosure.

For one, Plaintiffs provided no evidence that any Android OEM or carrier would have exclusively preloaded a rival search engine instead of Google if not for Google's Android Agreements. Tr. 6044:9-6045:1 (Whinston); *cf. Menasha Corp.*, 354 F.3d at 663 (explaining that when "consumers favor a product or practice, and only rivals squawk, the most natural inference is that the complained-of practice promotes rather than undermines competition, for what helps consumers often harms other producers"). To the contrary, the record at trial established that OEMs and carriers have long sought Google because of its superior quality. Indeed, Professor Whinston admitted that since at least 2014, a mobile phone preloaded with Google "would be more desirable" than a mobile phone preloaded with a rival search engine. Tr. 10592:2-21 (Whinston). He likewise agreed that "the large majority of people" expect Android devices to come preloaded with Google applications, including Google Search. Tr. 10583:1-14 (Whinston). And he admitted that there was 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); *see also* Tr. 7245:18-7246:2 (Baker) (acknowledging that he did not offer an "opinion in this case that during the time period [he] examined, in the absence of Google's alleged exclusionary contracts, a browser, Apple, Mozilla, an Android OEM, Samsung, Motorola, Android wireless carrier, Verizon, AT&T, T-Mo . . . would have chosen a rival search engine to be the default.").

Sworn testimony from the OEMs and wireless carriers that sell the overwhelming majority of Android devices in the U.S. echoed the same marketplace reality.

- Verizon's Chief Customer Experience Officer, Brian Higgins, testified that no one on his team recommended replacing Google Search with another general search engine, and further that Verizon never found a search engine other than Google

“that was compelling enough to explore” preloading on Verizon Android devices. Tr. 1087:22-1088:4, 1091:19-1092:4 (Higgins (Verizon)).

- T-Mobile’s Vice President of Partnerships and Business Development, Jeffrey Giard, testified that T-Mobile preloads its Android devices with Google Search because that configuration “provides customers with the best overall device experience.” Giard (T-Mobile) Dep. Tr. 32:17-33:03.
- AT&T Vice President for Strategy and Business Development, Jeffrey Ezell, testified that exclusively preloading a search engine other than Google on AT&T Android devices would result in “criticism for carrying a device that didn’t have the search product the consumers were expecting on the device.” Ezell (AT&T) Dep. Tr. 301:18-302:17; *id.* 317:9-21.
- Motorola’s Mobility Executive Director for Software Product Management and Partner Management, Eric Christensen, testified that his belief was that preloading Google Search and setting Google Search as the default search engine is in the best interest of Motorola and its consumers. Christensen (Motorola) Dep. Tr. 69:9-17.
- Former President and CEO of Samsung Electronics North America Timothy Baxter testified that he [REDACTED] *Id.* 195:15-196:1.

In fact, Microsoft itself decided to ship its Duo mobile devices in the U.S. with Google preloaded in addition to Bing, thereby confirming that there is no consumer (or OEM/carrier) appetite for Android devices without Google Search. FOF ¶¶ 1536, 1570-72. And as noted above, in Europe, where Microsoft had the option to ship the Duo without Google Search or Chrome but with other Google apps including the Play Store, it still chose to license and preload Google Search and Chrome in addition to Bing, and to place those Google services as the MADA in the U.S. specifies. FOF ¶ 1606. The other OEMs who sell Android devices in Europe also continued to preload Google Search on their Android devices notwithstanding the regulatory remedy permitting them to “unbundle” Google Search from other Google apps. FOF ¶ 1605.

While a choice screen is not an economically valid but-for world because it arose from regulation, not competition, assessing foreclosure relative to a choice screen provides a conservative upper bound for foreclosure based on Plaintiffs' theory that a choice screen is a proxy for some notion of "parity." Relative to a choice-screen but-for world, Google's MADAs and RSAs account for a share shift of just 0.6% of search queries. FOF ¶ 1612. There is no dispute regarding the minuscule share-shift in this scenario: at trial, Professor Whinston acknowledged that if the European choice screen design had been implemented on all Android devices in the U.S. (a world that he was not prepared to opine was a real but-for world), the shift in market share from Google to search rivals would be *less than 1% of U.S. search volume*. Tr. 6046:16-19, 6089:20-6091:21 (Whinston); FOF ¶ 1613.

Last, even if Plaintiffs showed substantial foreclosure, they have failed to establish how any foreclosure translates into harm to *competition* for the same reasons explained above in connection with the Browser Agreements. Plaintiffs' scale and impact on incentive arguments fail. *See supra* § III.E.

Because Plaintiffs failed to meet their burden to prove that Google's MADAs and RSAs substantially foreclosed competition in the relevant markets, Plaintiffs' Section 2 claim premised on these agreements fails.

C. The Benefits to Search Competition and to Consumers from the Android Agreements Outweigh Any Speculative Harms.

Even if Plaintiffs could demonstrate that the challenged Android Agreements "foreclose competition in a substantial share" of an alleged market such that they could have anticompetitive effects, *Microsoft*, 253 F.3d at 58-59, 69, the Android Agreements are justified by numerous procompetitive benefits in the alleged markets, and those procompetitive effects outweigh any anticompetitive effects.

1. Google’s Android Agreements promote search competition and have increased search output.

The evidence at trial established numerous procompetitive justifications for Google’s Android Agreements. These compelling benefits stand in sharp contrast to, and outweigh, Plaintiffs’ speculative theory of harm.

Google’s MADAs with OEMs provide a convenient out-of-the-box search experience with the highest quality search engine in the U.S. This includes the placement of the Google Search Widget on the default home screen, and the Google Search app and Google’s Chrome browser in a folder on the default home screen. The evidence at trial demonstrated that the Google Search Widget is popular with users and placement of the Google Search Widget on devices increases search usage. FOF ¶ 1686. For instance, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

DX2043 at .002-.003. And

a Google study found that “devices without [the Widget] have up to . . . 10% fewer total search [daily active users] and 12% fewer total queries.” UPX0076 at -199.

Similarly, the evidence at trial showed that access to a high-quality browser like Chrome, the most popular browser in the U.S., increases web usage and search usage. FOF ¶¶ 907, 912-13, 916, 1687. As explained by Google CEO Sundar Pichai, Google developed Chrome in part because “[w]e 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 the correlation was pretty clear to see, and we had seen that.” Tr. 7644:22-7648:18 (Pichai

(Google)); *see also* DX0023 (Google study finding “a Chrome installation resulted in significantly more Google searches” compared to Internet Explorer and Firefox).

Google’s RSAs with OEMs and carriers further promote search competition and expand search output in multiple ways. First, just as with Google’s browser default search agreements, the incremental search volume available through revenue share agreements results in price and quality competition among search engines competing to enter into RSAs with OEMs and carriers. *See supra* § III.D.1; FOF ¶¶ 761-72, 1435-54, 1688. Second, Google’s RSA payments incentivize OEMs and carriers to increase search usage by developing lower-priced, higher-quality devices and improved wireless networks. Because Google’s RSAs pay a percentage of search revenue earned on Android devices, OEMs and carriers are incentivized to make improvements to their devices, data plans, and wireless networks that facilitate more searching. FOF ¶¶ 1689-92, 1727-28.

During the term of Google’s Android Agreements, search usage on mobile devices has increased significantly. From 2012 to 2022, Google search queries on mobile increased more than 500%. DXD-37.091. And on Android devices in particular, this growth has recently largely come from the increased intensity of search. Since early 2018, the sale of Android devices in the U.S. has remained flat, while Google search queries on Android devices have continued to grow significantly. DXD-37.139; FOF ¶ 1693. Courts consistently recognize that increasing output is a procompetitive benefit under the Sherman Act. *See, e.g., Epic Games*, 67 F.4th at 990; *N. Am. Soccer League, LLC v. U.S. Soccer Federation, Inc.*, 883 F.3d 32, 43 (2d Cir. 2018); *Kraft Foods Glob., Inc. v. United Egg Producers, Inc.*, 2023 WL 6049912, at *8 (N.D. Ill. Sept. 5, 2023). Simply put, absent the Android Agreements, search output would be lower.

2. Google’s Android Agreements promote smartphone competition that in turn increases search output.

The challenged Android Agreements also expand search output by promoting smartphone competition. In particular, Google’s MADAs and RSAs promote competition among different Android mobile devices (intra-platform competition), as well as competition between Android devices and Apple mobile devices (inter-platform competition). This smartphone competition leads to higher-quality, lower-priced devices, thereby increasing usage of mobile devices and expanding search output.

The Android Agreements achieve this result through a number of mechanisms:

Out-of-Box Experience to Compete with Apple: Google’s MADAs provide a high quality out-of-the-box experience that helps Android devices compete with iOS for users. By signing a MADA, OEMs receive a free license to eleven high-quality mobile applications and numerous APIs, each of which provides key functionalities for smart mobile devices. FOF ¶¶ 1697-1701. Apple has a similar collection of apps that it preloads on iOS. FOF ¶ 1697. As described by Mr. Kolotouros, the MADA provides “core services that we believe are critical for the user experience which allows [Android devices] to compete, hopefully and successfully, with iPhone.” Tr. 781:19-25 (Kolotouros (Google)).

These apps are extremely popular, and expected by consumers when they purchase Android devices. Indeed, eight of the eleven apps, including Google Search, have over one billion daily active users. FOF ¶ 1698. Motorola’s chief negotiator testified that these are “almost certainly the most popular apps of all, the Google applications,” and that “it would be not a great consumer experience if we were to try to ship a device without those.” Christensen Dep. Tr. 151:11-22. The Google Search Widget in particular is a key differentiator for Android devices, as Apple does not have a search widget preloaded on its devices. Tr. 9351:8-9352:6

(McCallister (Google)) (explaining that an easily accessible Google Search Widget on the default home screen provides “differentiation vis-à-vis Apple iPhones”); Ezell Dep. Tr. 60:24-61:23 (“[O]ne of the things people do all the time is search. So we want to make it easy and quick for you to search from the home screen.”); *see Microsoft*, 253 F.3d at 59 (citing “enhanced consumer appeal” as an example of a procompetitive justification).

Consistency Across Android Devices: The MADAs and RSAs also create a consistent out-of-the-box experience that enhances both intra- and inter-platform competition (and thereby expands search output). Because Apple’s iOS is a closed platform, it is able to configure all of its iOS devices consistently, with the same core services and applications on every device. By contrast, the open source nature of Android’s platform enables immense differentiation among OEMs and carriers, both in terms of hardware and software. FOF ¶¶ 1703, 1707. As explained by T-Mobile’s Jeffery Giard, “[c]onsumers 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.” Giard Dep. Tr. 274:4-23; *see also* Ezell Dep. Tr. 174:21-175:6 (“[E]very iPhone looks exactly the same, has exactly the same services on it[.]”).

To help address this issue, the preload and placement provisions in Google’s MADAs and RSAs help ensure a high-quality baseline for a consistent user experience across enrolled devices, improving Android’s ability to compete with Apple. FOF ¶¶ 1704-05. In addition, this consistent user experience facilitates switching among Android devices, encouraging consumers to stay within the Android ecosystem when purchasing a new device. FOF ¶ 1706.

Lower-Priced and Higher-Quality Devices: Google’s zero-fee MADA license and the substantial RSA payments to OEMs and carriers allow Android OEMs and carriers to price their devices at lower price points and to provide higher-quality devices and better wireless networks.

Tr. 9855:6-9856:1 (Murphy); DXD-37.100; Giard Dep. Tr. 277:15-278:3 (Google’s revenue share payments to T-Mobile “helped support some . . . of . . . the reduction in direct cost to consumers of the services that [T-Mobile] provided”). Providing a zero-fee license to Google applications also allows OEMs to focus their development efforts on hardware innovations and software differentiation, further enhancing competition against iOS and expanding search usage. FOF ¶¶ 1709-14. As Motorola’s lead negotiator testified, [REDACTED]

[REDACTED] Christensen Dep. Tr. 30:9-14.

As a result, Android devices are typically offered at a lower price point than iOS devices. FOF ¶ 1710. In fact, 40% of Android devices sold are priced below \$200. Tr. 9851:2-9852:18 (Murphy); DXD-37.095; FOF ¶ 1710. This availability of lower-priced Android devices has increased competition with Apple and even led Apple to offer lower-priced iPhones to compete against Android. FOF ¶ 1711; Tr. 9419:10-22 (Rosenberg (Google)). Lower-priced devices lead to more mobile users, and thus more mobile search. FOF ¶¶ 1711-13.

Promoting Android Devices: Google’s RSA payments also enhance competition between Android and iOS by incentivizing wireless carriers to promote Android devices to their customers. In the U.S., wireless carriers are the main sellers of mobile devices, and they sell both iOS and Android devices to their customers. FOF ¶ 1480. Google’s payments under the RSAs provide a direct revenue incentive to carriers to promote Android devices to successfully compete with iOS devices in their retail stores. FOF ¶¶ 1728-35.

Security Updates and Operating System Upgrades: Google’s RSAs contain provisions conditioning revenue share on improving device quality through security updates and operating

system upgrades. FOF ¶¶ 1496, 1501, 1507, 1716-17, 1720. These provisions are critical to Android’s competition with Apple by improving the performance of Android devices.

As to security updates, Apple has often marketed its devices as more secure than Android. FOF ¶ 1718. Because Apple is vertically integrated, it is able to release security updates to iOS devices without assistance from any third party. Google must rely on OEMs and carriers to implement security updates on Android devices manufactured by third-party OEMs. FOF ¶¶ 1717, 1719. Because this imposes costs on OEMs and carriers, these partners’ short-term interests are not always aligned with implementing these security updates. FOF ¶ 1717. By conditioning RSA payments on meeting security update metrics, Google aligns partner incentives to help Android devices compete with iOS devices on security. FOF ¶ 1720. So too with Android operating system upgrades. While Apple is able to release their own operating system upgrades, Google is reliant on its OEM and carrier partners to send the latest operating system upgrades to devices. FOF ¶¶ 1722-23. The Android operating system upgrade provisions in Google’s RSA agreements better align partner incentives with consumer demand for the latest version of the Android operating system. FOF ¶¶ 1724-25. Together, the security update and operating system upgrade provisions of Google’s RSAs lead to more secure, higher-quality devices across the ecosystem, enhancing Android’s ability to compete with iOS and increasing mobile search output. FOF ¶¶ 1720, 1725. *See Epic Games*, 67 F.4th at 987 (“[B]y improving security and privacy features, it is tapping into consumer demand and differentiating its products from those of its competitors—goals that are plainly procompetitive rationales.”).

Beyond the direct benefits to the alleged search markets produced by these mechanisms, the benefits to smartphone competition are fully cognizable here in their own right (*i.e.*, separate and apart from increasing search output) because search is an important complement to mobile

devices. FOF ¶ 1695. For reasons explained above, benefits in highly complementary markets fully count in analyzing procompetitive justifications. *See supra* § III.D.4.

D. For All the Same Reasons Addressed Above, Plaintiffs’ Theories of Anticompetitive Harm Are Both Factually and Legally Flawed.

Plaintiffs’ theories of anticompetitive harm—*i.e.*, supposed scale and investment effects—fail for all of the same reasons addressed above. *Supra* § III.E.

Plaintiffs’ additional argument that Google’s RSAs harm competition in search because of supposed impact on Branch Metrics equally fails. Branch does not operate in the search markets Plaintiffs define, and no evidence showed that it threatens to facilitate competition in those markets. FOF ¶¶ 1628-35. Branch’s technology, moreover, is widely deployed on Google’s RSA devices. FOF ¶¶ 1636-61.

E. Plaintiffs’ Imagined “Less Restrictive Alternatives” Have Never Been Demanded by Any Android Partner and Would Raise Costs and Harm Consumers with No Benefit to Competition.

To rebut these clear procompetitive benefits, as set forth above, Plaintiffs must prove a substantially less restrictive alternative that is both reasonable and achieves the *same* procompetitive benefits equally well without increased costs. Plaintiffs have failed to carry their burden here.

With regard to the MADA, Plaintiffs have not proven that there is a substantially less restrictive alternative for achieving the MADA’s procompetitive benefits. As discussed above, “unbundling” the MADA would have no positive effect on search competition. In Europe where Chrome and Search have been offered separate from the other Google Mobile Services apps and APIs, every OEM—including Microsoft—has chosen to preload the Google Search Widget and Chrome on all its devices. *Supra* § IV.B.1. At the same time, “unbundling” threatens the many procompetitive benefits of the MADA contract model. Because preloading Chrome and Google

Search help fund Google’s investment in the Android ecosystem and the remaining Google Mobile Services apps and APIs, Google would charge a license fee if the MADA did not include Google Search and Chrome. FOF ¶¶ 1602-03, 1702, 1714.

Plaintiffs failed to establish 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 by higher-priced and/or lower-quality devices. The MADA’s zero-fee license has played a key role in Android’s success in attracting OEMs and allowing them to focus their resources on innovation. FOF ¶¶ 1709-15. This stands in stark contrast to platforms such as Symbian and Windows Mobile, both of which were handicapped by their license fee model. Tr. 9849:17-9851:1 (Murphy). Both Symbian’s and Microsoft’s CEOs have acknowledged that license fees had a negative impact on their platforms’ success. DXD-37.094; *see FTC v. Qualcomm Inc.*, 969 F.3d 974, 989 (9th Cir. 2020) (explaining how a “unique business model” that “relies on” a form of contractual restriction “ultimately benefited consumers by increasing the quality and quantity of . . . transactions,” such that “what appeared at first to be *anticompetitive* . . . was actually *procompetitive* and innovative” (internal quotations, brackets, and citation omitted)). The zero-fee license has enabled Android OEMs to offer lower-priced smartphones, growing mobile device usage (including mobile search), and enhancing competition against Apple. FOF ¶¶ 1709-15. And Android OEMs have been able to invest the savings from the zero-fee license into developing higher-quality mobile devices. *Supra* § IV.C.2. Further, as shown by the European eMADA, unbundling the MADA leads to increased costs due to additional operational requirements, such as payment tracking and other logistical and regulatory issues related to transfers among global companies. FOF ¶ 1607.

The other alternatives Plaintiffs have offered for reengineering Google’s MADAs and RSAs do not pass muster.

First, mandating a choice screen on Android devices—which no OEM or carrier has ever sought for an Android device—threatens the procompetitive benefits of Google’s Android Agreements while providing no material benefit to search competition. DOJ Plaintiffs’ expert acknowledged that implementing a choice screen on all Android devices in the U.S. would shift less than 1% of U.S. search queries. Tr. 6046:16-19, 6089:20-6091:21 (Whinston). At the same time, the evidence at trial showed that when a choice screen was mandated in Europe, revenue share payments by Google to partners decreased significantly. FOF ¶¶ 818-23, 1615, 1690-91. This is consistent with the economics of search distribution—because a choice screen offers little, if any, incremental promotion, search providers are less willing to pay for such an implementation. *See* Tr. 9797:16-9800:25 (Murphy).

Second, the hypothetical “unconditional revenue share” agreement offered by Plaintiffs likewise would lead to lower payments to partners without any demonstrable benefit to search competition. There is no precedent in the search industry for an unconditional revenue share agreement. This is because an unconditional revenue share is “at odds with basic economics,” as it places no reciprocal obligation on the partner to promote Google’s search engine in any way. Tr. 9791:19-9793:4 (Murphy). Needless to say, under that hypothetical arrangement, partners would not receive the payments they do today.

Similarly, the RSA tiers that require preinstallation exclusivity prevent opportunism and protect the value of the RSAs’ enhanced search promotion. Without preinstallation exclusivity, an OEM or carrier could earn revenue share on all traffic, even if a rival search engine was promoted at the same level as Google, depriving Google of the very incremental promotion it

seeks to incentivize through the RSA payments. Tr. 9857:17-9858:13 (Murphy) (“THE COURT: So the exclusivity, in your mind, has procompetitive benefits because it aligns interest to promote search? THE WITNESS: Correct. It’s sort of -- you can think about it as a way of enforcing the benefit of that bargain, preventing opportunistic behavior.”).

This is evident in the tiering in Google’s RSAs—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. Google also offers lower RSA percentages without preinstallation exclusivity. FOF ¶¶ 1483, 1487, 1492, 1497, 1502, 1550, 1574-86. Without such exclusivity provisions, Google is not willing to pay as much to OEMs and carriers, resulting in lower overall payments. Solving the opportunism problem by aligning incentives in this way is procompetitive. *See N. Am. Soccer League*, 883 F.3d at 43 (observing that “[e]liminating free riders can be a procompetitive advantage of alleged restraints on competition”). Here, the aligning of incentives increases payments, enhancing both search competition and Android’s ability to compete with Apple. Tr. 9876:6-9877:2 (Murphy) (“OEMs would get less, and if they get less, that’s less incentive to expand search and less incentive to sell more Android devices. Both would hinder Android’s ability to compete with Apple[.]”).

Accordingly, eliminating the preinstallation, default, and placement terms that give Google an incentive to invest with partners is not a valid less restrictive alternative. For it would not preserve most—let alone all—of the benefits to search competition that the Android Agreements achieve.

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

The evidence at trial showed that Google’s SA360 team determined which features to build—and the timeline on which to build them—based on customer demand, technical

feasibility, and resource availability. This was true whether the feature was a Google Ads feature, a Microsoft Ads feature, or that of another advertising platform. When Microsoft demanded in late 2019 that Google’s SA360 team build a host of Microsoft Ads features, Google responded consistent with its ordinary course practices. Microsoft did not like that answer; Microsoft would have Google do as Microsoft wished, on the timeline Microsoft wished, without regard for customer demand or engineering resources. For good reason, Microsoft’s complaint, pursued here by the Colorado Plaintiffs but not the Department of Justice, is not viable under the antitrust laws.

To begin with, Google’s product design decisions regarding how and when to build and integrate Microsoft Ads features into its SA360 Search Engine Marketing (“SEM”) tool cannot constitute anticompetitive conduct because Google has no legal duty to deal with a competitor like Microsoft. Colorado Plaintiffs contend that Google’s failure to build the new features on the timeline demanded by Microsoft amounted to an unlawful refusal to deal. A refusal to deal, however, constitutes exclusionary conduct only in exceptional circumstances, and those exceptional circumstances are absent here—not least because Google did not terminate a pre-existing course of conduct. *See* FOF ¶ 1819; *see also* FOF ¶¶ 1774-81; *New York v. Meta Platforms, Inc.*, 66 F.4th 288, 306 (D.C. Cir. 2023); *Qualcomm*, 969 F.3d at 993-94.

Beyond that threshold failing, Colorado Plaintiffs adduced no evidence that Google’s conduct had any—much less a substantial—“anticompetitive effect” in Plaintiffs’ alleged markets. *See Microsoft*, 253 F.3d at 59. Google’s SA360 team has built and integrated three of the four Microsoft Ads features at issue, and is currently testing the fourth with advertisers in advance of its launch. FOF ¶¶ 1745-49. Moreover, the evidence presented at trial established that there are many ways for advertisers to use the Microsoft Ads features at issue, even during

the period they were not available on SA360. FOF ¶¶ 1750-56, 1916-20. There is no evidence that the absence of these particular features for a limited period of time, on one of many advertising tools and for one advertising competitor, materially altered competition in any relevant market, let alone in a way that harmed advertisers or consumers. FOF ¶¶ 1895, 1914-20.

The uncontradicted evidence at trial further established that Google had legitimate business justifications for its decisions regarding these challenged features. There was no evidence that Google varied from its normal course of business, much less that Google deliberately delayed support for any Microsoft Ads features due to concerns about competition in any digital advertising market. FOF ¶ 1781; *see also* FOF ¶¶ 1774-80, 1825-32, 1850-74.

A. Google Had No Duty to Integrate Microsoft Ads Features Into SA360.

Refusing to deal with a competitor, including a monopolist’s “refus[al] to deal with its rivals on the rivals’ preferred terms,” as alleged here, constitutes exclusionary conduct only in exceptional circumstances. *Meta*, 66 F.4th at 306; *see also Pac. Bell*, 555 U.S. at 448 (“As a general rule, businesses are free to choose the parties with whom they will deal, as well as the prices, terms, and conditions of that dealing.”). The reasons for this long-standing rule are straightforward: “Compelling” alleged monopolists “to share the source of their advantage . . . may lessen the incentive for the monopolist, the rival, or both, to invest” and “requires antitrust courts to act as central planners,” a “role for which they are ill suited.” *Verizon Commc’ns, Inc. v. Law Offices of Curtis V. Trinko, LLC*, 540 U.S. 398, 407-08 (2004); *accord Meta*, 66 F.4th at 305-06. “Thus, as a general matter, the Sherman Act ‘does not restrict the long recognized right of [a] trader or manufacturer engaged in an entirely private business, freely to exercise his own independent discretion as to parties with whom he will deal.’” *Trinko*,

540 U.S. at 408 (quoting *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919) (alteration in original)).

Courts accordingly “have been very cautious” in condemning a firm’s refusal to cooperate with rivals. *Id.* Recognizing that the particular circumstances presented in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985), are “at or near the outer bounds of § 2 liability,” *Trinko*, 540 U.S. at 409, and that exceptions are “‘few,’” *Meta*, 66 F.4th at 305 (quoting *Trinko*, 540 U.S. at 411), courts impose three prerequisites before finding a duty to deal.

First, a plaintiff must prove that, before the defendant refused to deal, “the defendant ‘voluntarily engaged in a course of dealing with its rivals.’” *Meta*, 66 F.4th at 305 (quoting *Trinko*, 540 U.S. at 409); *see also Qualcomm*, 969 F.3d at 993-94. This requirement “advances the larger principle that unadulterated unilateral conduct—situations in which no course of dealing ever existed—won’t trigger antitrust scrutiny.” *Novell*, 731 F.3d at 1074-75. It also “keeps courts . . . out of the business of initiating collusion [between competitors] and helps address, at least to some degree, administrability concerns.” *Id.*

Second, the plaintiff must prove that “the only conceivable rationale or purpose” for the refusal to deal was “to sacrifice short-term benefits in order to obtain higher profits in the long run from the exclusion of competition.” *Qualcomm*, 969 F.3d at 993 (internal quotations omitted). This requirement reflects that “firms routinely sacrifice short-term profits for all sorts of legitimate reasons that enhance consumer welfare,” *Novell*, 731 F.3d at 1075, and reinforces the principle that “there is ‘no duty to deal under the terms and conditions preferred by [a competitor’s] rivals,’” *Aerotec Int’l, Inc.*, 836 F.3d at 1184 (quoting *Pac. Bell*, 555 U.S. at 457)

(alteration in original). “Put simply, the monopolist’s conduct must be irrational but for its anticompetitive effect.” *Novell*, 731 F.3d at 1075.

Third, and closely related to and reflecting the underlying rationales of the first requirement, the refusal to deal must involve singling out a rival with regard to “products that the defendant already sells in the existing market to other similarly situated customers.” *Qualcomm*, 969 F.3d at 994.

Adhering to these prerequisites is particularly important when, as here, the conduct involves product design. In that setting, “[m]istaken inferences and the resulting false condemnations ‘are especially costly, because they chill the very conduct the antitrust laws are designed to protect.’” *Trinko*, 540 U.S. at 414 (quoting *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 (1986)).

1. Google did not terminate a prior course of dealing with Microsoft.

The evidence at trial established that Google did not terminate a voluntary and profitable prior course of dealing with Microsoft with regards to the particular Microsoft Ads features at issue. Colorado Plaintiffs focused at trial on four Microsoft Ads features that Google purportedly delayed building for SA360.⁷ None of those features had previously been integrated in SA360. FOF ¶¶ 1786-87, 1819. That is, when Microsoft lodged its demand in late 2019 that SA360 provide support for these features (and others), Google had never launched (or even agreed to launch) these features in the past. This is in stark contrast to *Aspen Skiing*, in which the defendant discontinued selling joint lift tickets it had previously offered, and made it difficult

⁷ Those features are: “dynamic search ads”; “responsive search ads”; “local inventory ads”; and Microsoft Automated Bidding (sometimes referred to as “auction-time bidding” or “real time bidding”). FOF ¶¶ 1745-49. The vast majority of Colorado Plaintiffs’ case focused on Microsoft Ads’ auction-time bidding feature, as that was the only feature that had not been finally integrated and launched on SA360 before trial.

for its rival to market its own joint lift tickets by refusing to sell its own passes even at retail price. 472 U.S. at 592-93. Because Google had never previously implemented the four Microsoft features, it cannot be found to have terminated a prior course of dealing with respect to those features.

The evidence at trial further showed that SA360 did not integrate all features offered by any advertising platform (whether Google Ads, Microsoft Ads, or others), and that competing SEM tool providers likewise never offered full feature parity with the native advertising buying tools offered by Google, Microsoft, or others. FOF ¶¶ 1778, 1780, 1879-83. Instead, Google's practice was to integrate features based on customer demand, technical feasibility, and resource availability. *Id.* Colorado Plaintiffs failed to show that Google acted any differently with respect to the Microsoft Ads features at issue. FOF ¶¶ 1774-81, 1854.

Colorado Plaintiffs suggested in opening statements that Google in November 2019 agreed to a test of Microsoft Ads' auction-time bidding feature for SA360 but then took that back. Tr. 58:3-20. The evidence did not bear this out. Google had not yet built Microsoft Ads' auction-time bidding feature for SA360, such that the team could possibly test it at that time. FOF ¶¶ 1818-22. As explained by SA360 witnesses who testified at trial, the "testing" referred to in the communications between Microsoft and Google was a preliminary step to determine if integrating Microsoft Ads auction-time bidding into SA360 was even technically feasible. FOF ¶¶ 1819-21. Witness after witness testified how complicated auction-time bidding was to implement successfully, so much so that SA360's building, integration and launch of Google Ads' own auction-time bidding technology in SA360 took more than three years. FOF ¶¶ 1788-98, 1867-72.

Colorado Plaintiffs also suggested that the mere fact that Google offers SA360 as a cross-search engine advertising tool to advertisers creates an obligation for Google to build all of the features Microsoft (and other rivals) want, on their timetable, and regardless of legitimate business considerations. Tr. 63:21-64:6. But such a broad obligation to deal with a rival competitor has been repeatedly rejected by courts in refusal-to-deal cases as a matter of sound policy. “If the law were to make a habit of forcing monopolists to help competitors . . . courts would paradoxically risk encouraging collusion between rivals Forcing firms to help one another would also risk reducing the incentive both sides have to innovate, invest, and expand—again results inconsistent with the goals of antitrust.” *Novell*, 731 F.3d at 1073.

This legal principle also is animated by judicial administrability concerns. When a prior course of dealing—for example, the refusal to continue an existing relationship on terms previously agreed—is terminated, a court at least has a benchmark for identifying going-forward terms, mitigating the concerns of courts “hav[ing] to pick and choose the applicable terms and conditions.” *Id.* But when a plaintiff wants a court to require dealing on terms never agreed to by the parties (in contrast to *Aspen Skiing*), no such benchmark exists. A court should not be put in the position to decide, for example, which third-party feature or features should be integrated into SA360 and on what timetable. Accepting Colorado Plaintiffs’ claim here would require this Court “to play precisely the kind of ‘central plan[ning]’ role that courts are ‘ill suited’ to play.” *Aerotec*, 836 F.3d at 1184 (quoting *Trinko*, 540 U.S. at 408) (alteration in original); *Meta*, 66 F.4th at 305 (“[I]f courts required firms to lend their facilities to competitors, courts would have to manage corporations’ business affairs, a role for which the judiciary is ill suited.”).

2. Google did not sacrifice short-term benefits.

Colorado Plaintiffs also failed to prove that Google sacrificed short-term profits by not building and integrating Microsoft’s requested features sooner, let alone that Google delayed

building those features *in order* to obtain higher profits in the long run after it had harmed competition through short-term profit sacrifice. *See Qualcomm*, 969 F.3d at 993.

First, there was no evidence at trial of any profit that Google forewent when making decisions about SA360's feature roadmap. The only evidence at trial concerning profitability of the features at issue related to the Microsoft Ads auction-time bidding feature; Colorado Plaintiffs' trial presentation essentially ignored the other features. Google witnesses testified that as of November 2019, they had not seen customer demand for Microsoft auction-time bidding functionality. FOF ¶¶ 1855-57. A witness from SEM tool Skai likewise testified that customer demand at that time was "nascent," FOF ¶ 1865, and evidence showed that a third SEM tool provider initially pushed back on Microsoft's request to integrate auction-time bidding because the feature was not a customer priority. FOF ¶ 1866. Without clear demand for Microsoft Ads' auction-time bidding, Google's initial decision to allocate its resources elsewhere cannot be found to be an "irrational" decision to forego short-term profits to harm competition. *See Covad Commc'ns Co. v. Bell Atl. Corp.*, 398 F.3d 666, 675-76 (D.C. Cir. 2005), *reh'g denied*, 407 F.3d 1220 (D.C. Cir. 2005).

Far from showing that Google's conduct was "irrational but for its anticompetitive effect," *Novell*, 731 F.3d at 1075, the trial record established that Google's conduct was both rational and in accordance with the SA360 team's customary roadmap practices. Microsoft first demanded SA360 support for Microsoft Ads auction-time bidding at the end of 2019. FOF ¶¶ 1833, 1836-39. In addition to the lack of customer demand for the feature, Google's SA360 team was in the midst of a resource intensive multi-year rebuild of the software code base for the entire SA360 platform, and thus had limited internal resources to build and implement new features. FOF ¶¶ 1782-87. Nonetheless, Google analyzed the technical feasibility of building

and integrating this feature and identified key concerns, including lack of support for fractional conversions (a method for attributing user conversion behavior across multiple inputs), a capability that most SA360 advertiser customers employed and relied upon on in evaluating the effectiveness of an advertising campaign. FOF ¶¶ 1828-32, 1867-71. Google discussed these technical issues and lack of customer demand with Microsoft in early 2020. FOF ¶¶ 1826-29. Google told Microsoft that it could not add auction-time bidding support to the SA360 product roadmap at that time for these reasons, but that it would continue to evaluate the feature for inclusion in future roadmaps. FOF ¶¶ 1825-28.

At around the same time, in November 2019, Microsoft sent Google an omnibus demand for SA360 support for a multitude of Microsoft Ads features, again including auction-time bidding. FOF ¶¶ 1833-39. Microsoft's demands kicked off a dispute that reached the executive levels of Microsoft and Google and consumed much of 2020 as the companies negotiated as to what Microsoft Ads functionality Google would incorporate into SA360 and on what timeline. FOF ¶¶ 1840-48. Microsoft ended those discussions in fall 2020. FOF ¶ 1849.

Throughout the period of the negotiations, the SA360 team continued to evaluate the demand for, and feasibility of, building Microsoft Ads' auction-time bidding. FOF ¶¶ 1850-54. The first evidence of customer interest was a single reference in an internal May 2020 SA360 presentation. FOF ¶¶ 1855-59. Then, in December 2020, Google learned that two SA360 customers had received favorable results in the customers' own testing of Microsoft Ads' auction-time bidding as part of Microsoft's own native tool. FOF ¶ 1861. A member of the SA360 team noted that this was the first glimmer of demand, emailing the team that it "looks like we're [the SA360 team] starting to see real world testing of Bing ATB. It'll be something we

should keep a close eye on.” *Id.*⁸ Days later Colorado Plaintiffs filed their lawsuit alleging that Google’s actions with respect to auction-time bidding were an antitrust violation. Google continued to evaluate Microsoft Ads’ auction-time bidding functionality, and eventually decided to build and implement it even though it required significant resources and time given its complexity. FOF ¶¶ 1851-54, 1867-74.

3. Google did not refuse to deal with Microsoft while dealing with others on the same products.

The third factor overlaps with the first in this case. *See supra* § V.A.1. Unlike in *Aspen Skiing*, where the defendant refused to sell its lift tickets to a rival ski resort even as it sold the same lift tickets to any other willing buyer, Google did not single out Microsoft in its feature building decisions, but instead treated Microsoft the same as Google treated other engines according to Google’s usual and customary practices. FOF ¶¶ 1774-81, 1825-29, 1854. *See Qualcomm*, 969 F.3d at 995 (“Finally, unlike in *Aspen Skiing*, the district court found no evidence that [defendant] singles out any specific chip supplier for anticompetitive treatment in its SEP-licensing.”). It is also undisputed that when Microsoft made its feature demands, (1) none of the four features at issue were built and already available to SA360 customers and (2) SA360 needed to evaluate its customer demand, technical feasibility, and available resources as it did with other features. FOF ¶¶ 1746, 1786-87, 1836-39, 1854.

B. Google’s SA360 Conduct Did Not Substantially Harm Competition.

Even if these prerequisites for a duty to deal were satisfied, and even if Colorado Plaintiffs had established that Google had monopoly power in their search advertising relevant product markets, Colorado Plaintiffs must also show that Google’s supposed refusal to deal on

⁸ SA360 has tens of thousands of customers. FOF ¶ 1776. The SA360 team had received negative reports about Microsoft Ads’ auction-time bidding in the same period. FOF ¶ 1863.

Microsoft's preferred terms contributed to monopoly maintenance—that is, “that the monopolist's conduct indeed has the requisite anticompetitive effect” in the asserted relevant market. *Microsoft*, 253 F.3d at 58-59; *see also Mr. Furniture Warehouse, Inc. v. Barclays Am./Com. Inc.*, 919 F.2d 1517, 1523 (11th Cir. 1990) (“It requires a long stretch to call an individual refusal to deal ‘monopolizing’ when it does nothing to increase the refuser’s monopoly power”) (quoting Phillip E. Areeda, *ANTITRUST LAW* ¶ 736, at 274 (1978)). Antitrust laws protect competition; mere harm to an individual competitor is, standing alone, not a basis for antitrust liability. *Microsoft*, 253 F.3d at 58.

There is no evidence that the lack of Microsoft Ads features (or delayed implementation of any such features) on SA360—one of many ways that advertisers can purchase search advertising on Microsoft's Bing search engine—materially altered, let alone harmed, competition in any relevant search advertising market. Colorado Plaintiffs' marketing expert Professor Wilfred Amaldoss testified that lack of SA360 support for the four Microsoft Ads features at issue “decreased the efficiency of advertisers spend.” Tr. 6907:15-20 (Amaldoss). But he made no attempt to quantify what that meant in terms of actual advertising spend that was somehow impacted, much less opine that it had any effect on Microsoft's ability to compete in any relevant market. Tr. 7006:25-7007:14 (Amaldoss). With respect to the three Microsoft Ads features that have been integrated into SA360, he admitted that advertisers are not currently experiencing any reduced efficiency. Tr. 7006:20-24 (Amaldoss). Colorado Plaintiffs presented no probative evidence of any anticompetitive effect in any market as a result of Google's conduct with respect to those three features.

Colorado Plaintiffs' presentation at trial primarily focused on Microsoft Ads' auction-time bidding functionality. That evidence established that advertisers who wanted to use

Microsoft Ads' auction-time bidding feature had available (and in fact used) numerous and robust alternatives to SA360. Advertisers could (and did) access Microsoft Ads' auction-time bidding and other Microsoft Ads features through Microsoft's native tool. FOF ¶¶ 1756, 1916. Native tools are far and away the most popular channel through which search advertising is purchased—only █████ of Google and Microsoft's total U.S. search advertising revenue comes through a SEM tool. FOF ¶ 1884. And even if advertisers wanted to access Microsoft Ads auction-time bidding through a SEM tool, that functionality was available on Skai's SEM platform as of 2020. FOF ¶¶ 1769, 1875, 1918. Advertisers can and do switch between different purchasing options when it makes sense to do so, or use multiple options at one time. FOF ¶¶ 1755, 1764-69. The Court heard evidence about how Verizon switched from SA360 to Skai, and how Home Depot simultaneously used both SA360 and Skai, the latter in order to access Microsoft's Ads' auction-time bidding functionality. FOF ¶¶ 1767, 1769. While there may be some transitory cost to switching SEM tool providers, both of Colorado Plaintiffs' experts admitted that advertisers do switch, and neither presented any quantification of what those costs would be, much less an opinion that they are or were prohibitive. FOF ¶¶ 1764-66.

In sum, Colorado Plaintiffs adduced no evidence of harm to competition in their alleged search advertising markets, including no evidence demonstrating that: (1) overall U.S. search advertising revenue was adversely impacted by Google's alleged delay in SA360's implementation of Microsoft Ads features, FOF ¶ 1887; (2) pricing of U.S. search advertising was adversely impacted by Google's alleged delay in SA360's implementation of Microsoft Ads features, FOF ¶ 1888; or (3) overall output in U.S. search advertising was adversely impacted by Google's alleged delay in SA360's implementation of Microsoft Ads features, FOF ¶ 1889.

Colorado Plaintiffs did not even establish that Microsoft lost *any* search advertising revenue as a result of the alleged delayed implementation of Microsoft Ads features in SA360, much less explain how any lost revenue translated into actual marketplace harm to competition. Testimony at trial showed that, starting in late 2019, advertisers' overall spending on Microsoft Ads through SA360 actually grew, and that even advertisers using Google Ads' auction-time bidding feature on SA360 did not shift spend away from Microsoft Ads despite the unavailability of Microsoft Ads auction-time bidding on SA360 at that time. FOF ¶¶ 1890, 1893.

The only testimony in the trial record as to any purported harm to Microsoft comes from depositions of Microsoft witnesses about an internal email chain referencing a "low precision" estimate of lost ad revenue. FOF ¶¶ 1895-1911. This estimate, even were it to be credited, is a small fraction of Google and Microsoft's U.S. search advertising revenues and cannot give rise to a significant anticompetitive effect. FOF ¶¶ 1914-15.

Colorado Plaintiffs failed to substantiate the estimate at trial regardless. The Court will recall that this "back-of-the-napkin" estimate was the subject of a Google motion *in limine*. See ECF No. 621. The Court denied the motion, stating it would consider the evidence on this fact issue at trial and weigh it accordingly. See Transcript of Sept. 1, 2023 Pre-trial Conference, at 44:18-24 ("I'll take the evidence, I'll weigh it accordingly, and I'm confident you will cross-examine those witnesses about how confident they are in the numbers and the basis for the numbers."). The evidence is now in, and there is literally zero substantiation (or even explanation) for this "low precision estimate." No live witness at trial explained the basis for this estimate. The deposition testimony of Microsoft employees designated by Colorado Plaintiffs sheds no light on this estimate whatsoever, as no Microsoft witness was able to explain

how the estimates were derived. *See* ECF No. 621; *see also* FOF ¶¶ 1902-09, 1911. Colorado Plaintiffs’ expert economist, Professor Jonathan Baker, did not perform any independent analysis of the question and does not know how Microsoft derived the figures. FOF ¶ 1910. Nor can Colorado Plaintiffs rely on the performance of SA360’s implementation of Google Ads auction-time bidding because the evidence at trial was undisputed that Google Ads’ auction-time bidding feature did not operate or perform in the same manner as Microsoft Ads’ feature. FOF ¶¶ 1912-13.⁹

In short, Colorado Plaintiffs have no sound evidence proving that Microsoft was harmed by the alleged anticompetitive conduct, much less proof of the real issue, *i.e.*, whether competition in the relevant markets was substantially harmed.

C. Google’s SA360 Conduct Was Justified.

Even in the exceptional circumstance where a duty to deal with a rival exists, there is no antitrust violation where the defendant had “valid business reasons” for the refusal to deal. *Aspen Skiing*, 472 U.S. at 597; *Covad*, 398 F.3d at 675. The evidence at trial showed that Google’s conduct—which was delayed dealing, not a refusal to deal, at best—was based on legitimate business decisions. No SEM tool, not even SA360, can build every feature for every ads platform. FOF ¶¶ 1879-83. Google thus prioritizes those features that have demonstrated customer demand, that are technically feasible, and that can be built with available resources. FOF ¶¶ 1774-81. Integration of Microsoft Ads’ auction-time bidding feature faced hurdles for each of those prongs. There was a lack of customer demand when Microsoft made its first demands in late 2019 and early 2020; there were technical concerns, in particular concerning

⁹ Colorado Plaintiffs also introduced two exhibits with other, different lost revenue estimates, but there was likewise no testimony about these exhibits at trial or during deposition, much less any attempt to establish what methodology was used or whether it was sound.

support for fractional conversions; and Google had limited resources to accomplish this complex integration because it was rebuilding the entire codebase of SA360 at the time. FOF ¶¶ 1783-85, 1826-29, 1855-57, 1867-72. There was no evidence that Google’s decisions were made with any ill intent toward Microsoft. FOF ¶¶ 1781, 1826. To the contrary, the witnesses from Google’s SA360 team confirmed in their trial testimony that Google’s decisions with respect to the Microsoft features were made consistent with how all such roadmap decisions are made. FOF ¶¶ 1826-29, 1852-56, 1868-71.

D. Google’s SA360 Conduct Yielded Procompetitive Benefits That Outweigh Any Unproven Anticompetitive Effects.

SA360 competes for business with advertising platforms’ native tools and other SEM tools, among others. FOF ¶¶ 1750-56. To compete effectively, Google must have the freedom to make business decisions about what features it will spend the time and money to develop. SA360 needs to be able to satisfy the demands of its customers. This is why the uncontroverted evidence showed customer demand as a key factor in Google’s decisions regarding which features to place on its roadmap. FOF ¶¶ 1774-81, 1827, 1855-63.

Invalidating Google’s conduct here would affirmatively harm competition by diminishing Google’s incentives to offer and improve its cross-platform SA360 tool. Imposing a duty on Google to put its customers’ needs to one side and instead spend its resources to build every feature demanded by Microsoft (and other platforms) on whatever timetable and terms Microsoft dictates would undermine Google’s effective operation of SA360, stifle Google’s ability to innovate, and ultimately harm SA360’s ability to serve advertisers. At the same time, providing rivals assurances that they need not innovate, but can always force Google to integrate their features on their proposed terms, would impair the incentives of Google’s advertising rivals to innovate and to compete aggressively. *See Novell*, 731 F.3d at 1073 (warning that “[f]orcing

firms to help one another would also risk reducing the incentive both sides have to innovate, invest, and expand—again results inconsistent with the goals of antitrust”).

Because Google’s operation of SA360 enhances and promotes competition among search engines and their ability to compete for the advertising spend of digital advertisers, any purported anticompetitive effects are far outweighed by the procompetitive benefits that SA360 has generated in the market. Accordingly, even if the Court were to reach the balancing stage set forth in *United States v. Microsoft*, it should conclude that the procompetitive benefits associated with Google’s operation of SA360 far outweigh any alleged anticompetitive effects.

VI. DOJ PLAINTIFFS’ DAUBERT MOTION SHOULD BE DENIED.

Professor Fox’s opinion is admissible for all of the reasons set forth in Google’s Memorandum of Points and Authorities in Opposition to Plaintiffs’ Motion To Exclude The Expert Testimony of Edward A. Fox (ECF No. 475), which Google incorporates here by reference, and as further developed at trial and stated below.

To hear Plaintiffs tell it, Google’s lead in search quality is little more than a function of its access to user interaction data. While Plaintiffs did nothing to test their hypothesis, Google did. Google retained Professor Edward A. Fox—a renowned computer scientist with decades of experience—to design a “data reduction” experiment (“DRE”). Drawing on standard tools of information retrieval, Professor Fox’s DRE involved a comparative quality evaluation of the search results generated by Google’s systems when trained on a smaller quantity of user interaction data. The DRE’s results were unequivocal: even when reduced to Bing’s scale, Google’s measured quality dropped by an amount equal to just 2.9% of Google’s famously sizable quality lead over Bing. *See* FOF ¶ 349; *see also* FOF ¶¶ 344-50.

Unable to dispute the DRE’s obvious import—to wit, that scale alone comes nowhere near explaining Google’s search quality lead—DOJ Plaintiffs ask the Court to exclude the

experiment. The Federal Rules of Evidence, however, provide no license to do so. Under Rule 702, as informed by *Daubert* and its progeny, Professor Fox's testimony is admissible provided it meets three requirements: that Professor Fox is qualified in his field, his opinions are relevant to the case issues, and his opinions are reliable. Fed. R. Evid. 702; *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999), 526 U.S. at 141; *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 142 (1997); *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993). Professor Fox's testimony easily satisfies these requirements.

First, Professor Fox is, by all accounts, qualified as an expert in the field of computer science and information retrieval. A tenured academic with nearly half a century's worth of experience in academia and industry, few are as qualified as Professor Fox to test the relationship between scale and search quality. Recognizing the strength of his qualifications, at trial the DOJ pointedly "d[id] not challenge him as being an expert in computer science or information retrieval," Tr. 7817:15-18, and the Court recognized him as an expert in those fields, Tr. 7818:12-14.

Second, Professor Fox's testimony is unquestionably relevant to the issues in the case. As the Court has observed, "the core theory of the plaintiffs' cases . . . is that the combination of scale plus the defaults" insulates Google from competition. Tr. 75:7-9 (Opening Statements). The vitality of that proposition, however, finds a direct challenge in Professor Fox's DRE. As Professor Fox explained, "[his] assignment was to determine the extent to which the amount of . . . user interaction data would affect the quality of a search engine, in particular Google, relative to the difference in quality between it and Bing." Tr. 7818:22-7819:2; *see also* FOF ¶ 347. And what he found was unequivocal: "[t]he vast majority of the Google-Microsoft Search

quality gap must be explained by factors other than the volume of user interaction data.” Tr. 7819:6-12.

Although Plaintiffs quibble with Professor Fox’s methodology, his experiment’s “fit” to the issues in the case lies beyond serious dispute. As DOJ Plaintiffs’ expert Professor Douglas Oard acknowledged at trial, when it comes to assessing the effect of data on Bing’s quality, Professor Fox’s DRE presents “the best information we have” regarding the likely effect of additional data on Microsoft’s ranking algorithms. Tr. 10401:24-10402:16 (Oard); *see also* FOF ¶ 406. Professors Fox and Oard might not draw the same conclusions from the DRE, but both experts recognize its utility. The law therefore grants leeway to analyze its results and extrapolate from it accordingly. *See, e.g., Joiner*, 522 U.S. at 146 (“Trained experts commonly extrapolate from existing data.”).

Third, Professor Fox’s DRE is reliable. Devoting over 200 hours to its planning alone, Professor Fox meticulously designed his DRE in a manner that drew on his nearly half century of experience. FOF ¶¶ 346, 389-90. As Professor Fox explained, his DRE is a form of “scalability” study, a “tried and true” design widely employed in academia and industry that he uses “all the time.” FOF ¶¶ 391-96. Moreover, his experiment drew on processes that Google has found sufficiently reliable to use in the ordinary course. *See* FOF ¶¶ 397-99. He further ensured that his experiment would retrain those components of Google’s search engine (*i.e.*, NavBoost, Term Weighting, QBST, RankBrain, DeepRank, and RankEmbedBERT) whose functionality is most influenced by user interaction data. *See* FOF ¶¶ 352-53, 361-63. He likewise meticulously cataloged every signal within Google’s search engine that had an impact of at least 0.01% on Google’s search result rankings and explained how they fit into his study. FOF ¶¶ 364-70. He further presented its findings from a range of vantage points. For example,

Professor Fox's DRE used multiple querysets (*i.e.*, Training, Launch, and Covert), multiple quality metrics (*e.g.*, IS4@5 and NDCG), and multiple samples (*i.e.*, both a Low and High Mobile sample compared to a frozen 100% baseline). *See, e.g.*, FOF ¶¶ 354-63, 371-84. To provide further context, Professor Fox also presented results not just for queries in the aggregate but also for tail queries specifically and for each of his six retrained components separately. *See, e.g.*, FOF ¶¶ 374-76.

Beyond design, Professor Fox's study was likewise reliable in execution. Professor Fox personally devoted hundreds of hours to overseeing the experiment. FOF ¶ 389. He collaborated with Google's engineers in much the same way that he has supervised dozens of masters students and doctoral candidates over the course of his decades-long career. FOF ¶ 396. And what he found was unequivocal in its results: When reducing the amount of user interaction data from Google's quantity (*i.e.*, the 100% sample) to Bing's (*i.e.*, the Low Mobile sample), the resulting quality drop was not statistically different and amounted to a mere 2.9% of the day-to-day Google-Bing quality gap. FOF ¶¶ 349, 383-84.

Plaintiffs' principal objection to Professor Fox's testimony appears to be that the DRE was conducted on proprietary systems. But an experiment's use of a "proprietary algorithm" poses no "categorical bar to a finding of reliability." *See, e.g., United States v. Morgan*, 45 F.4th 192, 203 (D.C. Cir.), *cert. denied*, 143 S. Ct. 510 (2022); ECF No. 475 at 33-40 & n.20 (citing cases); *United States v. Reynolds*, 86 F.4th 332, 345, 348 (6th Cir. 2023) ("Daubert's 'testing' factor bolster[ed] [the] reliability" of a software system despite reliance on a "proprietary algorithm"). Rather, the law grants the district court "broad latitude when it decides *how* to determine reliability." *Kumho*, 526 U.S. at 142 (1999). And while the law recommends (though does not command) consideration of whether an experiment is testable, what that inquiry means

is: “whether the expert’s theory can be challenged in some objective sense, or whether it is instead simply a subjective, conclusory approach that cannot reasonably be assessed for reliability.” Fed. R. Evid. 702, advisory committee’s notes to the 2000 amendments; *see also*, *e.g.*, *United States v. Mitchell*, 365 F.3d 215, 235 (3d Cir. 2004) (citing advisory committee notes on “testability” and describing the sorts of opinions that would not be testable as those like “a clairvoyant’s statement that he receives messages from dead relatives” because “there is no way for the departed to deny this”). Judged by these standards, Professor Fox’s DRE—executed, as it was, with meticulous care on Google’s real-world systems using techniques employed in the ordinary course and documented in a nearly one-hundred-page report and appendix—easily passes muster.

The scientific community likewise does not regard tests conducted on a proprietary system as *ipso facto* unreliable. *See* FOF ¶¶ 403-04. Professor Oard admitted that peer-reviewed publications often rely upon propriety code that cannot be publicly shared. *See* FOF ¶ 404. He further acknowledged that peer review does not require exact reproduction—much less duplication—of the experiment itself. *See* FOF ¶ 405. And although he quibbled with aspects of the experiment, Plaintiffs never offered a declaration from Professor Oard in the pre-trial briefing in support of Plaintiffs’ *Daubert* motion.

In sum, Professor Fox’s testimony is both admissible and informative.

CONCLUSION

For all of these reasons, and as presented at trial and as set forth in Google’s Proposed Findings of Fact and Proposed Conclusions of Law, Plaintiffs’ claims should be denied in their entirety, and judgment should be entered in favor of Google.

Dated: February 9, 2024

Respectfully submitted,

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