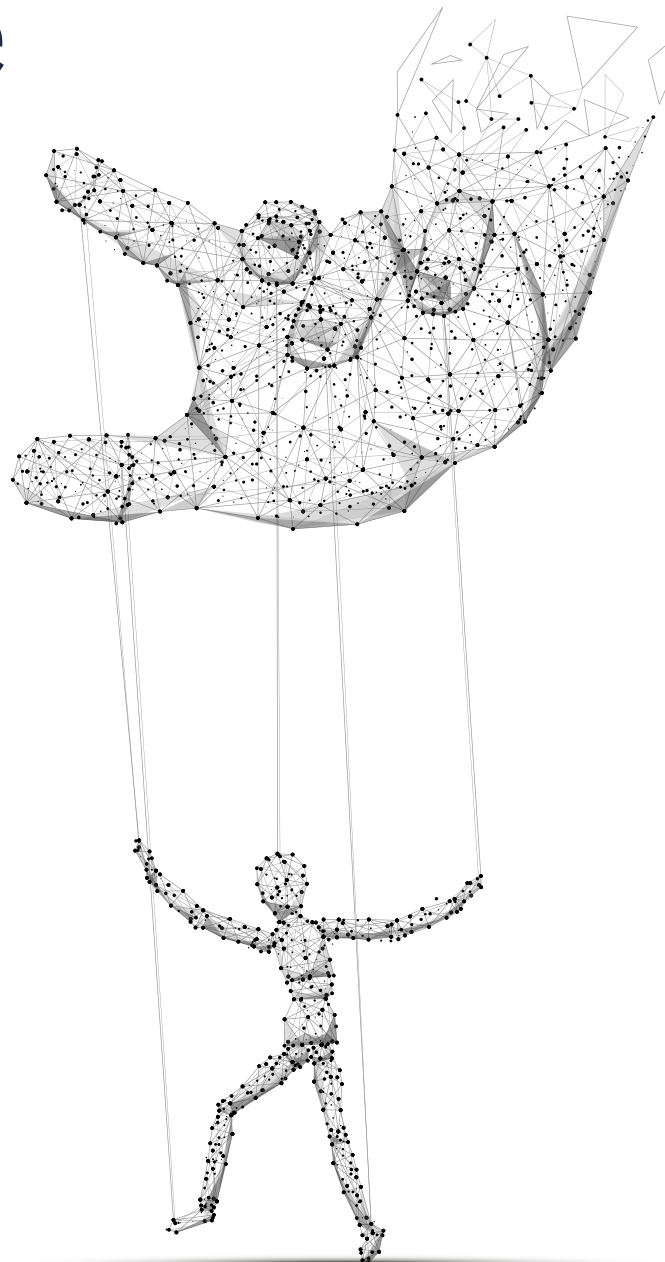


Roadmap for a Digital Advertising Monopolization Case Against Google

May 2020



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Biographies



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Acknowledgments:

Omidyar Network and the authors thank Gene Kimmelman and Charlotte Slaiman with Public Knowledge for their advice and significant contributions to the research and development of this policy paper.

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Introduction

This paper examines Google's role in the digital advertising market. Its purpose is to explain a plausible theory of competitive harm in the United States digital advertising market using the best economics and current US law, but based on analysis and facts found by the United Kingdom's Competition and Markets Authority about the UK digital advertising market.

The United States and a consortium of state attorneys general currently are investigating Google for its possible abuse of market power.¹ The US-based digital platforms are attracting attention from competition authorities in foreign jurisdictions as well.² The UK's Competition and Market Authority ("CMA") is one such investigative authority. It launched an inquiry into online platforms and digital advertising in July 2019.³ In December 2019, the CMA released a Market Study Interim Digital Report ("Report") that, along with its multiple appendices, describes the CMA's understanding of the UK digital advertising market, sets forth evidence indicative of anticompetitive conduct and harm, and discusses possible remedies.⁴ Thus, the CMA appears to be further along in its fact-finding and analysis than any of the US authorities, none of which has released any public findings resulting from the investigations.

The Interim Report, therefore, is the best and most complete source of information we have at this time.⁵ For purposes of this paper, we assume the facts recited in the Interim Report mirror those that will be found in the US market. This assumption, along with reference to a few other readily available sources of data,⁶ lets us move forward with an analysis despite the lack of public findings for the US. Our analysis explains to the antitrust community and interested policymakers what the allegations in, and narrative of, a US Google monopolization case may be. Of course, if some US facts turn out to be very different than those from the UK, then those parts of our analysis could be affected.

Using this information, we define and describe relevant markets, explain the anticompetitive conduct, and describe the harm Google has caused and is causing to competition and to consumers. We find that it is possible to assemble a compelling monopolization case using these facts.

First, Google learned to monetize its search engine by selling space for advertising; Google has for years held a virtual monopoly in search that it monetized by selling its inventory of space for digital ads responsive to user searches. But Google also recognized that, in addition, it could use the vast amounts of data it gathered about its users to make a play for profits, data, and associated power in the related market for digital display advertising, i.e., advertising that users see when they open a page on a website or app. However, the open web contained many companies that were competing to deliver ad revenue to websites and apps. Google wanted a "walled garden" within which it could monetize without fear of competition, as Facebook and Amazon now have built. So it set out to create one using its market power in search.

Google launched this strategy by allowing firms to buy simple text display ads through the same "order form" they used to buy search ads. Google acquired a number of previously independent firms that provided the "ad tech" services necessary to facilitate advertisers' placement of ads on publishers' websites and pushed this demand through them. Google built a dataset for its ad tech services that utilized the user data from its search engine and other customer-facing properties (Google Maps, Gmail, etc.) to give itself a superior ability to "target" ads to the

1 Steve Lohr, *Google Antitrust Investigation Outlined by State Attorneys General*, N.Y. TIMES (Sept. 9, 2019), <https://www.nytimes.com/2019/09/09/technology/google-antitrust-investigation.html>.

2 See, e.g., Rachel Siegel & Jay Greene, *E.U. Opens Antitrust Investigation into Amazon Over Third-Party Selling*, WASH POST (July 17, 2019), <https://www.washingtonpost.com/business/2019/07/17/eu-opens-antitrust-investigation-into-amazon-over-third-party-selling/>.

3 *CMA to Probe Online Platforms Including Facebook and Google*, THE NAT'L (July 4, 2019), <https://www.thenational.scot/news/17746858.watchdog-probe-facebook-google/>.

4 COMPETITION & MKTS AUTH., ONLINE PLATFORMS AND DIGITAL ADVERTISING: MARKET STUDY INTERIM REPORT (2019) [hereinafter "CMA Report"] (instead of page numbers, pin cites to the CMA Report reference paragraph numbers).

5 Google has submitted extensive comments to the CMA Report. See GOOGLE, ONLINE PLATFORMS AND DIGITAL ADVERTISING COMMENTS ON THE MARKET STUDY INTERIM REPORT (April 8, 2020), https://assets.publishing.service.gov.uk/media/5e8c8290d3bf71fb7b91c2c/200212_Google_response_to_interim_report.pdf [hereinafter "Google Response"]. We have reviewed Google's comments. They do not alter the conclusions we draw from the facts as described by the CMA.

6 Those sources are cited throughout this document but include, among others, Senate testimony and Google's own website.

right viewers. It eventually launched its Ads Data Hub, a tool that allows advertisers to upload customer data, combine it with search and other data from Google, and devise an advertising campaign, but not to take the data out—unless it is exported to one of Google’s ad tech services. The market power in search allows Google to maintain a lock on all kinds of data generated by publishers and advertisers and intermediaries and is a key part of Google’s ability to acquire and maintain its dominant position across the broader digital advertising ecosystem.

Google then deployed a number of additional anticompetitive levers such as exclusive contracts and denial of interoperability to exclude and prevent entry by ad tech competitors and/or raise their costs, cementing its place as the dominant provider of digital advertising placement in both search and display for most publishers and advertisers. Google took advantage of its unique position—through its acquisitions and denial of interoperability, it services sellers and buyers and conducts the auctions through which they transact and owns the data necessary to target ads and track ad attribution as users traverse the web—to advantage itself vis-à-vis all other participants in the market. But even this wasn’t enough. Google also acquired YouTube and then denied to rival ad tech companies full access to this critical advertising destination, thereby funneling even more commerce through its own ad tech services.

When Google places ads on YouTube, just as when it places ads on its own search results pages, Google pays no “traffic acquisition costs” because it needn’t pay any publisher for access to the “eyeballs” that will see or interact with the ads it helps place. Google keeps the entirety of the ad spend for itself. For this reason, Google has an incentive to exclude and disadvantage its rivals in the supply of display inventory, the publishers. Google uses its design of measurement of ads served as well as payment to disadvantage other publishers. Its data policies—including its collection of data about users who visit and interact with particular websites—allows Google to access and monetize the publishers’ audiences without paying those publishers. Google also developed Accelerated Mobile Pages, or AMP, a format that permits pages to load quickly on mobile devices. Google caches the AMPs, the result being that, when an ad appears on an AMP, Google pays a smaller portion of the ad spend to the publisher, and also keeps most of the data about the web user for itself. Google has also recently announced that it will no longer support third-party cookies that allow other ad tech participants to share data about viewers. Without sharing, only a company that occupies all layers of the ad tech stack—namely, Google—will be able to target audiences and attribute payment. In other words, only Google can operate a full-service digital ad business. Moreover, because Google is vertically integrated into all aspects of the ad tech ecosystem, it can design the technical interoperability, the information, and fee structure to make any part of its business “profitable” or not. The ability to shift margins around the supply chain enables Google to harm competitors and deter entry in segments of the industry that would be threatening.

Finally, Google actively maintains secrecy over a variety of elements in the complex and fast-evolving functions it serves in this market—we call this “opacity”—which makes it difficult for market participants to understand the prices they pay and the value they receive. Opacity also suppresses entry in that potential competitors cannot demonstrate (to publishers, advertisers, or investors) that they can offer lower prices or higher quality than Google.

Google has made it nearly impossible for publishers and advertisers to do business with each other except through Google.



The end result is that, in the digital advertising market, virtually all roads lead through Google. Google now performs every function that connects advertisers to publishers. Using the insurmountable data advantage it derives from its search engine and other properties as well as contract and design choices, Google has made it nearly impossible for publishers and advertisers to do business with each other except through Google. The final section of the paper explains how this state of affairs harms publishers, advertisers, and consumers and why it matters.

Enforcing competition in the digital advertising market does not require abandoning or prohibiting the use of the technology that has developed to match advertisers with consumers. It is clear even to us as lay people that there are less anticompetitive ways of delivering effective digital advertising—and thereby preserving the substantial benefits from this technology—than those employed by Google. Society does not face a tradeoff between a) digital advertising plus monopoly; and b) competition with no internet content or commerce. Such a specter is often raised by incumbents, but in our view, it is extreme. The sector appears to have a great deal of nascent technology and many talented entrepreneurs who will work on such problems if given a financial incentive. Indeed, the engineers at Google's parent, Alphabet—a company that touts its ability to design self-driving cars and extend human life—might themselves be able to design an alternative technology to sell advertising on the internet, if pushed by the rigors of real competition.

Evaluating appropriate remedies for this harm to competition is beyond the scope of this paper. Suffice it to say that the standard toolkit of remedies such as divestitures, restrictions on the form of contracts, data sharing, information sharing, mandatory interoperability, and so forth, can be used by any agency that gets to that stage of a monopolization case. Whatever the remedies are, they should restore the competition that would characterize the market in the absence of Google's anticompetitive conduct.

A full investigation by a US agency would uncover facts and evidence that we do not have and that are therefore missing from our analysis. This paper presents what we consider to be a likely narrative based on the facts available today and those likely to be uncovered in a full investigation. The roadmap we lay out here describes anticompetitive behavior that increases market power in clearly identifiable digital advertising markets and causes harm to competition and consumers.

Digital Advertising Market Definition, Structure, and Characteristics

The digital advertising market is complex, large, and growing. With total estimated revenues of £13.4 billion in 2018, digital advertising now accounts for well over half of all advertising revenues in the UK.⁷ In the US, digital ad spend in 2019 was \$129.3 billion—over half of the total ad spend—so this market represents a substantial volume of US commerce.⁸

Search Advertising

The CMA Report describes three basic types of digital advertising within this broad market. The first is "search advertising." This is advertising that shows up at the top of the results page when a user conducts a search using a search engine such as Google or Bing. If a user types "running shoes" into Google, for example, her results page likely will begin with several search ads for online or nearby brick-and-mortar running stores, followed by

⁷ CMA Report, *supra* note 4, at ¶ 2.31 ("Digital advertising is the largest and fastest growing segment within the UK advertising sector. According to estimates by the Internet Advertising Bureau (IAB) report, 37 the UK digital advertising market was worth £13.4bn in 2018, up from £11.7bn in 2017, and now accounts for 57% of total advertising revenues.").

⁸ See Rohan Shields, U.S. Digital Ad Spend Will Surpass Offline in 2019, AdWeek (Feb. 20, 2019), <https://www.adweek.com/programmatic/u-s-digital-ad-spend-will-surpass-offline-in%20-2019/>.

what are termed “organic results”—those that are generated by Google’s search algorithms that scour the web. Search constitutes a significant percentage—just over half—of the broader digital advertising market.⁹

The space on results pages that Google or Bing makes available for placement of search ads is the supply that the search engine sells to advertisers. Advertisers purchase that supply through an auction process. Google is the largest supplier of space for the placement of search advertising by far.¹⁰ Moreover, its dominant position in supply of search advertising has proven remarkably durable. The CMA concluded that Google’s share of search advertising supply has ranged from 89%–93% over the last ten years.¹¹

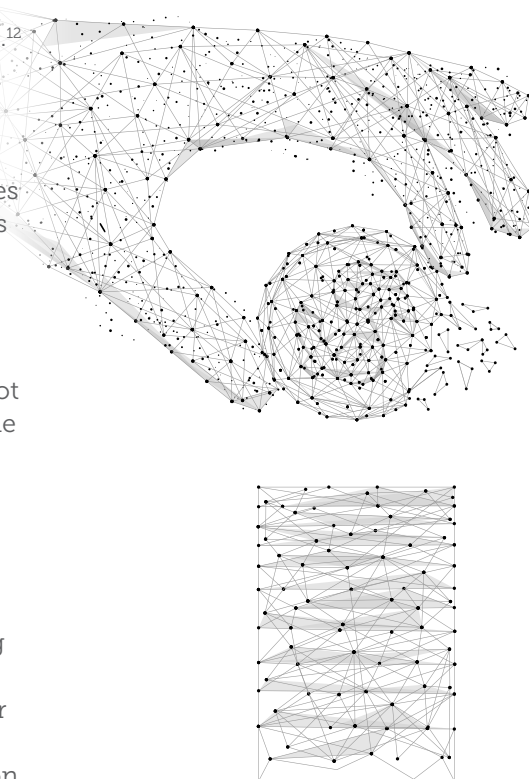
Display Advertising

The second type of digital advertising is called “display advertising.” This is advertising that appears on a website a user has chosen to view—such as ESPN.com, Facebook.com, or WSJ.com—oftentimes in a side window or some other designated space on the page. The suppliers of that space—typically the party that owns and controls the site—frequently are called “publishers.” Display ads account for 40% of the digital advertising market.¹² Many publishers—or content providers—rely on advertising as the main source of funds for their business model. The price at which they can sell the space on their pages is critical.

Unlike search ads, display ads are not placed in direct response to searches or requests made by users. Instead, display ads are placed in front of users who are using the internet for some other purpose, such as reading a movie review or a news article. The advertising shown to such a user will be more effective if the product or service is something the user is likely to want. Therefore, knowing who the user is, and what her interests are, changes the set of advertisers who want to bid to place their ad in that spot and typically raises their willingness to pay. The allocation and price of the ad are determined through a complex series of transactions and bids that are based in part on information about the user, including her location, browsing history, and the nature of the site she is viewing.

One particularly simple way of raising the value of an ad is to take advantage of the context. A user reading a review of new running shoes on runnersworld.com, a magazine for runners, might see ads for running shoes on the sensible assumption that she is planning to buy new shoes. While reading, she might also see display ads on the side of her screen for running socks, or energy drinks, or other products that advertisers might hope she is interested in based both on her interest in running and also on what they know about her age, gender, and income, for example. Another reason such a user could see the ad is because she previously searched for “running shoes” on the internet and the search engine she used saved that information and shared it with potential advertisers.

The CMA concluded that Google’s share of search advertising supply has ranged from 89%–93% over the last ten years.



9 CMA Report, *supra* note 4, at ¶ 14 (“Our current estimate is that around £13bn was spent on digital advertising in the UK in 2018. Search advertising comprised around half of these revenues, at around £6.4 bn, and display just over £5bn. The balance was made up of online classified advertising (comprising digital comparison tools and online marketplaces).”).

10 *Id.* at ¶¶ 2.50, 3.17, 3.20 (“Google’s share of supply has been between 89% and 93% throughout the last ten years.”).

11 See *id.*

12 See *id.* at ¶ 14.

Google has a significant market position as a supplier of space for display ads. Indeed, the CMA notes that most market participants perceive Facebook and Google to hold a duopoly on the supply of display advertising.¹³ The CMA estimates that YouTube, a Google property, constitutes up to 10% of the total display supply.¹⁴ This figure may underestimate the importance of the Google supply, however, for a number of reasons.

First, the CMA notes that YouTube's share of supply for video ads is large and growing. Combined with the CMA's conclusion that video display ads are not substitutes for non-video display ads, as discussed below, it seems likely that a substantial portion of advertisers view YouTube inventory as "must have"—potentially giving Google market power in display supply that is outsized compared to its share of overall display.

Second, a significant portion of total supply belongs to Facebook, which sells that supply through a self-contained system totally separate from the ad tech stack through which Google sells its supply. The CMA concludes that Facebook, including Instagram, holds 50% of the total display supply—largely due to its vast user base.¹⁵

Third, Google also owns multiple additional properties that offer supply for display ads through the ad tech stack, including Google News, Google Maps, and Google Play. We have not been able to find an estimate of the portion of the display supply that is held by these other Google properties, but we suspect it is substantial. In 2018, for example, 70.7% of Google's revenue derived from its various roles in the digital advertising market, and a substantial portion of that revenue apparently comes from the sale of display space by various Google properties.¹⁶ Google offers over sixty different customer-facing products,¹⁷ many of which can be used to serve ads. Google's ownership of these non-YouTube properties, in combination with YouTube, means that its total supply of all display ad space sold through the ad tech stack is likely to be significantly larger than the 20% share held by YouTube alone. Perhaps this is why market participants identified Google as a significant competitor: its ownership of YouTube and its ownership of multiple additional suppliers, along with its total scale in search and display advertising.¹⁸

Another way to think about Google's power as a supplier is to consider the distinction between "owned and operated" supply—meaning space that is owned by the party that intermediates the ad sale—and "open display," or "general display," which refers to supply made available by firms that do not intermediate their own sales. Owned and operated supply is more valuable to its owner than is supply purchased on the open web because the owner—Google, for example—can use its intermediation services to steer purchasers to that supply and influence the price at which it is sold. The CMA notes that the majority of money spent in the UK on display ads—60%—is used to purchase owned and operated supply.¹⁹ Facebook sells owned and operated supply because it facilitates the sale and placement of ads on its own pages. The same is true of YouTube, whose parent, Google, serves those same functions. Some other social media sites offer owned and operated supply.²⁰ This contrasts with an advertising intermediary that links an advertiser (e.g. Ford) with a publisher (e.g. The Chicago Tribune), neither of which is owned by the intermediary. Local news outlets and application providers typically sell their supply through intermediaries used by advertisers to access open display.²¹ The fact that all of the supply that Google controls is, by definition, owned and operated, is one more reason to suspect that Google's percentage share of the total display supply underestimates its importance.

13 *Id.* at ¶ 5.121 ("Overall, the views of advertisers, media agencies and suppliers support that Facebook has market power in display advertising. However, they also suggest that Google is likely to be Facebook's closest competitor. Both Google and Facebook benefit from greater scale and access to user data than their rivals").

14 *Id.* at ¶ 5.110 ("the second largest supplier, YouTube, which has [5-10%] of advertising expenditure." (*brackets in original*)).

15 *See id.* at Figure 5.5.

16 *See* STATISTA, *Distribution of Google's Revenues from 2001 to 2018, by Source* (Feb. 2019), <https://www.statista.com/statistics/266471/distribution-of-googles-revenues-by-source/> (finding the three main sources for Google's ad revenue: (1) Google.com; (2) YouTube; and (3) ad space sold by other Google properties).

17 GOOGLE, *About: Products*, <https://about.google/products/> (listing 65 "products") (last visited April 30, 2020).

18 *See* CMA Report, *supra* note 4, at ¶ 5.116 ("Rivals saw Google and Facebook as the strongest competitors in display advertising...These businesses...identified Google as a major competitor, some referring to its ownership of YouTube, and some also referring to its search advertising or its total scale across digital advertising as a whole").

19 *Id.* at ¶ 5.21 ("Total spend in display advertising was worth £5.1 billion in the UK in 2018. About 60% of expenditure is made on owned and operated platforms, which typically provide social media to consumers.").

20 *Id.*

21 *See id.*

Fourth, YouTube has remarkable reach, even if its supply of ad space is modest. In the US, a 2019 study by Pew concluded that 73% of US adults report accessing YouTube, a number higher even than the percentage who access Facebook.²² And for young adults age 18-24, the number is even higher: 90% report accessing YouTube.

For all these reasons, Google's supply of display may play an outsized role in the market relative to its percentage market share. Moreover, Google's prominence throughout all levels of the ad tech stack allows it to use its own intermediation services to steer advertiser demand to its owned and operated properties, including Google properties other than YouTube, rather than to third-party properties. Over time, such a practice would advantage the Google properties, which consequently would grow their share of the total supply and increase their power even further.

Online Video Advertising

The third type of digital advertising is online video advertising, such as ads offered on digital streaming services. As noted above, video is differentiated from non-video display advertising and is sufficiently different to constitute its own market. Because video advertising also is shown on broadcast television, the best way to conceptualize online video advertising is through the image of a Venn diagram in which one circle represents all display advertising and another constitutes all video advertising. The overlap between the two circles constitutes online video advertising. All online video advertising is display advertising, which is sold and purchased through the processes we describe in this paper, but not all video advertising is digital display advertising. Broadcast television video advertising, for example, is sold and purchased through an entirely different marketplace that is outside the scope of this paper. TV ads cannot be targeted to the same extent as can online video ads, and typically are used by advertisers for distinct purposes.²³

The CMA concludes that Facebook, including Instagram, has 60% of the video display supply.²⁴ That leaves as little as 40% of the video display supply to be allocated through the ad tech stack. The CMA states that YouTube's share of the total video display market is between 15 and 20%. Thus, the CMA's figures indicate that YouTube likely supplies up to 50% of the open display video market, a very significant share.

The CMA concluded that YouTube appears to compete in supplying opportunities for online video ads principally with specialized suppliers of audio-visual content. In other words, YouTube is a closer substitute to other online audio-visual content services than it is to social media companies such as Facebook that are based around a social graph.²⁵

The Business Model

The business model of Google is mainly to earn revenue from digital advertising. That revenue is comprised of a quantity of digital ads multiplied by the price of those ads multiplied by the "take rate."²⁶ The take rate is the fraction of the ad price that Google retains. When Google gets access to the customer's attention through the inventory of a portal or a publisher, the New York Times, for example, it must pay the content provider or aggregator for those "eyeballs" by passing along a share of the amount the advertiser paid for the placement (this is sometimes referred to in the industry as "traffic acquisition cost" or TAC). When Google obtains the traffic without such a payment, because consumers are on a Google site such as Google News, Google search, or YouTube, then the entirety of the ad price is retained by Google. Thus, Google's incentives can be very simply

22 Andrew Perrin & Monica Anderson, *Share of U.S. adults using social media, including Facebook, is mostly unchanged since 2018*, PEW RESEARCH (Apr. 10, 2019), <https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/>.

23 See CMA Report, *supra* note 4, at ¶ 5.26 ("Our discussions with media agencies and with TV media owners suggested that there is limited substitutability between the two, principally because the greater availability of data in online display advertising means that more specific audiences could be targeted than through TV.")

24 *Id.* at Figure 5.6.

25 *Id.* at ¶ 3.122 ("As a result of these differentiating characteristics, YouTube seems to face closer competition from other providers of audio-visual content than from social media platforms.")

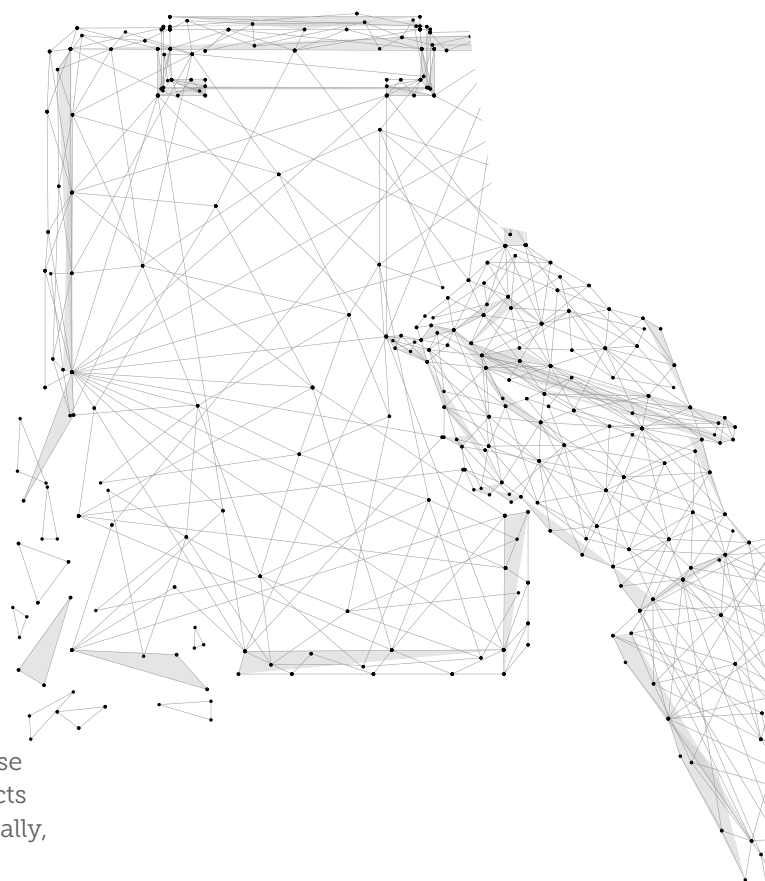
26 The "price" of an ad might be determined by impressions, or by clicks, or by rate or number of "conversions," a term that describes any additional action taken by a user—such as a purchase or call to a retailer—that the advertiser values. See Conversion: Definition, GOOGLE ADS HELP, <https://support.google.com/google-ads/answer/6365?hl=en>.

explained: more ads, at higher prices, with a greater fraction served on Google's properties (where TAC is zero). And when ads run on publisher sites that need to be paid for their traffic, Google benefits from lower prices to publishers, because that means Google is keeping more of the total price for itself.

Substitution Patterns in Digital Advertising

The Interim Report also examined substitution patterns in digital advertising, a traditional first step in analyzing whether conduct affecting the sale of products or services might have anticompetitive effects. After all, cornering the market on highway billboards might not have a significant effect on competition if advertisers are just as happy placing ads in magazines instead.

The CMA found that certain forms of digital advertising are not substitutes for certain others, which means they are in separate markets for antitrust purposes. Therefore, conduct by Google or others that affects the supply or purchase of those forms of advertising could have anticompetitive effects that harm participants in those markets and/or users. Specifically, from the standpoint of the advertisers:



1 Search ads are not a substitute for display ads.²⁷

2 Owned and operated supply is a substitute for general display supply.²⁸

3 Video ads are not a substitute for non-video ads.²⁹

²⁷ CMA Report, *supra* note 4, at ¶ 5.28 (“We noted a consistent view that search and display advertising are unlikely to be substitutable in general. All media agencies and most advertisers told us that search and display advertising are not substitutable, mainly because they perform different roles within the customer purchase journey. Search is intent-based advertising designed to provide immediate answers to those consumers that have already shown interest in buying the product and are at the end of the purchase funnel (‘in-market consumers’), whereas display is suitable for raising brand awareness and reaching new audiences that might not yet have shown interest (‘out-of-market consumers’).”).

²⁸ *Id.* at ¶ 5.35 (“Media agencies told us that similar advertising formats and audiences are available on owned and operated platforms and in open display advertising and that the targeting techniques available are also roughly the same. Consequently, advertisers would largely see these channels as substitutable...”). We reiterate here that these observations about substitution patterns describe substitutability *from the perspective of the advertiser*. Most publishers—such as *gardenandgun.com* or *hotels.com*—do not control supply that is “owned and operated,” and therefore can monetize their supply only through the Google-dominated ad tech stack we describe in this paper. In making their supply available to advertisers, these publishers obviously cannot utilize the ad tech tools that have been built specifically for owned and operated supply such as the advertising space made available on Facebook or Amazon or any of the Google properties.

²⁹ *Id.* at ¶ 5.34 (“We received views that suggest limited substitutability between video and non-video advertising. Media agencies told us that decisions between video and non-video advertising were typically likely to be driven by the need to convey the advertiser’s message in the best way. These decisions were likely to be taken at an early stage of the planning process, driven by input from the creative agency. This would limit substitutability between video and non-video advertising.”).

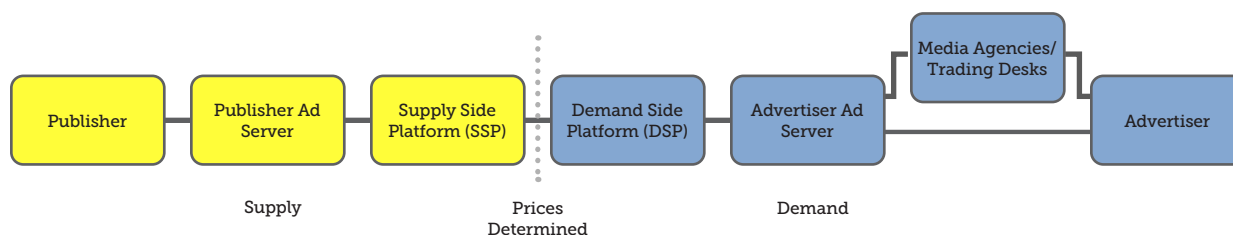
This means, for example, that conduct affecting the supply and purchase of display ads might pose anticompetitive concerns, and robust competition in search ads would not undo the concerns posed by that conduct: purchasers of display ads do not want to switch to search ads because the different sorts of ads do not have the same functionality. Conversely, conduct affecting the owned and operated supply for display ads likely would not pose anticompetitive concerns unless it also affected the overall market for display ads.

Product/Service Markets in the “Ad Tech Stack” That Deliver Digital Display Advertising

As mentioned, the process by which advertisers bid for and place, or “serve,” ads on web pages and the related process by which site and application owners offer their supply and accept bids is complicated. Part of the reason for this is that the technology has developed over the last ten years, acquisitions have been frequent, and name changes seem to have been mandatory.³⁰ Over time, multiple companies provided a variety of complementary services that, collectively, accomplished the task of matching advertisers with available space on web pages and arranging payment from the advertisers to the sites or applications supplying that advertising space. We will not attempt to trace the names and sub-functions of these entities but instead present a simplified picture of this industry that captures the essential elements of competition.

The complementary products and services are termed the “ad tech stack” or “digital advertising intermediation chain.” Below is a graphic representation of the principal products/services that comprise the ad tech stack based on the CMA’s graphics:

Figure 1: Simplified scheme of the intermediation value chain



Based on CMA Figure 5.9.

On the supply side, the main participants include:

- **Publishers** – the content creators that supply space on their websites or apps that is available for ad placement.³¹ In this paper we focus on publishers that monetize their content on the open web and therefore must purchase and interact with third-party tools in order to find advertising and sell their supply of space. Publishers such as Facebook and Amazon have an in-house system for placing ads that is not available for other publishers to use.³² The price at which a publisher can monetize its inventory often depends on what is known about the user who is about to see the impression.

³⁰ Whether these name changes and consolidations were undertaken to make the market more opaque to outsiders is an interesting question beyond the scope of this paper.

³¹ CMA Report, *supra* note 4, at ¶ 5.169 (“Publishers - operate websites or apps and want to monetise their services selling digital advertising.”).

³² Advertisers may be able to allocate their total ad spend between Amazon, Facebook, and the open web, even though each of those three primary routes to consumer “eyeballs” may play a different role in an ad campaign. Publishers, however, face a different competitive landscape. If publishers want to monetize the space on their sites, they have little choice but to sell it through the ad tech stack, or, in some cases, through direct deals with advertisers. They cannot use the tools developed by Amazon and Facebook, which sell space on their own sites, even though advertisers can use those tools to reach the users of those platforms.

- **Publisher Ad Servers (PASs)** – the technology most closely woven into the publisher’s webpage to accept the advertising and load it to the right place at the right time. The PAS makes the final choice of which ad to serve, which typically will depend not only on bids from different supply side platforms (SSPs), but also on any direct deals the publisher may have entered into.³³
- **Supply Side Platforms (SSPs)** – the technology that interfaces with the demand side platform (DSP) that determines the price and allocation of digital ad inventory. SSPs run sequential or real-time auctions, typically connect to multiple DSPs, collect bids from the demand side, and facilitate price discovery.³⁴

On the demand side, the main participants in the ecosystem include:

- **Advertisers** – the companies interested in serving ads to web users in order to increase brand awareness or induce a purchase.³⁵
- **Media Agencies** – the companies that advertisers sometimes hire to run their advertising campaigns. Media agencies both buy traditional advertising and can also offer the technical expertise to buy digital, or programmatic, advertising.³⁶
- **Advertiser Ad Servers (AAS)** – the functionality that stores the ads, delivers the creative content to publishers at the right moment, and serves as the record of the transaction for audits and billing.³⁷
- **Demand Side Platforms (DSPs)** – the platform that advertisers use to organize and buy digital advertising inventory from many sources. DSPs do the bidding on impressions according to the advertiser’s campaign objectives and information about the impression opportunity.³⁸
- The advertising ecosystem also includes many tool providers and data brokers not shown in Figure 1. However, a notable functionality for the purposes of this paper is Google’s Ads Data Hub (ADH). ADH allows an advertiser to view the data from its own search ad campaign that shows which customers clicked on Google Search ads and combine it with other data—perhaps third-party data audience metrics, perhaps internal data from the company about existing customers. After determining a display ad strategy using that large dataset, the advertiser can export the necessary elements to carry it out—but only to a Google display ad product. ADH works like a one-way funnel. Advertisers can put their own data into it, but they cannot take the results out. The only way to export information from ADH is to send it to a service owned by Google.

The CMA does not expressly conclude that the various services that together comprise the ad tech stack are separate antitrust markets. But it is clear that at least some of them are, as revealed by an examination both of the history of the current ad tech stack and of the different services performed at different levels of the stack, which cannot substitute for one another. One might also want to combine these and define a broader relevant market of ad tech stack services available to publishers and advertisers to place ads on the open web.

We initially characterize the publisher’s supply of inventory as something it is selling as an input to an ad, and the advertisers as the buyer of the ad, as this is the most straightforward and traditional approach. However, display advertising could also be characterized as a two-sided market with the ad stack provider(s) as the intermediary. The intermediary connects publishers and advertisers, each of which provides an input to Google, and each of

33 See *id.*

34 See *id.* Advertising exchanges used to be separate from SSPs. The two functions, however, have largely been merged into the same operators.

35 See *id.* (“Advertisers – interested in serving ads to consumers, their aim can be increasing consumers’ awareness of their brands or inducing a direct response (eg a purchase) from consumers seeing the ad.”).

36 See *id.* at ¶ 5.168 (“often used by large advertisers to plan and deliver an advertising campaign. Media agencies can offer in-house trading desks, which provide the technical expertise to execute programmatic media buying. Media agencies and their trading desks charge advertisers a percentage of their media spend or in proportion to amount of work performed.”).

37 See *id.* at n. 267 (“Advertisers use advertiser ad servers to store the ads, deliver them to publishers, and keep track of this activity.”)

38 See *id.* at ¶ 5.168 (“Demand-side platforms (DSPs) – provide a platform that allows advertisers and media agencies to buy advertising inventory from many sources. DSPs bid on impressions based on the buyer’s objectives and on data about the consumers.”).

which is a customer of Google. Which of these choices an agency chooses will affect whether the conduct below is described as monopsony power or monopoly power. However, this distinction is semantic in the sense that in both cases the issue is lessening of competition that allows for market power to be used to harm trading partners. Monopsony is analogous to monopoly—with the role of customer replaced by the role of the input supplier—but the immediate harm is that the input provider receives a lower price, rather than the customer pays a higher price.³⁹ Going forward in the paper we will primarily use the monopoly nomenclature as it is likely more familiar to readers.

In the early years of digital advertising, multiple independent firms offered the various products/services comprising the ad tech stack.⁴⁰ Thirteen years ago, no firm served a display ad on the open web from end-to-end, as far as we know. The fact that, historically, multiple independent firms offered just some, but not all, of one of the various services necessary to match supply with demand is an indication that they offer different functions.

Over time, the ad tech stack has seen significant consolidation, with increasing concentration in a small number of large providers at each level of the value chain.⁴¹ In addition to horizontal consolidation, there has been vertical consolidation as different levels of the ad tech stack now belong to one company, Google.

Google, through both acquisitions and vertical integration, has been a significant driver of the consolidation in the various product/service markets that together constitute the ad tech stack. Indeed, as the CMA notes, “[t]he case of Google is noteworthy because not only does it operate along the entire value chain, but it also has the largest shares of supply among providers at each level of the chain.”⁴² The CMA estimates Google’s share of these product/service markets as follows:

- 1 The publisher ad server market is particularly concentrated. Google offers multiple products in this space—Google Ad Manager and Google DoubleClick for Publishers—that collectively have an estimated 90% or higher share.⁴³
- 2 The SSP market is somewhat less concentrated, but Google’s AdX product has a significant share, which the CMA estimates at 40–60%.⁴⁴
- 3 The demand side platform market also is highly concentrated. The CMA estimates that the Google Ads product has a 50–70% share.⁴⁵
- 4 The CMA does not provide a market share statistic for the advertiser ad server market, but the information throughout the report implies that Google must have a substantial share.

39 See, e.g., *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 549 U.S. 312 (2007).

40 See, e.g., Alex Bradbury, *Buyers will drive ad tech consolidation in 2020*, CLICKZ (Feb. 6, 2020), <https://www.clickz.com/buyers-will-drive-ad-tech-consolidation-in-2020/260007/> (“The days when a programmatic buyer worked with 50 to 100 exchange partners are well and truly over.”).

41 See *id.* at ¶ 5.174 (“In recent years, the industry has been consolidating, with supply increasingly concentrated in a small number of large providers at each level of the value chain.”).

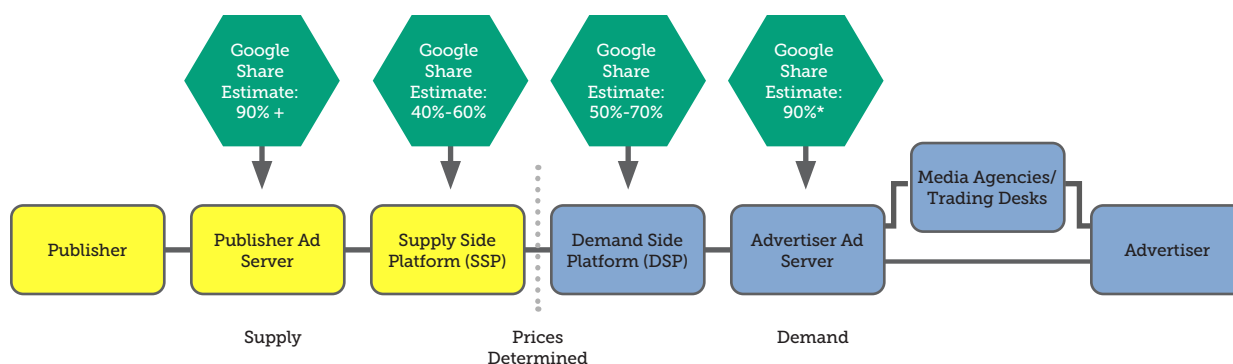
42 *Id.* at ¶ 5.185.

43 See *id.* at ¶ 5.174 (“Concentration is particularly high at the publisher ad server level, where, based on submissions from industry stakeholders, we believe Google is likely to have a share of supply above 90%.”).

44 See *id.* (“There appears to be more competition at DSP and SSP level, although Google has significant shares in these markets as well (50-70% of the value of ads purchased through DSP, 40-60% of the value of ads sold through SSPs).”).

45 *Id.*

Figure 2: Google's roles in advertising intermediation



Based on CMA Figure 5.10.

* Advertiser Ad Server share estimate based on FlashTalking.com.⁴⁶

The CMA's description of these services and their functions makes clear that the services are not substitutes for one another. For example, a publisher ad server helps publishers manage their own inventory; demand side platforms help advertisers execute campaigns. These are, on their face, separate functions, and so they constitute separate markets.

Nor is this conclusion undermined by the fact that some of Google's affiliates now perform more than one function in the ad tech stack. Google's AdSense, for example, today performs the function of publisher ad server for small publishers and also acts as an SSP.⁴⁷ Of course, one can consolidate two different businesses, including businesses with monopoly power, that operate in two different antitrust markets inside the same corporation. A gas station in an isolated small town with an attached minimart, for example, might be a monopolist with respect to both gas and Cheetos, but that does not make Cheetos a substitute for gasoline.

Moreover, as we show below, it appears that combining these different functions along the ad tech stack into one corporation was part of Google's exclusionary conduct. Until competitors were forced out or consolidated, these functions were offered by different businesses.

Because of its exclusionary conduct, Google today may facilitate fast advertising transactions between advertisers and publishers—the two sides of a two-sided market.⁴⁸ As the CMA Report observes and business reality reveals, Google, however many sides it has, competes with other smaller competitors that are less integrated. If under a formal interpretation of the law, Google—because it performs all functions across the ad tech stack—were determined not to compete with companies that sell only one part of the ad tech stack, then Google would have no competitors in the market for display advertising to the open web because no other companies operate across that entire market. Such reasoning would deem it a monopolist in that market, and the conduct we describe below would indicate willful maintenance of that monopoly.

46 John Nardone, *Amazon, Sismek And The Future Of Ad Serving*, FLASH TALKING (June 7, 2019), <https://www.flashtalking.com/blog/2019/6/7/amazon-sismek-and-the-future-of-ad-serving>.

47 See *id.* at Figure 5.10.

48 The US Supreme Court in 2018 decided *Ohio v. American Express Co.*, 585 U.S. ____ (2018), which set down a new rule about the application of Section 1 of the Sherman Act to "two-sided markets." *AmEx* was case about a practice whereby AmEx prohibited merchants from "steering" customers to using other credit cards that charge merchants a lower price; this practice operated to shield AmEx from price competition. The Supreme Court observed that *AmEx* operated in a "two-sided market," connecting merchants on one side to consumers on the other. The Court held that, in two-sided markets, a practice violates the Sherman Act only if it harms competition on both sides of that market. The Court concluded that AmEx's anti-steering policy did not harm competition or consumers in the consumer credit card market, and so, regardless whether it harmed competition and merchants in the merchant credit card market, there was no antitrust violation. Here, and even assuming the *AmEx* holding applies to monopolization claims under Section 2, it doesn't matter if the digital advertising market is two-sided within the Supreme Court's definition, or three or four or five. As we explain below, Google's occupation of the entirety of the ad tech stack and its related exclusionary conduct has harmed competition among publishers, publisher ad servers, exchanges, demand side servers, and advertisers, all to the ultimate detriment of consumers.

We expect an antitrust case against Google in the US to use these market definitions. First, a plaintiff would describe the digital advertising market at \$129bn dollars. Then the plaintiff would show that Google had a monopoly in the market for search ads (90%) and a large share, perhaps sufficient to confer market power, in the market for intermediating display ads on the open web and, likely, market power in a separate market for open web video ads.

As we explain below, the plaintiff then would show that Google uses its virtual monopoly in search to direct its advertisers to Google's intermediation services for their purchase of display inventory as well. The plaintiff will explain that Google has designed its intermediation services to exclude rival service providers, including through conduct such as deliberate non-interoperability and requirements of exclusivity for use of resources over which it has market power – such as the vast data it collects through its family of properties. The end result of this foreclosure of rivals in the ad tech stack is to lessen competition for the services needed by publishers to monetize their internet content. We note that advertisers continue to have the choice of advertising in the “walled gardens” of Facebook and Amazon, who do their own intermediation. The creators of the vast amount of content on the open web that is supported by digital advertising suffer from the anticompetitive conduct by having no choice except to use Google services. Advertisers who wish access to users through the open web likewise must pay Google's prices and accept its low quality, for example, the inability to measure fraud or track payments through the various intermediaries that stand between them and the publishers.⁴⁹

The obvious end state of this monopolization strategy is a world in which, with the exception of ad spend directed to Facebook, Amazon, and other closed systems, Google collects for itself the vast majority of the total digital ad spend in two ways. Google extracts approximately 40% of the total ad spend through its intermediation services, part of which would otherwise go to publishers and advertisers. Google limits the use of its data and designs its fees and auction to reduce payments to publishers while keeping ad prices high. It further reduces publisher revenue by steering consumers to its own supply of search and display and then selling that inventory directly. Google also disadvantages third-party publishers by appropriating information about those publishers' audiences and using that information for its own gain, including by serving ads on other sites (and making a profit) using the insights Google gained serving ads on the original publishers' sites.

Advertisers continue to use Google's intermediation services because they otherwise cannot connect to Google's must-have supply, such as search and YouTube.⁵⁰ Third-party publishers also will continue to rely on the Google-controlled intermediation chain for must-have demand from advertisers, and because other competitors have exited or become competitively irrelevant. Google, for example, currently maintains a 90% share of the publisher ad server market, which indicates that the vast majority of ads cannot reach publisher sites without the permission of Google.⁵¹

49 PricewaterhouseCoopers recently concluded a study in which it attempted to track various advertisers' payments through the ad tech stack. It concluded that a remarkable 15% of ad spend simply went missing somewhere between the advertisers and publishers: “15% of advertiser spend – an “unknown delta”, representing around one-third of supply chain costs – could not be attributed.” See *Abi Gibbons, Time for change and transparency in programmatic advertising*, ISBA MEMBER PORTAL (May 6, 2020), <https://www.isba.org.uk/news/time-for-change-and-transparency-in-programmatic-advertising/>. This study did not focus exclusively on Google's intermediation services but it nonetheless reflects the difficulty advertisers face when trying to understand where their money goes, which itself indicates the market is not working efficiently.

50 See *supra* at 5-6 & notes 13-23.

51 CMA Report, *supra* note 4, at ¶ 5.181 (“The market for publisher ad serving appears to be very concentrated. Based on submissions from industry stakeholders, we estimate that Google Ad Manager may account for more than 90% of all the display ads served in the UK. Several publishers described Google Ad Manager as the global market leader and superior to other ad servers. Other providers include Xandr and Smart, but their presence as publisher ad servers in the UK market appears to be marginal.”).

Evidence of Google's Market Power

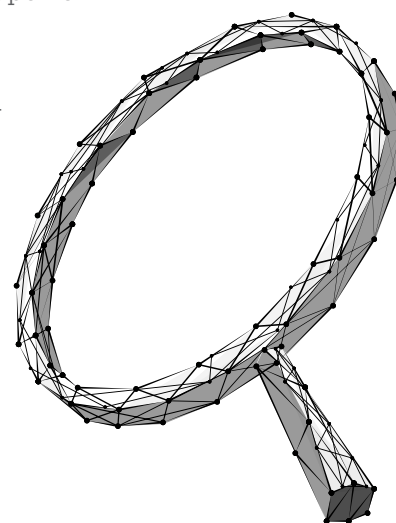
Economists look for a variety of indicia of market power to help evaluate whether conduct has the potential to harm competition that can cause consumer or other harms. The CMA finds substantial evidence of Google's market power in a variety of features of the digital advertising market.

Supply

The CMA finds that Google has a 95% reach, meaning that 95% of web users access at least one Google controlled site or app each month.⁵² YouTube alone, which Google owns, has a UK reach of 91%, which is higher even than that of Facebook.⁵³ Together, Google and Facebook own and operate 60% of display inventory. And as owners and operators of that inventory, they ultimately choose which ads are placed there and at what price.⁵⁴ And when it comes to search inventory, which the CMA concludes is not a substitute for display inventory, the CMA concludes that Google Search constitutes approximately 90% of the total supply.⁵⁵ This level of market share, combined with its persistence and entry barriers, are strong indicators of market power.

Reserve Price Setting for Search Supply

Google purports to price its search advertising through what are termed second-price auctions, whereby the winning bidder pays the price bid by the second highest bidder. But Google can sidestep the auction completely by setting a high reserve price—that is, a floor below which Google will not sell the ad. A reserve price will determine the price of the ad unless the auction generates bids above the reserve price. If there is only one bidder in the auction, or one bidder who values the ad significantly more than other bidders, a competitive auction may result in low prices. A reserve price can be used to raise prices in this situation. Reserve prices constitute direct price setting, as opposed to allowing the price to be determined through an unrestricted auction. The CMA finds that the majority of winning bidders for Google's search ads pay a reserve price; this constitutes a direct exercise of market power.⁵⁶



Product Markets That Comprise the Ad Tech Stack

As noted, the CMA describes separate product markets that effectuate the placement of search and display ads. We further highlight the role of Google's various data services, including the Ads Data Hub, that, together with the stack, comprise the ad tech ecosystem that targets and places digital ads. Google holds high market shares indicative of market power in three functions and in data services. The CMA estimates that Google's share of the publisher ad server market is 90%+, and that it holds a 40–60% share of the supply side platform/

52 *Id.* at ¶ 2.14 (“In terms of reach, around 95% of UK internet users access at least one Google site each month. Facebook’s reach is around 85%. Of the total time spent by users online, just over a third is on sites owned by either Google (including YouTube) or Facebook (including Instagram and WhatsApp).”).

53 *Id.* at ¶ 3.114 (“As shown by Figure 3.6, both Facebook.com and YouTube seem to be consistently growing their user bases. YouTube is even larger, with an audience of almost 46 million users accounting for 91%.”).

54 *Id.* at ¶ 5.21 (“Total spend in display advertising was worth £5.1 billion in the UK in 2018. About 60% of expenditure is made on owned and operated platforms, which typically provide social media to consumers. The largest of these platforms is Facebook, which owns both Facebook.com and Instagram. YouTube is the second largest and is owned by Google.”).

55 *Id.* at ¶ 15-16 (“Media agencies and most advertisers have told us that search and display advertising are not substitutable, mainly because they perform different roles. Search is intent-based advertising designed to encourage those consumers who have already shown an interest in buying the product to make a purchase, while display is suitable for raising brand awareness and reaching new audiences that might not yet have shown interest.”; “Google has had a consistently high share of the general search market for many years. Google has generated around 90% or more of UK search traffic each year over the last ten years and generated over 90% of UK search advertising revenues in 2018.”).

56 *Id.* at ¶ 5.84 (“Google’s Ad Rank Threshold also acts as a reserve price, directly determining the price paid by advertisers when only one bid exceeds the threshold. This is the case in [the majority] of Google’s auctions, representing [a material proportion] of its revenues. In these cases, by setting a higher Ad Rank Threshold Google could increase the price paid by advertisers, thus extracting more economic rents.”).

exchange market and a 50–70% share of the demand side platform side of the market.⁵⁷ The Ads Data Hub is a service that Google uses to enforce exclusivity and channel demand to its own properties. The CMA does not provide a market share estimate for this type of service.

Supra-Competitive Price for Display Advertising

The “take rate” is the difference between what the advertiser pays and what the publisher receives. “Take rate” is the industry name for the price charged by the intermediary in the ad tech supply chain. By contrast, we will often use “price” to mean the price paid by the advertiser. For ads intermediated by Google, a price is paid by the advertiser, Google’s cost is what it pays the publisher, and Google’s earnings are the difference between those numbers, or the take rate. The take rate is often expressed as a percentage of the advertisers’ money that actors in the ad tech stack keep. When Google provides all the functions in the ad tech stack, the take rate is Google’s “price.” If the ad tech stack is not competitive because Google has market power, then this price will be too high. A more competitive ad tech stack would likely reduce the price paid by advertisers or increase the payments to publishers, or both. The CMA estimates Google’s take rate, or price, at 40%, which it deems a supra-competitive price for the services provided by the Google-controlled players in ad tech stack.⁵⁸ A recent study by the Incorporated Society of British Advertisers (ISBA) found that publishers received 51% of the price, while the amount they could track going to intermediaries was 34%.⁵⁹ The study could not find where the remaining 15% of the price went. As we will describe below, Google has such a dominant position across all elements of the ecosystem, it seems likely that these missing funds are accruing to Google at least in part, which would support the CMA’s findings.

Financial Returns

Consistently high financial returns may also indicate that a firm holds market power; effective competition, especially price competition, would be expected to drive profits down to levels commensurate with costs. However, Google has consistently enjoyed profits well above its cost of capital, which indicates profits higher than competitive levels. Specifically, the CMA estimated Google’s cost of capital in 2018 to be around 9%, compared to returns of over 40%.⁶⁰

Information Opacity

The CMA also observed that Google intentionally withholds full information about the performance (e.g., viewable rate, non-fraud rate, brand safety measurements) of its services, making it difficult for buyers and sellers to understand the value the services provide, confirm that auctions are conducted fairly, and to compare the Google products to competing service providers. The CMA concluded that this deliberate lack of transparency is an indicator of market power.⁶¹

Summary of the Public Evidence on Market Power

The evidence that Google has market power in each of the five markets the CMA describes—search supply, display supply, and the PAS, SSP, and DSP product markets—is very strong.

- Google controls the vast majority of supply for search advertising and also critical sources of supply for display, especially for open display and for video. In search, it directly sets prices through reserve pricing, another likely indicator of market power.

57 *Id.* at ¶ 5.174 (“Concentration is particularly high at the publisher ad server level, where, based on submissions from industry stakeholders, we believe Google is likely to have a share of supply above 90%. There appears to be more competition at DSP and SSP level, although Google has significant shares in these markets as well (50-70% of the value of ads purchased through DSP, 40-60% of the value of ads sold through SSPs).”).

58 *Id.* at ¶ 5.90 (“our analysis of Google’s profitability is consistent with exploitation of market power.”).

59 See *supra* note 47.

60 *Id.* at ¶ 59 (“We have found that the profitability of both Google and Facebook has been well above any reasonable estimate of what we would expect in a competitive market for many years. In 2018 we estimated that the cost of capital for both Google and Facebook was around 9%, compared to actual returns on capital of over 40% for Google and around 50% for Facebook. This evidence is consistent with the exploitation of market power.”).

61 *Id.* at ¶ 50 (“Overall, the lack of transparency that we have observed has the potential to create or exacerbate a number of competition problems.”).

- In display, Google engages in rent seeking behaviors and designs auction processes that result in a 40% take rate, a price that likely is supra-competitive. Its earnings in digital advertising drive Google's high financial returns that, at 40%, far exceed its 9% cost of capital.
- Google maintains high market shares in three product markets comprising the ad tech stack.
- Google's control over the analytics applied to customer data is a source of market power.
- And, finally, Google's ability to maintain secrecy over various of its processes and pricing in a manner that is objectionable to its own customers is another piece of evidence of market power.

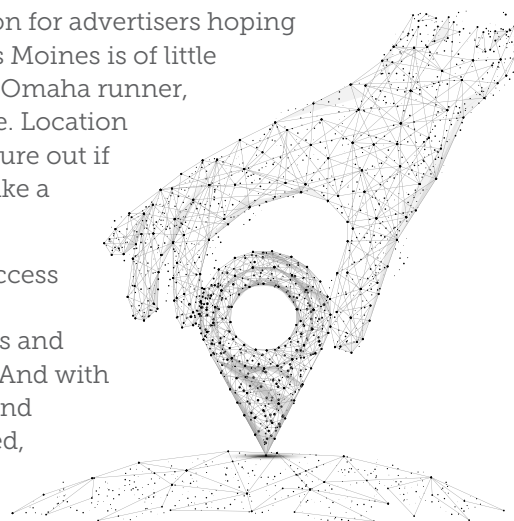
Barriers to Entry into Ad Tech

Market power is not permanent, of course. It can be undercut by, among other things, new entrants that offer better quality or lower prices. But the CMA's findings reveal a number of significant barriers to entry into the digital advertising market, which heightens the prospect that Google can engage in conduct that harms competition without restraint from new entrants or potential new entrants.

User Location Information

Precise location information is a particularly valuable form of user information for advertisers hoping to serve targeted ads. A digital ad for a brick-and-mortar running store in Des Moines is of little use to a runner looking to test out new shoes in Omaha, and, if shown to the Omaha runner, is unlikely to prompt a click, much less a purchase, from the Des Moines store. Location information also helps with attribution. Google's location assets allow it to figure out if showing an ad drives somebody to visit a store, watch a movie in a theater, take a vacation, etc.

The CMA concluded that Google has nearly insurmountable advantages in access to location data, due to the location information it receives from the Android operating system, Google search, and other applications such as Google Maps and Waze, a driving direction application Google purchased at a nascent stage.⁶² And with its recent endeavor to purchase Fitbit, which manufactures wearable health and movement monitoring devices, Google may acquire, if the merger is approved, not just precise location information but also information on the likely current activity of the consumer as well as a vast trove of personal health information which can be used to monetize ads.⁶³



An entrant into the ad tech stack requires information about the consumer to target an ad effectively. Because Google accounts for nearly the entirety of the mobile search sector in the UK—97%—and controls many of the known sources of location data, such an entrant faces a large barrier to entry.⁶⁴ No new entrant at any level of the ad tech stack, or any analytics firm that might hope to support such an entrant, has nearly the quantity or quality of consumer data as Google has available at its disposal.⁶⁵

62 Ingrid Lunden, *Google Bought Waze For \$1.1B, Giving a Social Data Boost To Its Mapping Business*, TECHCRUNCH (June 11, 2013), <https://techcrunch.com/2013/06/11/its-official-google-buys-waze-giving-a-social-data-boost-to-its-location-and-mapping-business/>.

63 See Patrick Louis Austin, *The Real Reason Google is Buying Fitbit*, TIME (Nov. 4, 2019), <https://time.com/5717726/google-fitbit/> ("The most obvious potential lure is the health data of millions of Fitbit customers. Fitbit devices have been tracking wearers' health metrics for over a decade, cataloging behaviors like steps taken, calories burned and exercises performed. That's just the kind of thing Google, fundamentally an advertising company, needs to further build out its profile of, well, you.")

64 CMA Report, *supra* note 4, at ¶ 3.71 ("Microsoft suggested that accessing at-scale location data from user devices is a critical input to providing relevant, localized results. It indicated its belief that Google has unique advantages in this area, due to the location data that it receives from the Android operating system and the location data it receives when users access Google Search or other apps like Google Maps/Waze. As noted above, Google Search accounts for almost all of the mobile search sector in the UK (97%).")

65 *Id.* at ¶ 37 ("Data on users is highly valuable for targeting digital advertising (particularly display advertising) and measuring its effectiveness. Advertisers and publishers have told us that Google and Facebook enjoy significant competitive advantages in both targeting and measuring effectiveness because of their extensive access to user data.")

Tendency of Publishers To “Single Home”

The CMA concluded that publishers tend to “single home”—i.e., engage only one publisher ad server. And for the minority of publishers that do engage more than one ad server, most utilize Google’s ad manager in addition to the other ad manager to ensure they have seamless and complete access to demand from advertisers relying on Google’s intermediation tools.⁶⁶ Moreover, the CMA concluded, based on information provided by publishers, that it is difficult and time consuming for publishers to switch from one ad server to another and that the process can lead to lost sales and lost data. The complexity of the switching reinforces the natural tendency of publishers to single home, thereby buttressing this particular barrier to entry.⁶⁷

Attribution Measurement

Advertisers constantly evaluate the effectiveness of their advertising efforts so that they can modify and adjust their tactics and ad spends to achieve specific campaign goals. With digital advertising, the advertisers want to know whether particular ads served to particular users on particular web sites led the user to view the ad, open a web site, or even make a purchase. An ad that causes a desired consumer action receives what is termed “attribution.” Google’s products determine attribution—the linking of an action such as a visit to a website or a purchase of a product to the viewing of a particular digital ad—and therefore determine payment to the host of that ad, for example, a news site or a search engine. Google’s acquisition of many businesses across the ad tech stack allows Google to control these measurements for its own customers and for its rivals, thus controlling their revenues. In particular, Google can design attribution to favor search ads, where it has close to a monopoly. Because Google limits interoperability across the stack (discussed further below), entrants face a barrier to tracking attribution at the same level or understanding Google’s method.⁶⁸ This is another barrier to entry into ad tech.⁶⁹

Opaque Pricing

Finally, a number of publishers complained to the CMA that Google’s ad tech products make it virtually impossible to know how much Google charges for its services or how it designs its auctions with any specificity. Publishers can see some information about how their ad space is monetized, but without important details such as impression-by-impression logs that detail who participated in the auction, what they bid, how Google calculated the net price, who won and why, and what fees Google charged.⁷⁰ This has a number of consequences. One is that this price opacity makes it difficult for new entrants to compete on the basis of price with the Google products.

66 *Id.* at ¶ 5.182 (“Publishers typically single-home on one ad server, although it is possible to have a secondary ad server in addition to the main one. This appears to be the solution adopted by some publishers whose primary ad server is not Google Ad Manager in order to have access to Google’s demand.”).

67 *Id.* at ¶ 5.206 (“Google’s position in publisher ad serving is strengthened by the presence of substantial barriers to switching. Most publishers responding to our information requests submitted that switching to another ad server is a technically complex process because of how deeply integrated an ad server is into a publisher’s systems. Moreover, publisher ad servers typically do not support the transfer of data between them.”).

68 We explain below that Google shares the vast quantities of data it collects and the analytics it generates only selectively. Google shares information such as attribution data because doing so gives it a competitive advantage with its advertiser clients over other companies that lack that capability due to their relative data deficits. But when Google does not stand to benefit from data sharing—providing clarity about auction processes that create arbitrage opportunities, for example—Google remains tight lipped.

69 CMA Report, *supra* note 4, at ¶ 5.144 (“A number of responses indicated that Google and Facebook had a competitive advantage in respect of their access to consumer data and an ability to track consumers’ behaviour across different websites and measure attribution across their own inventory more accurately.”).

70 *Id.* at ¶ 2.55 (“Several publishers have expressed concerns that a lack of transparency and competition in ad tech intermediation allows intermediaries to extract a large share of advertisers’ expenditure, reducing the amount that is ultimately paid to publishers.”). See, e.g., Geradin et al., *Trust Me, I’m Fair’: Analysing Google’s Latest Practices in Ad Tech From the Perspective of EU Competition Law* (October 7, 2019), available at SSRN: <https://ssrn.com/abstract=3465780> (describing how Google prevents linking of data from bids advertisers make outside Google with data from bids they make within Google. This linking would allow advertisers to evaluate competing services in comparison to Google products.). By contrast, AppNexus, a vigorous competitor to Google, differentiated itself by promising publishers more transparency around information such as log data, bid data, net price calculation, auction determinants, and fees. But despite the efforts of companies like AppNexus, pricing generally remains opaque. Indeed, as mentioned above, a recent PwC study was unable to account for a remarkable one-third of the total amount ad tech intermediaries absorbed of advertisers’ total spend. See *supra* note 47.

A new or potential new PAS or DSP cannot credibly claim to be able to undercut the Google products on price if the publishers and advertisers cannot tell how much Google actually is charging, thereby posing yet another barrier to entry.⁷¹

Summary of Public Evidence on Barriers to Entry

Fewer and fewer companies service the digital advertising market. This is not in itself unusual even in a competitive market. But given the enormous profits to be made (as indicated by Google's 40% return on investment), we also would expect to see new entrants. The Interim Report helps explain why we do not. Many publishers and advertisers tend to single home. By offering key products and services exclusively, Google can obtain the entire business of these customers and gain scale. Google holds advertisers inside its ecosystem with data gathered from an expansive family of consumer facing products and services. With the volume, liquidity and additional data from advertisers, it now has an insurmountable data advantage. Because of its omnipresence across the ad stack and ability to set the attribution rules, Google can offer higher payment to those customers who use its products. It then maintains a level of secrecy over its pricing and processes that makes difficult the task of any new entrant who would try to promise better pricing or quality. With these barriers in place, entry seems nearly futile.

Anticompetitive Conduct

Google no doubt has innovated and invested in ways that have contributed to its success in the digital advertising market. But public sources and the CMA Report describe a wide variety of conduct that, individually and collectively, reflects a pattern that appears designed to expand Google's occupation and control of this market to the exclusion of competitors.

When viewed collectively, the conduct suggests a long-term strategy to occupy, through acquisitions, the entirety of the ad tech stack that connects buyers to sellers, and then to use its presence across the stack, its data, and its control of the flow of payments to exclude and prevent entry of competitors, raise rivals' costs, and force buyers and sellers to rely on Google services to effectuate sales. Google has used exclusivity and the denial of interoperability, and leveraged power across the stack to disadvantage competitors and advantage itself. Google's opacity keeps many of the details of its conduct secret, even from customers, which suppresses competition and helps Google to maintain dominance.

In the remainder of this section, we describe twenty instances of conduct that, in toto, reflect this monopolization strategy. Through this conduct, Google maintains its dominant position in supply of search advertising and both creates and maintains power in supply for display advertising, especially for open display and for video, and reinforces its dominance in the layers of the ad tech stack.

- Google completed a series of transactions that allowed it to participate in every level of the ad stack. (#1)
- Google leveraged its power in search advertising, in which it holds monopoly power to coerce advertisers to use Google products to access the display market as well. (#2)
- Google advantaged itself through arbitrage and cross-subsidization opportunities made possible by the fact that it, and it alone, operates at all levels of the value chain. (#3–5)
- Google withheld interoperability in order to disadvantage, foreclose, and punish its ad stack rivals. (#6–9)
- Google designed auction processes that cement its own market power and raise rivals' costs. (#10–13)

⁷¹ *Id.* at ¶ 48 ("Publishers have complained about lack of visibility of fees to intermediaries used by advertisers (DSPs, DMPs etc), reducing their ability to negotiate directly with advertisers. This may limit the competitive pressure faced by DSPs. Some advertisers and agencies have expressed a concern about not being able to observe the fees that SSPs charge to publishers. This may limit the extent of competition between SSPs.")

- Google kept key market information hidden to shield itself from scrutiny from publishers, advertisers, and potential new entrants, suppressing otherwise natural competitive forces. (#14–17)
- Google leveraged its control over the ad tech stack and Google Analytics to weaken rival sources of display supply. (#18–20)

Of course, a full investigation with access to facts unavailable to us may uncover some reasonable justifications for some of these twenty instances of conduct. Based on the public facts known at the moment, however, it does not seem plausible that the incremental efficiencies created by the conduct described here could outweigh all the harms to competition resulting from this broad pattern of behaviors.⁷²

1. Acquiring Independent Companies To Cement Its Role Across the Ad Stack

The CMA notes that Google completed a series of at least nine transactions beginning in 2007 and continuing until nearly the present that collectively have allowed it to occupy the entirety of the ad tech stack. These transactions are often precursors to the anticompetitive behavior described in subsequent sections and enable it. Google purchased a publisher ad server in 2007 called DoubleClick, for example; the technology from that company served as the basis for Google’s current publisher ad server. It acquired AdMob in 2009; AdMob owned technology for serving ads on apps. It purchased Invite Media in 2010, which Google developed into its main demand side platform. In 2011, it purchased AdMeld, a supply side platform that it integrated into AdX, the Google exchange. And in 2014, Google bought Adometry, an analytics and attribution provider it then integrated into Google Analytics. Together, these acquisitions reveal a sustained effort to occupy the entire ad tech stack as well as the related analytics market through mergers.⁷³

2. Leveraging Market Power in General Search into Display

Rivals cannot as a technical matter interact with or place ads on Google Search. But as the CMA notes, Google controls roughly 90% of the search inventory. Given the CMA’s related conclusion that search is not a substitute for display—the two kinds of ads serve different functions in a campaign—Google Search is a critical input for many advertisers trying to reach consumers who may be looking for a particular product, service, or brand. Google leverages this monopoly to disadvantage rival DSPs by withholding results and output from Google search campaigns that advertisers have designed and bought and which are a critical input into an advertiser’s ad campaign. This likely ensures that Google’s DSP earns substantial revenues and faces less competition.

Advertisers gain functionality in areas such as budgeting and targeting when a campaign is run through a single DSP. Thus, the interoperability advantages Google provides through its DSP leverages its dominance in search to strengthen its position in display. Furthermore, according to the CMA, many advertisers “single home,” meaning they place all their digital ads through a single DSP. Small advertisers may not be spending enough to make multi-homing worthwhile, and there are many of them. Larger advertisers are more likely to find it worthwhile to use more than one DSP. However, they also gain from the coordination across channels that single-homing can bring. Google’s DSP, now called Google Ads, creates incentives for advertisers—

⁷² Courts and enforcement agencies in the US consider whether a company could have achieved efficiencies similar those achieved by allegedly monopolistic conduct through “less restrictive alternatives.” See *O’Bannon v. NCAA*, 802 F. 3d 1049, 1074-76 (2014). If the challenged conduct yields greater efficiencies than those that would have been possible through less restrictive alternatives, those additional efficiencies are considered “incremental efficiencies.” We do not mean to imply in our discussion that none of the eighteen instances of monopolistic conduct we discuss below led to any efficiencies. Rather, our point is that, especially when considered in combination, it seems highly implausible that this long-term course of interrelated conduct has created incremental efficiencies that outweigh the competitive harms.

⁷³ CMA Report, supra note 4, at Box 5.1 (“We have been told that Google’s most significant acquisitions in ad tech include: DoubleClick (April 2007) – Publisher ad server and ad exchange; formed the basis of Google’s ad server and AdX (now Google Ad Manager). AdMob (November 2009) – Technology for serving ads on apps; formed the basis of Google’s AdMob product. Invite Media (June 2010) – Media buying optimization technology for the display advertising market; evolved into Google’s main DSP product, Google DV360. AdMeld (June 2011) – Supply Side Platform; integrated into Google AdX. Adometry (May 2014) – Analytics and attribution provider; integrated into Google Analytics to provide improved attribution services. Google has also made more recent acquisitions in the ad tech space, including mDialog, Directr, Toro and Famebit.”).

especially those that single-home—to purchase both search and display ads.⁷⁴ For example, when advertiser sets up a Google Ads account, the default setting creates an account that places both search and display ads.⁷⁵ Through product design and withholding of data, Google leverages its monopoly position in search to coerce advertisers into using Google’s display products.

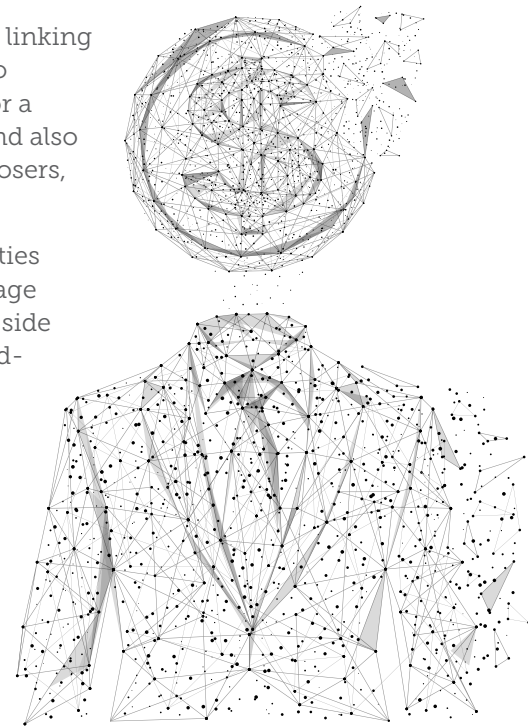
Once Google had leveraged its search monopoly to steer publishers and advertisers into relying on the Google-occupied ad stack for display, Google was able to take advantage of its unique structural advantage. No other company performs so many of the functions that link publishers to advertisers and also has market power in key areas. Google alone, therefore, can take advantage of particular opportunities for competitive interference made possible by the unusual fact that it represents both buyers and sellers, in the same market, and also designs and conducts the actions through which they transact. The next three sections describe examples.

3. Designing Auctions That Facilitate Arbitrage and Rent Seeking

It is possible that the reason Google chose to occupy the entire value chain linking publishers and advertisers was to be able to design the sale of advertising to benefit itself at the expense of other parties. It is unusual, to say the least, for a single company to represent both sellers and buyers in the same market, and also to set the rules for, and conduct, the auctions that determine the winners, losers, and prices in that market.

Google has made the most out of these opportunities, including opportunities for it to use its products along the intermediation chain to engage in arbitrage and rent seeking. As an example, Google Ads, which operates as a demand side platform, used to conduct an internal (among its advertising clients) second-price auction such that the winning advertiser paid the price offered by the second highest bidder, \$10 for example. Google Ads then took this bid to the next stage by competing with rival exchanges or SSPs for inventory. Because rival exchanges operate at an informational and scale disadvantage to Google and are subject to the cream-skimming described below (whereby Google snags for its own customers the best offers), their bids tended to be much lower, \$5 for example. In a second price auction, this low bid became the price the winning advertiser should pay.

However, in Google’s system the original advertiser continued to pay the first winning bid of \$10, while the publisher received the second, of \$5. Google kept the difference between what the publisher earned and the price paid by the winning advertiser. In such a scheme, the winning advertiser does not get the benefit of the second auction that lowered the final payment (\$5) to the publisher, nor does the publisher get the full benefit of the auction between advertisers for its space (\$10). Google, however, benefits from the wedge between the two prices. The CMA continues to investigate this practice. Because Google does not share complete information about its auction design or final prices with advertisers, they cannot calculate any harm, nor do they have competitive alternatives to turn to for a comparison, so, it is difficult for them to force Google to change its practices.⁷⁶



74 CMA Report, supra note 4, at ¶ 5.89 (“Google may also be able to leverage its market power in search into the open display market. Smaller advertisers often choose to single-home to minimize transaction costs. Advertisers that wish to single-home have a strong incentive to use Google Ads as they can use it to access Google search advertising and YouTube inventory as well as the open display market.”).

75 *Id.* at ¶ 5.211 (“Advertisers using Google Ads for their search campaigns can easily extend the scope of their campaigns to display advertising. Indeed, Google Ads includes both Search and Display Network by default when an advertiser sets up a campaign on Google Ads.”).

76 *Id.* at ¶ 5.193–7 (“In the context of an intermediation process characterised by the presence of sequential auctions, lack of transparency may give rise to rent-seeking behaviour and arbitrage opportunities, ie the possibility for an intermediary (SSP or DSP) to buy impressions at one price and sell them at a higher one, without its customers being aware of this ‘hidden fee’. These hidden fees would result in lower revenue for publishers, therefore reducing their incentives to invest in content, to the detriment of final consumers.”).

4. Cross-Subsidizing Competitive Functions of the Ad Tech Stack with Monopolized Functions In Order to Rise Rivals' Costs and Foreclose

Another opportunity made possible by Google's occupation of the entire ad tech stack is the ability to charge low prices at one end of the stack, to drive out competitors, while charging high prices at the other to counterbalance any losses. This can be a long-term strategy for Google. Its market power allows it to raise prices in any other part of the stack at the same time it is charging low prices for publisher ad serving functions, so it can continue this practice indefinitely. The gains on one end match the losses on the other, there is nothing to recoup, and no financial pressure on Google to limit the time period in which it engages in this exclusionary strategy.

This appears to be exactly what Google does. The CMA reports that Google has implemented an anticompetitive sales strategy on the publisher ad server end of the intermediation chain. Specifically, after purchasing DoubleClick, which became its publisher ad server, Google apparently lowered its prices to publishers by a factor of ten, at least according to one publisher's account related to the CMA.⁷⁷ Low prices for this service can force rivals to depart, thereby directly reducing competition.⁷⁸ Google can charge supra-competitive prices where it has market power, on the demand side where it offers YouTube exclusively through its own DSP, or through auction design on the exchange.

It makes sense for Google to cross-subsidize the publisher tools to make entry difficult in that market because, of the various parties harmed by Google, publishers are the most motivated and informed. Publishers would be most likely to sponsor or switch to an entering publisher server that provided a competitive alternative. Indeed, the CMA reports that Google even guarantees ad spend to publishers if they themselves sign up to use Google Ad Manager—which is a Google DSP—for the publishers' own advertising, thereby reinforcing Google's ability to recapture any publisher-side losses through demand-side profits.⁷⁹

5. Deceptive Gathering and Integration of Data

Google's vertical integration strategy is closely related to its data gathering strategy. First, Google offers an entire family of products—everything from Gmail and Google Maps to the Google Calendar, Google Chrome, Android mobile operating system and the search engine—that gather valuable personal data about its users. Second, the products across the ad stack further collect data on consumer activities that the company then integrates to maximize the effectiveness and precision of ad targeting and attribution and thereby the value of the ads. The CMA Report raises the criticism that these methods of data collection do not represent competition on the merits. For example, although Google has said that it would not collect data from its family of products to advantage itself in the digital advertising market, it plainly does, according both to the CMA and to public sources.⁸⁰

⁷⁷ See *id.* at Appx. H, ¶ 194 (“An ad server provider told us that, following the acquisition of DoubleClick and its ad server in 2008, Google reduced the price charged to publishers by a factor of ten. Such pricing pressure made the provision of publisher ad server difficult to sustain as a standalone business. This was the main reason why Smart felt the need to expand into the provision of SSP services. Google’s low pricing and aggressive marketing strategies led to a substantial growth in its share of supply in ad serving, making it difficult for other providers to maintain a significant scale.”).

⁷⁸ *Id.*

⁷⁹ *Id.* at ¶ 5.218 (“In addition, linking Google Ads demand – where Google may be able to extract a significant rent – with the publisher ad server may provide Google with a greater incentive to foreclose rival providers along the intermediation chain. First, this link may allow Google to soften rivals’ ability to compete. Google could implement such a strategy by credibly committing to price aggressively on the ad serving market, leading to the exit of competitors or depriving them of economies of scale.”).

⁸⁰ *Id.* at ¶ 37 (“Data on users is highly valuable for targeting digital advertising (particularly display advertising) and measuring its effectiveness. Advertisers and publishers have told us that Google and Facebook enjoy significant competitive advantages in both targeting and measuring effectiveness because of their extensive access to user data.”); *id.* at Appx. E, ¶ 50 (“Google is the platform with the largest dataset collected from its leading consumer-facing services such as YouTube, Google Maps, Gmail, Android, Google Chrome and from partner sites using Google pixel tags, analytical and advertising services. A Google internal document recognises this advantage saying that ‘Google has more data, of more types, from more sources than anyone else’. It then continues saying that ‘Google is a big part of this scaling machine with massive reach across the internet. [%] Advertisers and media agencies agreed with this view and said that Google has access to vast and high-quality data.”).

Google promised regulators it would not integrate the data from DoubleClick with its DSP, and then later did integrate them.⁸¹ The CMA Report discusses at length how little time users spend reading Google's privacy policy and how little Google tests the effectiveness of its disclosures.⁸² Until recently,⁸³ locating Google's privacy policy and making changes to it was difficult due to the way Google designed and framed those options. Because a critical competitive advantage of Google comes from data collected from all of these aspects of a consumer's life integrated into a "superprofile," the manner in which Google obtained that advantage is critical.⁸⁴ To the extent it was obtained by user confusion, purposeful "dark patterns" design choices, or renegeing on commitments to regulators, it does not represent a return to superior business acumen.⁸⁵ An advantage in data, combined with vertical integration, positions Google to engage in the exclusionary conduct described below.

A different pattern of exclusionary conduct by Google that appears frequently in the CMA report and in other documents is the company's choice to interoperate (or not) with its rivals both at a technological level and a contractual one. Google has integrated its many consumer facing and other products with the various functions it performs in the ad tech stack, providing it with information and technical advantages, while simultaneously disabling the ability of competitors to interoperate (as they had been doing previously) with that functionality. Google has used its ability to deny interoperability to independent players to make it difficult to compete, including those independent players that might charge a lower price.⁸⁶ The practices—including the next several items of conduct—have led to exit and stagnation and prevented entry.

6. Strategic Disabling of Interoperability To Disadvantage Rivals

Advertisers generally reported to the es is reported only periodically. This timing difference can make it seem to advertisers as if Google is outperforming Bing, even when it is not. And new functionalities of the SA 360 product typically are rolled out for Google search far in advance of when those same functionalities are made available for the inventory Bing fills. This too advantages Google Search as a supplier of inventory over Bing.⁸⁷ The CMA identifies no technical reason why SA 360 could not report out data from Bing in the same manner it reports out the Google Search data, suggesting that Google has chosen to restrict interoperability with Bing in order to advantage its own search supply.

On the publisher side, Google responded to the development of something called header bidding by electing not to interoperate with the code that publishers placed on their sites to solicit bids from the various exchanges. (A full explanation of header bidding and Google's responses to the competitive threat it posed appears in section #11, below.) This meant that, after rival exchanges solicited and transmitted bids to the publisher, the publisher ad server still would have to give Google's AdX a "last look" by sending that winning

81 Julia Angwin, *Google Has Quietly Dropped Ban on Personally Identifiable Web Tracking*, PRO PUBLICA (Oct. 21, 2016), <https://www.propublica.org/article/google-has-quietly-dropped-ban-on-personally-identifiable-web-tracking>.

82 CMA Report, *supra* note 4, at ¶ 4.81 ("The data that was provided by Google and Facebook indicates that few consumers engage with privacy settings when they register for a service. Consumer engagement appears to be slightly higher on an ongoing basis when people use the service but remains low overall.")

83 Google Response, *supra* note 5, at ¶ 9, at n.6, referring to changes that occurred in May 2019 giving users "auto-delete" controls for data Google tracks about their activity online, as well as their location in the real world.

84 Google's broken privacy promises include a promise to not merge Google and DoubleClick data, a promise to not track users on Apple's Safari web browser, and major privacy breaches in the rollout of its short-lived social network Google Buzz. See *supra* note 61; Claire Cain Miller, *Google to Pay \$17 million to Settle Privacy Case*, NY TIMES (Nov. 18, 2013), <https://www.nytimes.com/2013/11/19/technology/google-to-pay-17-million-to-settle-privacy-case.html>; Claire Cain Miller & Tazina Vega, *Google Introduces New Social Tool and Settles Privacy Charge*, NY TIMES (March 30, 2011), <https://www.nytimes.com/2011/03/31/technology/31ftc.html>.

85 See Devin Coldeway, *Study calls out 'dark patterns' in Facebook and Google that push users toward less privacy*, TECHCRUNCH (June 27, 2018), <https://techcrunch.com/2018/06/27/study-calls-out-dark-patterns-in-facebook-and-google-that-push-users-towards-less-privacy/>.

86 One prominent example of the withdrawal of operability is Google's 2015 decision to prevent non-Google DSP's from purchasing its YouTube inventory. See, e.g., Vincent Flood, *Google to Prevent Non-Google DSP's from Buying YouTube Inventory*, VIDEO AD NEWS (Aug. 7, 2015), <https://videoadnews.com/2015/08/07/google-to-to-prevent-non-google-dsps-from-buying-youtube-inventory/>.

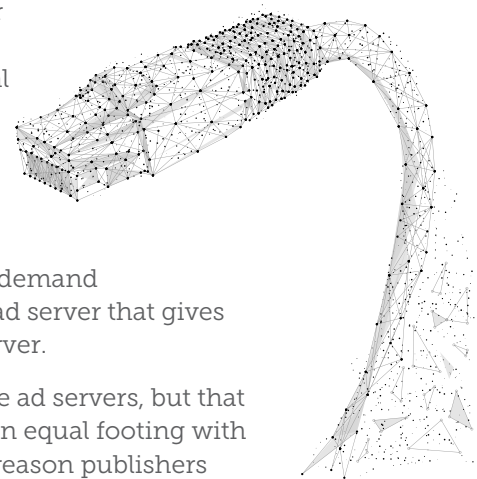
87 *Id.* at ¶ 5.76 ("Microsoft further explained that Google Search also benefits from the relative interoperability between SA360, a tool used by many advertisers to automatically optimise expenditure across keywords and platforms, and Google Search compared to that between SA360 and Bing.")

bid to Google's AdX. That gave Google an obvious advantage; it could decide whether to bid for an impression while knowing exactly what price it would need to bid to win.⁸⁸

And even when Google moved to what it calls Open Bidding (formerly known as Exchange Bidding, also explained in section #11, below), whereby it allowed non-Google exchanges to integrate into its ad server auction and theoretically eliminating the last-look advantage, Google designed this interoperability feature so that it charges the winning bidder 5% or 10% percent of the winning bid.⁸⁹ The practice raises rival exchanges' costs and denies them demand.

7. Withholding Interoperability to Steer Demand and Supply Through Its Own Exchange

Google also denies interoperability in ways that channel advertisers' demand for display advertising through its own exchange. In a recent one-year period, the value of impressions won by Google Ads through Google's exchange was several times greater than the value of impressions won through other exchanges.⁹⁰ One explanation may be that Google simply sends the majority of bids from its advertising customers through its own auction. But in addition, Google also designed its exchange in such a way that it operates more efficiently with requests from Google's own ad server than it does when requests come from rival ad servers. Furthermore, because publishers want access to the substantial demand that Google is sending through its own auction, publishers select the publisher ad server that gives them the best chance of matching with that demand, which is the Google ad server.



The CMA reports that Google's exchange "can" accept requests from non-Google ad servers, but that the Google exchange cannot easily put those requests into a real-time auction on equal footing with the requests from Google's ad server.⁹¹ This lack of interoperability may be one reason publishers choose the Google publisher-side server: to ensure access to the demand coming through the Google exchange. Without any technical explanation from Google as to why the exchange cannot fairly process requests from non-Google ad servers, it seems likely it represents a design choice to disadvantage competing ad servers.⁹²

8. Providing Exclusive Programmatic Access to YouTube Through Google's DSP

Google makes its valuable YouTube inventory available to buyers using the ad tech stack exclusively through its own demand side services. This is a contractual way to deny interoperability. Recall that YouTube has up to 50% of all video display ads other than those that appear within the Facebook and Amazon walled gardens.⁹³

88 See *id.* at Appx. H, ¶ 19 ("Until the recent transition to a Unified Auction (discussed below), as a result of Dynamic Allocation DFP selected the line item with the highest price (which in that case corresponds to the highest bid from the header bidding auction) and then sent a bid request to AdX with it as its price floor. This was the so called 'last look' advantage.").

89 See *id.* at Appx. H, ¶ 22, n. 4 ("Exchange bidders are charged either 5% or 10% of the value of the winning bid, depending on the type of inventory.").

90 *Id.* at ¶ 5.213 ("Demand from advertisers for third-party display inventory through Google-Ads is overwhelmingly channeled through Google's own exchange, AdX (now part of Google Ad Manager). Between September 2018 and August 2019, the aggregate value of the impressions won by Google Ads through AdX was [several] times that of impressions won through other third-party exchanges. This suggests that publishers place a high premium on being able to access AdX demand.").

91 *Id.* at ¶ 5.214 ("It is difficult for publishers to efficiently access AdX [the former name for Google's exchange] demand from a non-Google ad server. Although AdX can receive requests from, and submit bids to, other ad servers, its demand cannot be easily placed in real-time competition with that from other SSPs.").

92 Google had just such an opportunity to provide an explanation when it submitted Comments to the Interim Report, but it simply punted. Google includes in its Comments a section entitled, "Third-party Access to AdX and GoogleAds Demand," in which it purports to respond to the CMA's assertion that Google has linked Google Ads demand to AdX and AdX to Google's publisher ad server through interoperability that it denies to others. Google's response to the assertion that Google designed AdX to work better with its own publisher ad server than it does with its competitors reads, in total, as follows: "[P]ublishers can request ads from AdX using a third-party ad server. AdX will attempt to fill any such request based on real time prices." See *id.* at ¶ 1.40 (emphasis added). This "response" constitutes an admission that Google designed AdX to favor its own ad server: if there were technical impediments to including requests from competing ad servers in AdX's real-time auctions, Google presumably would have said so.

93 See *id.* at Figures 5.5, 5.6.

When Google initially purchased YouTube, its inventory was available for all DSPs to use, as was the case with many publisher sites that are attempting to gain users and grow. Then in 2015, Google closed YouTube and made it accessible only through the Google DSP. Because buyers tend to use a single DSP for an entire ad campaign, Google's decision to limit YouTube availability to users of its DSP forces buyers into not only using the Google DSP for placing ads on YouTube, but also using it to place ads on other properties even when they might otherwise choose a rival DSP.⁹⁴ An entering DSP that could not place ads on YouTube would not be very useful to advertisers as YouTube offers as much as 20% of the total inventory video ads (and up to 50% on the non-Facebook inventory), and has a reach greater even than Facebook.⁹⁵

Moreover, public information confirms that Google instituted this particular form of non-interoperability specifically in response to a perceived competitive threat to its DSP. AppNexus was a company that developed technology for real-time bidding, and also connected advertisers to auctions. Its co-founder provided testimony to the US Senate in 2019 in which he described Google's reaction to the threat posed by AppNexus. AppNexus had spearheaded header bidding (described in detail below), which displeased Google. After this success, AppNexus signed a major strategic deal with the largest advertising agency in the world. In 2010, and apparently to punish AppNexus for its promotion of header bidding, Google suddenly cut off AppNexus's ability to place advertising on YouTube and other supply that was available through real-time bidding⁹⁶—an abrupt shift from prior policy—thereby rendering AppNexus's new deal with the large advertising agency practically worthless. The AppNexus executive testified that Google's decision appeared to constitute retaliation for the company's promotion of header bidding.⁹⁷ Eventually, AppNexus laid off 100 employees and was purchased by AT&T. This story demonstrates the particular danger presented by Google's occupation of the entire ad tech stack and its ability to deny interoperability to any rival at any point in that stack. Google felt a threat to its publisher-side business and reacted by withdrawing interoperability on its advertiser side, arguably leading to the exit of one of its largest and most innovative competitors in the market.

9. Retiring the Third-Party Cookie

Google in early 2020 announced plans to retire the text known as a third-party "cookie" that websites place on users' browsers. The cookie identifies that unique user, which allows participants in the ad stack to track consumers as they visit different sites and cross the different functions involved in placing an ad.⁹⁸ Observers note that Google, even though it may lose some capabilities once it retires the third-party cookie, doesn't have to rely on cookies in order to place targeted ads and track attribution. Its ad tech and customer-facing services already vacuum up so much user data that retiring the third-party cookie is not expected to interfere with their ad business; Google can simply rely on the data it gathers directly.⁹⁹

But without the ability to know who a consumer is and the ability to measure their action that third-party cookies had allowed, advertisers as well as rivals in the ad tech stack will not be able to bid efficiently. Nor will they be able to deliver payment to effective ads (attribution) based on consumer clicks or actions. They will be competing as if they are blind, against a competitor with 20/20 vision. Google, because it is present across

94 *Id.* at ¶ 5.208 ("Advertisers' choice of DSP for non-Google inventory as well, because a single DSP is typically used for a given campaign. Therefore, if an advertiser wants to include YouTube in a campaign, it has a strong incentive to use Google's DSP for the entire campaign.")

95 *See id.*

96 *See* Peter Kafka, *Google Cuts Off AppNexus, and the Ad World Shudders*, ALL THINGS D (Nov. 30, 2010), <http://mediamemo.allthingsd.com/20101130/google-cuts-off-appnexus-and-the-ad-tech-world-shudders/>.

97 *Understanding the Digital Advertising Ecosystem and the Impact of Data Privacy and Competition Policy: Hearing Before the S. Comm. on the Judiciary*, 116th Cong. (2019) (Written Testimony of Brian O'Kelley, Founder and Former CEO, AppNexus, Inc.).

98 Third-party cookies are different than first-party cookies. First-party cookies are those that a website—a travel reservation or e-commerce site, for example—might place on a user's browser so that when the user returns to the same site she can be identified. A first-party cookie is what makes it possible for an e-commerce site to recognize that you previously placed items in your cart, even if you have navigated away from the page, or for the travel site to remember that you are based in Dallas and prefer window seats. By contrast, third-party cookies allow participants in the ad tech stack other than the site you were on when the cookie was placed, including advertisers, to track you across the web and gather information about you based on your web habits. *See generally* Michal Wlosik & Michael Sweeney, *What's the Difference Between First-Party and Third-Party Cookies?*, CLEARCODE (Nov. 2, 2018), <https://clearcode.cc/blog/difference-between-first-party-third-party-cookies/>.

99 *See, e.g.*, Sara Morrison & Rani Molla, *Google Chrome's cookie ban is good news for Google – and maybe for you: But it's terrible for smaller advertisers*, VOX (Jan. 16, 2020), <https://www.vox.com/recode/2020/1/16/21065641/google-chrome-cookie-ban-advertisers>.

the entire stack, does not need to interoperate with others.¹⁰⁰ Refusing to interoperate going forward will raise the cost of ad tech rivals and diminish their effectiveness, leaving Google with a virtual monopoly in digital advertising services for the open web. At that point, publishers will have only one way to monetize their supply of display inventory and advertisers will have one way to reach the open web—through a company with no rivals that can discipline its prices or quality.

In addition to denying interoperability, Google also maintains power across the ad tech stack by designing auction processes (or suppressing alternative auction processes) in order to raise its rivals' costs and insulate its own ad tech services from competition on the merits. By raising its horizontal rivals' costs across the entirety of the ad tech stack (or by imposing burdens or charges that decrease other participants' revenues) Google appears to have deployed a long-term foreclosure strategy that would allow it to gain an ever-increasing percentage of the total ad spend in the digital marketplace.

10. Disadvantaging Rival Exchanges by Google's Publisher Ad Server

Historically, bidding for impressions was conducted sequentially, in a system called the “waterfall.” A publisher ad server would offer a particular impression to a particular exchange; if that exchange produced an acceptable bid (above a threshold), the ad was placed. If the exchange did not produce an acceptable bid, the ad server would offer the impression to the exchange that was next in line, proceeding down this “waterfall” until the impression was matched with a buyer. Google's own AdX typically would be first in line and would assess whether the impression was a valuable user or was instead a low-value impression like a bot. If the former, then Google AdX would bid on the opportunity, if the latter, it would pass the opportunity to the next exchange in line.

The next exchange was aware it was in second place and therefore would not even see the opportunity unless Google thought the opportunity was a dud. Due to Google's data advantage described above, the second exchange likely would have worse information than Google to assess the quality of the opportunity and therefore would usually be unable to identify instances of high quality that Google might have missed or passed on for other reasons. So, if the second exchange chose to bid, its informational position would cause it to bid a very low price to take into account the significant risk that the opportunity was, in fact, worth zero.

This dynamic has three competitive consequences. First, Google would place more bids, give its own exchange more liquidity, and collect more data due to its position, thereby increasing its dominance. Second, the order of exchanges in the waterfall was determined by historical average bid levels. An exchange that went first yesterday would be almost impossible to overtake because its historic average bid would be higher than that of the exchange that went second yesterday. Third, because the lower-ranked exchanges would bid at such low levels, over time Google's exchange need not bid very high in order to beat them, thus depressing bids and payments to publishers.¹⁰¹



100 Google's stated reason for abandoning the cookie is to improve user privacy. See, e.g., Justin Schuh, *Building a more private web: A path towards making third party cookies obsolete*, CHROMIUM BLOG (Jan. 14, 2020), <https://blog.chromium.org/2020/01/building-more-private-web-path-towards.html> (we are confident that with continued iteration and feedback, privacy-preserving and open-standard mechanisms like the Privacy Sandbox can sustain a healthy, ad-supported web in a way that will render third-party cookies obsolete). However, it is not clear that a monopolist controlling a huge database of super-profiles on every user in the United States is the least anticompetitive option to safeguard user privacy.

101 This third effect—the depressing of bid prices over time—results from Google's ability to “cream skim” as a result of its data advantage. Its superior access to cookies makes it better able to determine if, for example, a particular impression opportunity is a bot. If Google passes on the opportunity, exchanges further down the waterfall know Google has passed, but they may not know whether the impression opportunity is a bot. Nonetheless, the fact that Google has passed tends to depress the value of subsequent bids below what they would be if they had access to the same information as Google does. Because subsequent bidders tend to bid low, Google learns that it too can bid low and still win the impression. This dynamic, caused by information asymmetry, depresses the overall bid values over time, to the detriment of publishers. See Ittai Abraham, et al., *Peaches, Lemons and Cookies: Designing Auction Markets with Dispersed Information* (Microsoft AM-EC 2013), <https://www.microsoft.com/en-us/research/wp-content/uploads/2016/02/lemons-peaches.pdf>.

11. Undermining Header Bidding Through the Development of So-Called “Open Bidding”

Publisher payments in the system described above are below competitive levels because bids are forced down by the auction design. Publishers responded by adopting a technology called header bidding. Before the empty space for an ad is sent to Google to be sold, the normal procedure is for the publisher to check if that space is needed for its advertising clients with long-term contracts. These long-term contracts are typically negotiated by a salesforce and typically sell for high prices. If the publisher has sold some inventory to existing clients, it only wants to sell space through Google if the final auction price will be above the contract price it already has in hand from those clients. In these cases, it sends the impression to Google along with the (usually high) price that Google’s exchange has to beat.¹⁰²

In header bidding, a publisher’s website notifies multiple (non-Google) exchanges as soon as a user opens the webpage, allowing those exchanges simultaneously to make bids from which the publisher ad server can make a selection. The winning bid is then the threshold bid that is sent to Google as if it were a pre-existing contract price. This process fosters direct competition among exchanges. Through header bidding, publishers created competitors to Google’s exchange—because the Google exchange was performing poorly for them.

According to public reporting, the adoption of header bidding allowed publishers to raise their CPMs—a measure of the price advertisers must pay for every thousand impressions—by anywhere from 25–50%.¹⁰³ This significant price increase suggests that, prior to the advent of header bidding, there had been insufficient competition to force Google’s AdX to maximize opportunities and revenues for the publishers it purportedly served.¹⁰⁴

Google has taken a number of actions to undermine the competitive threat posed by header bidding. Indeed, Google has attempted to pre-empt header bidding entirely by revamping its auction process into something it now calls “Open Bidding” that provides many of the same benefits as header bidding. One technical problem with header bidding is latency; the user’s computer must solicit and process multiple bids before a page can load. Google’s Open Bidding addresses that problem by permitting multiple SSP to submit bids to Google’s own exchange, which more efficiently conducts the auction and serves the ad, while retaining the competitive aspect of header bidding that is beneficial to publishers (multiple exchanges competing).¹⁰⁵ However, Open Bidding is designed to favor Google over its competitors. The non-Google participants in Open Bidding must pay Google 5-10% of each impression they win. This raises those rivals’ costs, lowers payments to publishers, lowers their chance of winning, and advantages Google.¹⁰⁶ Moreover, Open Bidding’s service at a fee of 5% or more is not available directly to advertisers. The only allowed participants in Open Bidding are SSPs which themselves commonly charge a higher fee (perhaps 15%), thus requiring the advertiser to absorb the sum of the two fees.

102 See CMA Report, *supra* note 4, at Appendix H ¶ 15.

103 See, e.g., Ricardo Bilton, *With header bidding, publishers are boosting CPMs by as much as 50 percent*, DIGIDAY (Nov. 12, 2015), <https://digiday.com/media/header-bidding-publishers-boosting-cpms-much-50-percent/>.

104 The increase in revenue that publishers achieved through header bidding still represents an inefficient solution to auctioning digital advertising. The multi-stage process gave Google a “last look” advantage and therefore did not truly level the playing field. It also caused latency problems—meaning delays on serving ads on the available inventory—because of the added time necessary to match the inventory to advertisers, thus effectively reducing quality. Notwithstanding that, it appears that Google viewed header bidding as sufficiently threatening to the dominance of its AdX product that as described above, it stopped selling YouTube supply through third-party technology in order to punish AppNexus, the company that had developed the technology for header bidding. See *infra* note 105.

105 See Vishal Kumar, *Introducing Open Bidding, A New Way to Monetize*, GOOGLE BLOG (Mar. 22, 2018), <https://www.blog.google/products/admob/introducing-open-bidding-new-way-to-wkuf/>.

106 See CMA Report, *supra* note 4, at Appx. H ¶ 219 (“On the other hand, disadvantages of Open Bidding mentioned by some of the publishers responding to our RFI include the fees charged to bidders (5% of the winning bid, which increases to 10% for app and video inventory), a perceived lack of transparency, and the relatively limited number of participating SSP partners.”).

12. Undermining Header Bidding Through Exclusionary Features of AMP

Yet another way in which Google has blunted the competitive threat of header bidding is through its design of Accelerated Mobile Pages, or AMP.¹⁰⁷ Specifically, Google designed AMP pages so that they are incompatible with client-side header bidding, which leaves publishers of AMP pages with virtually no choice other than to use Google's Open Bidding. At the same time, Google leverages its power in general search effectively to coerce mobile publishers to use the AMP format. Google Search gives priority to results based on, among other things, load speed, which has the effect of lowering the page rank of the organic results from mobile sites that have not adopted AMP.¹⁰⁸ This means that non-AMP-formatted results often do not even show up on the first page of results, regardless of their relevance. Because consumers do not scroll down to lower pages very often, especially on their mobile devices, the drop in traffic from failing to be listed on the first page is severe.

The combined effect of (a) leveraging its power in search to all but require mobile sites to use AMP; (b) designing AMP so that it is incompatible with client-side header bidding, thus steering them to Open Bidding; and then (c) charging its rivals for participating in Open Bidding, means that Google has substantially undermined the financial benefit header bidding had provided to third-party publishers while creating a new source of income to itself (raising its rivals costs) and simultaneously cementing its own dominance in intermediation.

13. Designing Analytics to Steer Market Participants to Google Products and Prevent Entry

Google also designs its analytics to drive demand for its own products, thereby cementing or strengthening its position in the ad tech stack and reducing its rivals' revenues. An example is a new piece of information called "minimum bid to win," which it sends to certain bidders. Google says that providing this information will improve the competitiveness and accuracy of bidding, to the betterment of bidders and publishers. But Google says that it cannot provide that data to those bidding through header bidding—the competing bid methodology it has eschewed—because it doesn't know the identity of those bidders. The data is made available to those using Open Bidding—the process Google developed in response to header bidding—but those using Open Bidding are charged a premium, which has the natural result of driving bidders to interact directly with Google's AdX.¹⁰⁹

Google also builds robust customer profiles it uses to steer advertisers and publishers to use Google services. Google has a tracking presence on 75% of websites, according to a Princeton study.¹¹⁰ Google combines information it collects in this way with the comprehensive data it gathers from its own properties and its Android phones; it then makes this unique collection of user data available through a feature called "affinity audiences," which is available exclusively to advertisers who use its DV 360 product, a demand side platform.¹¹¹ This in itself gives Google a competitive advantage as compared to other DSPs.

107 AMP is a framework for the construction of web pages that Google then can cache in huge numbers to ensure fast loading on mobile devices. Results on AMPs are listed first in search results, giving publishers an incentive to use them. However, the consumers that land on AMP properties are on a Google page and the publisher therefore does not learn about its own users or gather useful data about them.

108 See *Understand how AMP looks in search results*, GOOGLE SEARCH FOR DEVELOPERS GUIDES, <https://developers.google.com/search/docs/guides/about-amp> ("While AMP itself isn't a ranking factor, speed is a ranking factor for Google Search.").

109 *Id.* at ¶ 5.224 ("Google has also introduced a new piece of information that Google Ad Manager will send to AdX and to Open Bidders after an auction is completed – the 'minimum bid to win'. This information is provided to SSPs bidding through Open Bidding but cannot be provided to those bidding through header bidding, as Google Ad Manager does not know the identity of header bidders.")

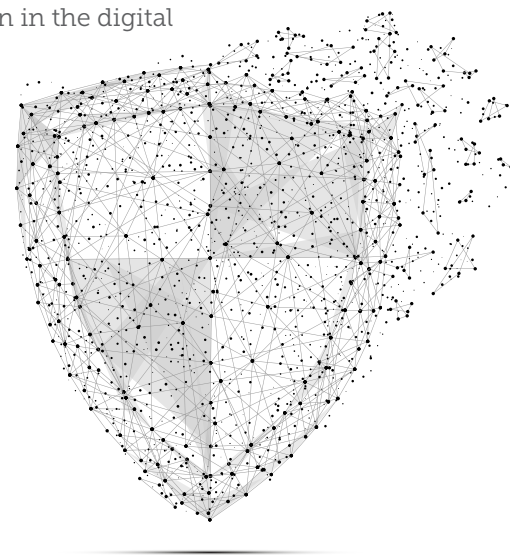
110 See Steven Engelhardt & Arvind Narayanan, *Online Tracking: A 1-million-site Measurement and Analysis*, (Princeton ACM CCS 2016), <https://webtransparency.cs.princeton.edu/webcensus/>.

111 See *About audience targeting*, GOOGLE ADS HELP, <https://support.google.com/google-ads/answer/2497941?hl=en>.

The CMA also reports complaints from publishers and advertisers that Google generally maintains a culture of secrecy around its services. We have noted that this tendency toward opacity is in itself an indication of market power. Service providers in competitive markets generally must provide to their customers detailed accounts of the services they provide in order to justify the prices they charge.¹¹² For example, an intermediary that could not account for 15% of the payments of its customers might find those customers seeking to buy elsewhere.¹¹³ But opacity also is a tool by which Google affirmatively shields itself from competition, as described in the next sections.

14. Resisting Transparency at All Levels of Ad Tech Stack

The CMA notes that, in addition to withholding particular forms of information from other market participants, Google has displayed and perpetuated a general refusal to expose its business practices and metrics to others. This secrecy, according to the CMA, has stifled competition in the digital advertising market as a whole and with respect to certain of its products in particular. Because Google releases only that information it chooses to about its conduct and performance throughout the intermediation chain, it essentially is grading its own homework. Advertisers complain, for example, that Google and other large platforms have resisted the adoption of common standards for measuring ad performance. Public studies have shown that a large fraction of ads are not loaded on a page that is seen by consumers; or they may have served to bots or played too fast to be seen by the human eye; other ads may run next to content that violates brand safety standards. If half of all impressions fall into one of these categories, then the true price of an impression has doubled. Advertisers are not able to measure wasted expenditure with their own tools because Google limits critical interoperability of third-party tools.¹¹⁴ Instead, advertisers must simply rely on what they are told from the very company that has a strong incentive to underestimate the problem.¹¹⁵ Because Google's performance in this regard is essentially insulated from outside audit, Google makes itself immune from the market forces that otherwise might discipline it.¹¹⁶



15. Obscuring Fees So That Competitors Cannot Enter and Compete Effectively

The CMA observes that Google does not clearly reveal the fees it collects along the intermediation chain. Publishers therefore cannot negotiate directly with advertisers in a way that might put competitive pressure on demand side platforms. And because publishers decide which ads to serve based on net bids (rather than on the amount actually paid by an advertiser), advertisers are stymied in their efforts to choose the cheapest path to their desired publishers. Likewise, entrants cannot determine the most profitable service to enter, where their competitive advantage is highest and they could provide a lower price than Google, because

112 A common example of this dynamic occurs in the market for legal services, in which the purchaser—the client—typically requires the lawyer to account for the time she spends working for the client in tenth-of-an-hour increments.

113 See *supra* note 47.

114 For example, Google limits interoperability for analytics tools on YouTube. It denies them access to raw data, instead providing access to some aggregated data through the Google Ads Data Hub. See Ginny Marvin, *Google launches ads measurement system for cross-device campaigns on YouTube*, DoubleClick, GDN, MARKETING LAND (May 26, 2017), <https://marketingland.com/google-ads-data-hub-beta-216059>.

115 Advertisers have pushed back against this resistance and advocated for the adoption of common standards. See, e.g., Lucy Handley, *Procter & Gamble chief marketer slams 'crappy media supply chain', urges marketers to act*, CNBC (Jan. 31, 2017), <https://www.cnbc.com/2017/01/31/procter-gamble-chief-marketer-slams-crappy-media-supply-chain.html>.

116 CMA Report, *supra* note 4, at ¶ 1.50. ("Overall, the lack of transparency that we have observed has potential to create or exacerbate a number of competition problems. Suppliers may have the incentive and ability to overstate the quality and effectiveness of their advertising inventory, for example, or to increase prices. Suppliers with market power can take steps to reduce the degree of transparency in digital advertising markets, forcing advertisers to rely on information and metrics provided by those suppliers. Asymmetric access to information across suppliers may also create opportunities for exclusionary behavior on the part of the large advertising platforms. The upshot of all these issues is likely to be that competition is weakened.")

Google's prices are hidden. Hiding the fees therefore works to protect Google from competition along the intermediation chain.¹¹⁷

16. Using Privacy Laws as an Excuse to Hide Performance Data

Google also has reduced the amount and type of information it makes available to other market participants, purportedly in response to strict privacy laws. As one example, Google collects data about individual users through a unique user ID that is associated with a cookie placed by its ad server. Google in the past made this raw data available to advertisers, which allowed them to study attribution and other performance patterns. But Google no longer does so, purportedly because of restrictions on data sharing imposed by privacy legislation. Instead, Google reports attribution and measurement insights through its Ads Data Hub. In the hub environment only Google's tools are permitted to audit and verify performance, which makes it difficult for advertisers to compare the performance of Google's ad tech stack with that of competing intermediaries.¹¹⁸

The CMA, however, expressed skepticism that privacy concerns truly are the motivating force behind Google's refusal to share data. Noting that European data protection regulations have created competition concerns by favoring the large, vertically integrated firms over smaller rivals, the CMA expresses "concern" that the large platforms are invoking those regulations as an "excuse" not to provide greater transparency.¹¹⁹ The fact that Google employs the same resistance to data sharing here in the US, where we have no privacy regulatory scheme akin to that which is in place in Europe, underscores the likelihood that Google's invocation of privacy concerns may be pretextual.

17. Thwarting Publisher Efforts to Understand Source of Payments

Google recently decided to stop including precise time-stamp data on bid requests. Prior to this change, publishers could use these time stamps to match impression sales to bids for those impressions to get a complete view of their ad sales process. This in turn enabled publishers to use the tools available to price and sell more accurately. Time stamps were also useful to advertisers in tracking and auditing financial flow of ad spend to publisher payments. With this change, however, both publishers and advertisers have a lessened ability to track the financial flow across the ad tech stack and evaluate Google's performance.¹²⁰

The final category of exclusionary conduct consists of acts designed to foreclose other suppliers of display inventory, i.e., publishers. On one hand, publishers are customers of Google's businesses that serve ads on the open web. We have discussed above the monopolization of those tools, and will explain the likely harms experienced by the publisher customers below. But on the other hand, publishers also are horizontal competitors to Google's owned and operated display supply. Google gains no advantage from eliminating all publishers; it needs some of them to create the premium content of, for example, the Wall Street Journal, to draw consumers to the web. Google does have an incentive, however, to weaken many parts of the publishing business (or, in some instances, to compete on the merits) so that it can capture a greater percentage of the total ad spend. After acquiring and foreclosing its ad tech rivals, Google has used its intermediation services to steer ad dollars to its own properties through the design of audit measures and attribution schemes. If consumers visit Google supply, no publisher is paid and Google's traffic acquisition cost is zero; this creates a financial incentive for Google to build

117 *Id.* at ¶ 5.192 ("Market participants typically do not have visibility of the fees charged along the entire supply chain and are concerned that this limits their ability to make optimal choices on how to buy or to sell inventory, reducing competition among intermediaries."); *Online Nation – 2019 Report*, OFCOM (2019), https://www.ofcom.org.uk/__data/assets/pdf_file/0025/149146/online-nation-report.pdf.

118 *Id.*

119 *Id.* at ¶ 4.413 ("[L]arge platforms may use privacy regulation such as the GDPR as an excuse not to share data with third parties, thereby consolidating their own market position."). It's not clear that the restrictions Google imposes are necessary in order to comply with GDPR. Other companies have found privacy-protective ways of sharing the data Google claims it cannot share. See e.g., Ka Mo Lau, *Introduction to Differential Privacy*, THUNDER BLOG (April 15, 2019), <https://www.makethunder.com/introduction-to-differential-privacy/>. While enforcement of GDPR is still unclear, it's important not to let it be used as a tool of exclusion.

120 CMA Report, *supra* note 4, at ¶ 5:233 ("Google's decision to remove time stamp data from bid requests – previously publishers could attempt to match their own information on advertising impressions with advertiser-side data by using the time stamp of the impression as a common identifier of that consumer. We were told that Google has recently made the time stamp information less precise, so that publisher and advertiser-side data on a consumer can no longer be matched. Publishers have told us that this reduces their ability to understand financial flows across the ad tech chain.").

many “verticals,” e.g., Shopping, Flights, News, Local, and so forth, to compete with existing horizontal competitors in those verticals. By steering consumers with its search tool, Google can obtain traffic for these new sites without the investment required by competitors and yet monetize at a higher rate because of its data advantages and the zero cost of traffic. Advertisers like advertising on these new Google pages because they can place ads there relatively cheaply. Consumers may or may not like these pages, but get steered there by Google search, and by sharing their data, raise quality. And as more and more consumers visit Google pages rather than original publishers’ pages, Google’s Traffic Acquisition Costs relative to its revenue continue to fall, leading of course to higher margin and higher profits. Google also extracts the related benefit of capturing data it collects from visitors to its new sites, thereby denying that and its related benefits to the original publishers.¹²¹

18. Designing Attribution to Favor Search and Disadvantage Publishers

When the consumer sees multiple ads before clicking or taking another action, Google sets a default in its DSP to assign attribution (payment) to the search ad. It is well known that the purchase process often involves a consumer being exposed to one or more display ads and then later navigating to the advertiser’s page using a search engine. Google search typically places an ad for the searched product or service prominently above the organic search results and consumers primarily click on those ads rather than the organic link to the same destination.¹²² This behavior will mechanically include a search ad in the group the consumer clicked on, even when the search ad did not contribute any value in delivering the consumer to the advertiser (as when, for example, the search ad includes the same URL for the advertiser’s website as does the organic result). This is particularly true if Google designs the search results page to have large prominent ads and organic links that are difficult to find. Because the default attribution Google sets in the DSP is to give the credit for delivering the customer to the “last click” before the purchase, Google’s DSP effectively lowers payments to display ads.¹²³ Furthermore, the default makes the advertiser believe that search ads are very effective relative to display ads, so the advertiser has no reason to change the default.

19. Raising Rivals’ Costs and Foreclosure of Existing and Potential Horizontal Competitors

According to the CMA, Google also employs strategies to keep users within its own ecosystem of products in order to gather as much data from users as it can, while frustrating publishers’ efforts to gather that same user data. Because user data allows the seller of an ad impression to charge a higher price, such a strategy weakens supplying publishers in the ad tech stack. Moreover, publishers are horizontal competitors of Google in that a user can go to Google to read content on Google’s own properties, or can go directly to a publisher to read content there. Google’s profit margin is higher when it does not have to pay a publisher; marginal cost on its own properties is zero.

Google’s development of AMP is an example of this raising rivals’ cost strategy. The CMA expresses the concern that the widespread adoption of AMP is a Google framework to gain even more control of users’ web experiences and data. In particular, the CMA notes that only AMP pages appear in Google organic search results that appear to be searches for news, for example. Because of the dominance of Google in search, this ordering effectively forces news sites to employ AMP even though it is lower quality for them. For example, AMP restricts some kinds of interactive and engaging content. This reduces the ability of publishers to innovate and differentiate.

121 As an example, one Google employee told the New York Times, “The company is in discussions with some publishers in the United States and France to pay directly to ‘feature full articles’ on Google itself, without having to click a link...” See Ben Smith, *Big Tech Has Crushed the News Business. That’s About to Change*. NEW YORK TIMES (May 10, 2020), <https://www.nytimes.com/2020/05/10/business/media/big-tech-has-crushed-the-news-business-thats-about-to-change.html>.

122 See Thomas Blake, et al., *Consumer Heterogeneity and Paid Search Effectiveness: A Large-Scale Field Experiment*, 83 *ECONOMETRICA* 155 (2015).

123 See Jesse Frederik & Maurits Martijn, *The new dot com bubble is here: it’s called online advertising*, THE CORRESPONDENT (Nov. 6, 2019), <https://thecorrespondent.com/100/the-new-dot-com-bubble-is-here-its-called-online-advertising/13228924500-22d5fd24> (explaining how “selection effect” can credit ads that actually don’t influence the buyer). In Frederik & Martijn’s example, three teenagers are hired to hand out coupons for a pizzeria. One clever boy figures out that by handing out coupons in the waiting area of the restaurant, his coupons are used the most. He gets the credit, but he did not influence those buyers, they were already planning to eat at the pizzeria. Similarly, buyers searching for an item may click a Google ad, giving Google Search ads credit for the sale, but a buyer searching for that item was probably already intending to buy and may not have been influenced by the Search ad, but rather an earlier display ad, which now does not get the attribution.

The CMA reports, for example, that publishers have less ability to use data about visitors to those pages than Google does, by design. When Google gets better data about the user than the publisher does, it weakens the tie between the publisher and its users, strengthening Google's position in the digital advertising market, reducing publishers' relative ability to monetize ads, and prevents publishers from strengthening their brand over the long run to compete with Google.¹²⁴

20. Capturing Publisher Data in Order to Monetize Their Audiences

Google's 90% share in the PAS market allows it to see the audiences coming to publisher sites on the open web. Some publishers have invested in content that attracts and retains a specific type of consumer, for example, readers of the Wall Street Journal or Golf Digest; this in turn allows them to support their business by selling valuable ads to advertisers looking for exposure to those audiences. Google has two ways to expropriate that value. First, rather than serve an ad on the Wall Street Journal at a high price, it can track the user who visited the Wall Street Journal and wait until she visits a site that sells space at low prices, for example, a local recipe blogger. Google can then sell Wall Street Journal users to advertisers in a way that does not benefit the Wall Street Journal at all and costs advertisers much less. A second strategy used by Google is to take the data describing these differentiated audiences and use it to create an imitation portfolio of consumers that mimic the characteristics of the publisher's audience. For example, Google could create an audience of consumers similar to the people who read Golf Digest. Then Google sells access to this group of consumers when they visit inexpensive websites. Advertisers are happy to buy these ads because the consumers likely belong to the specialized audience of interest but are available at a much lower price. In these ways the unique audience assembled by the publisher is copied and expropriated.¹²⁵ Any decline in demand for the true publisher's audience will be reflected in the price and quantity of ads the publisher can sell, and therefore its ability to compete as a supplier of inventory in the digital advertising market.

This summary of Google's conduct reveals a long-term strategy to occupy and dominate the entirety of the digital advertising market. This conclusion holds notwithstanding any characterization of the quality of Google's search engine; for example, many people believe Google Search to be the world's best search engine. The argument here, however, is different. It is about how Google has used the market power it already had in search as a springboard, for more than a decade, from which to deploy an ever-increasing number of interrelated anticompetitive tactics, all of which build on prior moves, lay the groundwork for future ones, and cement the competitive advantages it already has achieved. The conduct revealed through the CMA Report and other documents reveals a narrative that is difficult to ignore, one of a company with a methodical strategy of acquisition and exclusion of competitors across a large swath of the American economy.

As a result of this conduct, we now find ourselves with a digital advertising market in which Google extracts a toll from virtually every firm that hopes to participate in the digital marketplace. Notably, Google does not appear to dispute the basic facts of its conduct.

We mentioned above that Google submitted comments to the Interim Report. Google does indeed quibble with the CMA's description of certain elements of its conduct. But for the most part, Google's response consists largely of

124 CMA Report, *supra* note 4, at ¶ 5:21 ("One other aspect of Google's consumer-facing services that is considered very important by publishers is Accelerated Mobile Pages (AMP). AMP is a publishing format for mobile devices that enables the fast loading of content in browsers. In order to enable fast page loading, AMP employs an optimised and restricted version of the code used to build web pages, and web pages are cached within the AMP ecosystem."); *id.* at ¶ 5:252 ("Publishers told us that they need to publish web pages in AMP format, because they think that gives them greater prominence in mobile search results. In particular, it was noted that only AMP pages will appear in the 'Top Stories' carousel that are shown in the results of searches with 'news intent'. Publishers considered that, for the most part, AMP pages operated in a similar way to their regular mobile web pages. However, as is discussed in more detail below, they have concerns around restrictions on their ability to monetise these pages and their ability to access data generated from consumers' interaction with them.")

125 Google sometimes charges a specific fee when it deploys this data to target ads based on a consumer's demographic or other characteristics as divined from her web usage patterns. Because this fee is subtracted from the winning bid, the publisher receives less money than it otherwise would, sometime precisely because Google is using data captured about that consumer's prior visits to that same site. See *How Google infers interest and demographic categories*, GOOGLE ADSENSE HELP, <https://support.google.com/adsense/answer/140378>.

efforts to suggest that it has taken its anticompetitive actions out of a sense of obligation to protect consumers.¹²⁶ For the most part, it does not dispute that it has monopolized the digital advertising market, but instead suggests everyone is, according to Google, the better for it. This places a heavy burden on Google's efficiencies arguments to outweigh the many instances of anticompetitive conduct detailed in the Report and the significant harm likely generated by that conduct.

We show in the next and final section of this paper why, according to the CMA, Google is wrong. Consumers are not better off for Google's monopolization strategy. To the contrary, consumers, publishers, and advertisers are likely to be profoundly harmed.

Harms

The CMA concludes that Google's omnipresence and conduct in the UK digital advertising market pose a significant risk of harming publishers, advertisers, and consumers. These potential harms result from three features of the market that Google's conduct has created, maintained, or amplified: unequal access to user data,¹²⁷ lack of transparency and asymmetric information,¹²⁸ and vertical integration and conflicts of interest.¹²⁹

The CMA does note that Google has taken modest steps to level the playing field with some of its competitors in certain regards.¹³⁰ For example, header bidding has been reformed by allowing other exchanges access to AdX through Open Bidding. When all DSPs are bidding through Google's AdX, they are all participating in the same auction. Having all bids participate in the same first price auction is much more efficient than header bidding. Furthermore, AdX will no longer view the bids submitted by the winner of the header bidding process before running its own auction, which in theory eliminates the "last-look" advantage that previously gave it the ability to advantage its own SSP.¹³¹ However, Google charges all rivals 5–10% of their bids to participate in Open Bidding, so while the format has been reformed, the playing field is not yet level: Google's fee likely sucks up much of the profit of any non-Google auction winner and Google still gets complete market information because it runs the auctions.¹³²

126 See, e.g., Google Response, *supra* note 5, at ¶ 37 (“[R]estricting third-party access both to our own targeting data and our own inventory (such as YouTube inventory) is the best way to maintain the privacy of user information and prevent it from being leaked to potentially malicious actors. Third-party DSPs with access to YouTube inventory could build profiles of users based on their viewing history, which would be a data protection risk.”).

127 See CMA Report, *supra* note 4, at ¶ 37–44 (“Data on users is highly valuable for targeting digital advertising (particularly display advertising) and measuring its effectiveness. Advertisers and publishers have told us that Google and Facebook enjoy significant competitive advantages in both targeting and measuring effectiveness because of their extensive access to user data...”).

128 See *id.* at ¶ 45–50 (“[O]ne consequence of this reliance on black box decision making is that market participants find it difficult to understand or challenge how decisions are made and to exercise choice effectively.”).

129 See *id.* at ¶ 51–56 (“While vertical integration can allow intermediaries to realise technical efficiencies, it can also give rise to conflicts of interest and allow companies with market power at one stage of the value chain to use it to undermine competition at other stages.”).

130 Google also submitted written comments to the CMA's Interim Report. They take issue with several of the CMA's factual conclusions, and generally argue that Google has less power than the CMA thinks it does and that its potentially anticompetitive conduct actually is procompetitive or motivated by quality or privacy concerns. Its responses, though, are often incomplete. For example, Google admits that it does not participate in header bidding, but claims it is because of quality concerns. See Google Response, *supra* note 5, at ¶ 39. As noted, header bidding can cause latency concerns; Google says this is the reason Google has chosen “not to participate.” But Google says nothing in defense of the ways it has worked actively to undermine header bidding. If header bidding truly leads to significant quality concerns, then one would expect that, in a well-functioning market, publishers would avoid using it. The fact that Google has seen fit to undermine it rather than allow market forces determine its fate suggests (a) Google's quality concerns may not be genuine; and (b) Google does in fact have the market power that it has the market power necessary to squelch header bidding altogether, forcing publishers to use Open Bidding instead.

131 CMA Report, *supra* note 4, at ¶ 5.221 (“Google has recently announced its decision to change how its publisher ad server works, a unified first-price auction in which the winning header bidding SSP, the DSPs bidding into AdX, and SSPs participating in Open Bidding will take part. As part of this transition, Google has made the policy decision to remove AdX's ability to observe the bids submitted by header bidding SSPs before running its own auction, the so-called ‘last look’ advantage.”).

132 Google presumably can use this market information to hone its ability to bid just enough to win, without overbidding.

Indeed, the evidence in the CMA Report indicates that these changes by Google either simply exchange one type of Google advantage for another or cement in place further advantages for Google; additionally, they do not remedy the lost competition created by Google's practices. If Google's monopoly position was gained through anticompetitive conduct, the damage is done and is sustainable because of high entry barriers. Google's existing market power does not appear to be at all threatened by the changes it describes. Any remaining competitors have no economies of scale and an inferior informational position.

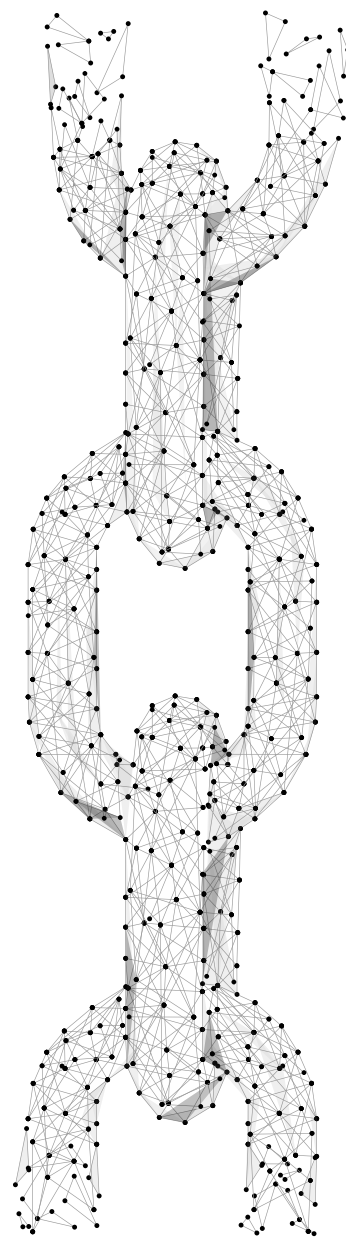
Notably, also, there is no public evidence that Google has engaged in any broad overhaul of its practices in response to growing public concern over its dominance in the digital advertising market or in response to any of the ongoing investigations in the UK or here in the United States.

However, forward looking analysis is not the main purpose of this document. Rather, in the following discussion of harms, we hypothesize that the facts the CMA reports in its Interim Report regarding the UK digital advertising market mirror those that will be revealed by investigations and/or discovery of the US market. We apply economic analysis to these facts reported in the CMA report to describe the harms that may be compensable in an antitrust case in the United States based on past conduct of Google. Given this, whether Google has mended its practices as of 2020 is not relevant to antitrust liability for prior years. Therefore, we turn to the parties harmed by the past conduct of Google.

Advertisers

The CMA concludes that Google's market power in search and display more than likely has allowed it to charge supra-competitive prices to advertisers. Although an auction can be designed to drive prices to competitive levels, Google's role in running the auctions on behalf of both buyers and sellers (including when Google itself is the seller, as it is for its Google search supply and for YouTube and its other properties) gives it the incentive and ability to bias auction prices. The CMA describes the pressure points at which Google can influence the outcome of auctions as "levers." In search, for example, Google determines the number of ads to be shown for each query, how they are presented, the auction reserve price, and the algorithms that match key words to search terms. These Google-controlled "levers" collectively affect the price that advertisers pay.¹³³

Economists would note that Google has both the incentive and ability to raise prices to advertisers through the design of its auction, and we would expect to see those higher prices in the data. Though the CMA report does not report empirical results of this kind, we assume that a credible US



133 *Id.* at ¶ 1.58 ("Typically, a firm with market power would be able to exploit it by raising prices. We note that advertising-funded platforms use auctions rather than setting prices directly, and therefore may be considered to have less influence over the price. However, such platforms can employ various levers within those auctions that directly and indirectly influence advertising prices. For example, search engines such as Google determine the maximum number of ads that can be shown per search query, how these ads are presented, the way in which relevance is assessed, the level at which reserve prices are set and the way in which matching algorithms work. These levers collectively influence the prices advertisers pay.").

investigation would find such evidence given the clarity of the setting and outcome of interest. If advertisers had more choices in the but-for world about where and through whom to place their ads, they would not continue to give their business to Google in the face of an overcharge. Google would have to choose between losing advertisers' business to rivals whose auctions were fair, or adopting an auction design that generated competitive (lower) prices for advertisers. Transparency of auction designs and price discovery mechanisms would likely be part of vigorous competition between ad tech solutions.

Advertisers also would demand quality from a competitive advertising sector. The ability to audit the cost and performance of the ads would likely be one element of quality demanded by advertisers, as would an improvement in efforts to protect brand safety. The CMA reports, for example, that Google's lack of transparency regarding advertising outcomes has caused significant brand safety concerns. In 2017, for example, many advertisers pulled their advertising from YouTube after learning their ads were being served alongside content promoting extremists and terror groups.¹³⁴ A functioning market, hypothetically, might have forced Google to protect against such outcomes, or spurred the entry of new firms that did a better job protecting brand safety through transparency.

Advertisers who pay supra-competitive prices for advertising will invest less in the brands and products of the future. Any given innovation or investment earns a lower expected return when obtaining a customer is more expensive. Therefore, every advertiser that pays more for digital advertising because of Google's anticompetitive conduct is harmed both directly by paying higher prices, and indirectly, by loss of business value.

Publishers

The CMA also indicates that Google keeps a supra-competitive portion of the advertising payments as fees for its intermediation services, essentially shortchanging the publishers for the purchase of their supply of inventory. The CMA gathered evidence on fees charged by intermediaries operating in the UK, of which Google is the largest at each link of the intermediation chain. CMA calculated the weighted average ad server/SSP fee to be 22% of advertising spend, and the weighted average DSP fee to be 18% of advertising spend. Assuming that Google's fees approximate these weighted averages, that means that the Google "price," or "take rate," for matching advertisers to supply is 40% of the total ad spend.¹³⁵ Of course, there is reason to think that Google, given its dominance and its various price levers (as described above), keeps an even larger share of the ad spend than the 40% weighted industry average. And even though the CMA does not make public the actual prices Google has charged, its conclusion that Google's overall returns vastly exceed its cost of capital confirms the presumption that its take rate would be lower in a competitive market.

Google's exercise of market power over its input suppliers generates harm in two ways. The publishers who receive less than competitive advertising rates earn less revenue. This causes them to invest less in their business and in the quality of the content they provide because they adjust to the price signals they receive. Publishers therefore do not thrive and grow because part of the surplus they create is retained by Google.

Second, Google uses its market power to erode competition from publishers and content providers (news, local, etc.) in the supply of inventory for search advertising. By steering consumers through Google Search to specialized Google pages—containing content over which copyright is often disputed—Google creates an artificially cheap and artificially popular alternative to publisher content. Some of the publisher's investment in quality that would otherwise attract users, contributing to ad revenue in the short run and brand value in the long run, are wasted because those users are directed by Google to its own properties. When users visit Google's own properties,

134 *Id.* at ¶ 5.125–128 ("In 2017, a number of large advertisers were reported as having pulled their advertising off YouTube in response to concerns that their adverts were being shown alongside videos promoting extremist and terror groups. We are also aware of concerns about the level of ad fraud in relation to digital advertising, with a number of large scale, systematic frauds being discovered.")

135 *Id.* at ¶ 62 ("We have gathered evidence on fees from the main intermediaries currently operating in the UK. Our initial estimates suggest that the weighted average DSP fee is around 18% of advertising spend and that the overall weighted average of SSP/ad network fees is around 22%. In broad terms, our estimates to date are similar to those previously estimated by Plum consulting for the Cairncross report. We are intending to carry out further work to investigate money flows along the intermediation chain in the second half of the study, including an analysis of transaction-level data to investigate the potential for 'hidden fees' arising from arbitrage behavior.")

Google need not pay any publisher, so Google obtains the benefit from the publishers' investments.¹³⁶ Google's lowers its Traffic Acquisition Costs to zero in these cases so that the full price of the ad can be kept as profit for Google.

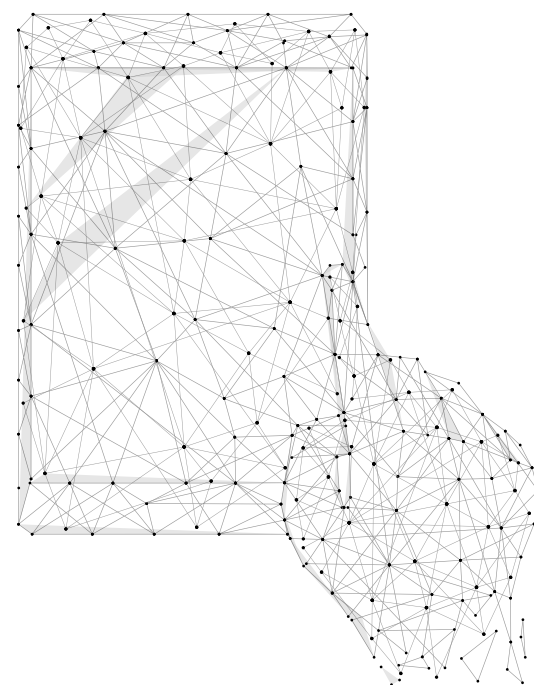
For example, Google implements technological choices like AMP in a way that lowers the long-run capability of content providers. AMP sends users to content on pages hosted by Google, thereby denying content providers as much access to, and data about, their own users as they would normally get. This weakens the content providers in the long run, allowing Google's own properties to slowly gain a greater share of consumer attention. Although one might begin by characterizing content providers as complements, this creeping strategy by Google to host content on its own pages—by a variety of methods—demonstrates that Google views content providers as competitors in the long run for the capture of ad dollars. Google doesn't want to develop content so that it wins more Pulitzer Prizes than the New York Times or the Washington Post; that is an expensive undertaking. Rather, Google wants to host that attractive content so it can capture the ad dollars that otherwise would go to those publishers. That is the reason it steers consumers to Google properties and away from content providers. That conduct constitutes foreclosure of horizontal competitors.

Foreclosed Technological Rivals

Google's power within the digital advertising market has allowed it to engage in exclusionary conduct with regard to its technological competitors. The CMA notes that Google has the ability and incentive to leverage its power in search into other related services within the digital advertising market—as it appears to have done through acquisitions, exclusivity provisions, interoperability choices, and the development of its analytics services that together have allowed it to dominate the ad tech stack. When Google engages in anticompetitive conduct to harm rivals in the ad tech stack, some of these rivals or entrants might provide consumers a higher quality service than Google provides.

The list of companies that have exited the space is enormous. But, in particular, Google's anticompetitive conduct includes foreclosure of competing exchange/SSPs such as OpenX.¹³⁷ On the publisher ad server

Consumers, of course, ultimately suffer the consequences of any abuse of market power by Google. When Google charges supra-competitive prices to advertisers, those excessive payments lead to an increase in the price consumers pay for goods and services throughout the economy.



136 Some foreign jurisdictions have undertaken steps to ensure that Google pays publishers for displaying snippets of news sources in its search results pages and its news aggregator. See, e.g., Natasha Lomas, *Google and Facebook must pay media for content reuse, says Australia*, TECHCRUNCH (Apr. 20, 2020), <https://techcrunch.com/2020/04/20/google-and-facebook-must-pay-media-for-content-reuse-says-australia/>. Action by foreign authorities appears to have helped push Google to the bargaining table here in the US, where Google is reported to be negotiating to pay large publishers for the right to include their copyrighted materials in Google's free products. See Benjamin Mullin, *Google in Talks to Pay Publishers for News*, WALL ST. J. (Feb. 14, 2020) <https://www.wsj.com/articles/google-in-talks-to-pay-publishers-for-content-in-premium-news-product-11581689169?mod=searchresults&page=1&pos=8>.

137 See Keach Havey & Vivian Ngo, *How Google Edged Out Rivals and Built the World's Dominant Ad Machine: A Visual Guide*, WALL ST. J. (Nov. 7, 2019), <https://www.wsj.com/articles/how-google-edged-out-rivals-and-built-the-worlds-dominant-ad-machine-a-visual-guide-11573142071> (finding competitors such as OpenX, Facebook and Verizon have left the ad-serving market in recent years as Google has consolidated power).

side at the time of Google's purchase of DoubleClick, there were multiple viable alternatives (OAS, ADTECH, Atlas). Ten years later only AppNexus remained, which was then bought by AT&T.¹³⁸ These businesses have lost all or part of their revenue due to the anticompetitive conduct of Google which constitutes part of the antitrust harm.

Consumers

Consumers, of course, ultimately suffer the consequences of any abuse of market power by Google. When Google charges supra-competitive prices to advertisers, those excessive payments lead to an increase in the price consumers pay for goods and services throughout the economy. Because programmatic ads are often bought on a price per action (whether a click or some other action), they will often be a variable cost for a manufacturer or service provider. The extent of pass-through is an empirical issue, as it will vary across market structures and shapes of demand. However, when there is a significant cost increase for almost every type of manufacturer of every type of product and for almost every service provider of every type of service (whose products and services comprise the majority of sales to consumers), we can predict confidently that there will be a significant dollar amount of pass through to higher prices. These higher prices are born by consumers.

Second, by lowering returns to manufacturers and service providers, those entities have less incentive to invest in new products and innovate. The expected returns from innovation are lower, so they do less of it. Lower rates of innovation directly harm consumers.

On the other side of the market, Google's conduct denies competitive payments to publishers and others who provide traffic. These underpayments undermine the incentive of publishers—news organizations, for example—to produce valuable and high-quality content. Because consumers themselves do not directly pay for most content on the internet (it is free), those content providers support their businesses through advertising. The returns from advertising directly incentivize more and higher quality content. Consumers directly benefit from more and higher quality content. Therefore, when Google's conduct suppresses publisher returns, consumers are harmed.

Consumers are further harmed by a reduction in the quality of their time on the open web. The CMA notes that Google may use its demand side platform in way that serves more ads than are warranted given the advertisers' criteria. Such a practice effectively would raise quality-adjusted prices to consumers. Google Ads, a DSP, relies on algorithms that match keywords selected by advertisers to user search terms in order to determine which searches would be good matches for which search ads. Google's algorithms might "match" keywords and search terms more

Consumers deserve the best these types of services can offer, as do future consumers, who should inherit functioning digital markets, the conditions of which we can change today.



138 See e.g., Damien Geradin & Dimitrios Katsifis. *Google's (Forgotten) Monopoly—Ad Technology Services on the Open Web* (TILEC Discussion Paper), <https://ssrn.com/abstract=3391913> (noting that while Google argues there are many companies in the space, "Nevertheless, nothing could be further from the truth, as Google completely dominates the ad tech industry, forcing its rivals to either exit the market or turn into fringe players.")

broadly than they should, and in ways that the advertiser might think are insufficient to justify serving an ad. This potential feature of the matching algorithm would result in the placement of unwarranted ads, raising the cost of a campaign to the advertiser and lowering quality for consumers.¹³⁹

Why Do These Harms Matter?

The competitive harms the CMA describes, and that we outline above, are not mere academic matters of interest only to economists and technology insiders. As the CMA itself acknowledges, services provided by Google and other technology platforms provide extraordinary benefits to consumers and to society, free of charge. Research from 2018 indicates that, if they were to pay for them, consumers would value search engines and digital maps as each worth thousands of dollars.¹⁴⁰ The importance and value of these services is precisely why effective competition in markets affecting these platforms is vitally important. Consumers deserve the best these types of services can offer, as do future consumers, who should inherit functioning digital markets, the conditions of which we can change today.¹⁴¹

139 CMA Report, *supra* note 4, at ¶ 5.87 (“In addition to the quality adjustment process, there appear to be other mechanisms where there may be scope for Google to exploit market power. For example, we note that matching algorithms are used to match keywords to search queries and that Google Ads runs automated bidding to allocate advertiser budgets on their behalf. These mechanisms could give Google some flexibility in allocating advertiser bids across auctions and Google may face conflicts of interest in doing so. For instance, it may have the incentive to match keywords very broadly, potentially resulting in more advertising being shown in search results where it is less relevant to the user query.”).

140 See, e.g., *How much would you pay to keep using Google?*, THE ECONOMIST (Apr. 25, 2018), <https://www.economist.com/graphic-detail/2018/04/25/how-much-would-you-pay-to-keep-using-google> (citing working paper indicating that consumers surveyed would have to be paid \$17,500 to stop using search engines for a year).

141 CMA Report, *supra* note 4, at Box 2.1 (“The fact that these services are so important to consumers and valued so highly is precisely why it is critical that competition is effective in these markets. Through our work in this area we want to ensure that current consumers are reaping the maximum potential rewards from these services, and that future consumers will continue to benefit from new innovative services that can transform our lives.”).

Conclusion

This paper does not, and has not attempted to, prove that Google has engaged in monopolization within the meaning of Section 2 of the Sherman Act or any state-law analog. Any such conclusion would be premature. A decision to allege a Section 2 violation would require a substantial, US-based factual record that likely could be compiled only through compulsory process as well as a more detailed analysis of the workings of the relevant markets (and the economic consequences of Google's conduct in each of those markets) than we have undertaken here. No doubt, the relevant federal and state agencies are hard at work developing the relevant facts and engaging in the necessary analyses to make this determination, and we look forward to their findings.

But what we have shown through this thought exercise is that there is significant reason for concern that Google has violated US antitrust law. The facts revealed by the CMA tell a worrisome tale. Google, largely through acquisitions, acquired all the necessary building blocks to amass dominance. Most notably, it acquired companies whose assets allowed it, and it alone, to occupy the entirety of the ad tech stack connecting publishers to advertisers. It then used its monopoly power in search, and the exclusive data it harvests from its family of consumer-facing products and its related power in analytics, to coerce publishers and advertisers into using Google's ad tech services and relying on the Google exchange to make purchases and sales.

With that structure solidly in place, Google then began foreclosing rivals with a series of actions to foreclose those rivals and prevent entry. Google fortified its ability to steer the majority of digital advertising commerce through its own ad tech services with its acquisition of YouTube, a must-have supplier of display inventory that Google makes available exclusively to its own customers. Google has used its structural advantage—it acts as sellers' agent, buyers' agent, *and* auctioneer—to keep for itself a vast amount of the money advertisers spend, and that publishers may well deserve in a competitive market. Google protects its market power by denying interoperability to ad tech rivals and by raising their costs, leaving publishers on the open web with effectively one choice in ad serving. To raise its profits still further, it uses its power in search, designs its systems of measurement and payment, and chooses data policies to disadvantage its rivals in the display supply business, the publishers. Lastly, it insulates itself from natural competitive forces through strategic secrecy over elements of its complex business that, if understood, might invite inquiry or regulation. To us, the facts in the CMA Report draw out a monopolization narrative that is clear and compelling.

To be sure, Google has, at times, made some changes to some of its practices that, in isolation, have provided some benefits to publishers, advertisers, and even ad tech rivals. But the market's universal understanding of these changes is that Google has made changes at the margin in order to appease regulators and perhaps to create the

Google has used its structural advantage—it acts as sellers' agent, buyers' agent, and auctioneer—to keep for itself a vast amount of the money advertisers spend, and that publishers may well deserve in a competitive market.



appearance that it responds to criticism from market participants.¹⁴² Fundamentally, nothing Google has done in recent years comes even close to restoring the competitive conditions that existed before Google occupied the entire ad tech stack and then used its unique position to exclude rivals and prevent entry. None of the incremental concessions Google is reported to have made has done anything to dislodge it from the dominant market positions the CMA finds that it holds. It is too late for that, given Google's control of the various "levers" the CMA identifies by which it can protect its market positions and set prices.

It also is true that Google has allowed some rivals to survive (although not necessarily to thrive). It is possible that Google adopted a strategy of incomplete foreclosure specifically so that it can paint an illusion of healthy competition when the reality is quite different. Indeed, to the extent Google has adopted "pro-competitive" concessions, the narrative here demonstrates that they simply have not succeeded in addressing the harms or lowering the barriers to entry.

We leave it to others to determine whether the narrative we have woven from the CMA Interim Report maps accurately on the factual reality regulators find in US markets, and whether that reality justifies antitrust enforcement actions here in the US. But we are convinced that the inquiries are justified, and urgent.¹⁴³ In our view, the narrative we provide and the outline of a potential monopolization case premised on that narrative flow naturally, logically, and ineluctably from those facts.

142 See, e.g., Keach Hagey, et al., *Google Gets Ready for Legal Fight as U.S. Mulls an Antitrust Probe*, WALL ST. J., (June 2, 2019), <https://www.wsj.com/articles/google-gets-ready-for-legal-fight-as-u-s-weighs-an-antitrust-probe-11559521581> ("As Google cemented its powerful position in recent years, the tech giant's executives said they believed they were helping web users get information and letting publishers and advertisers connect more efficiently. Rivals saw a more sinister goal, and the question now is whether U.S. regulators will determine that the firm's efforts squelched competition.").

143 Although this paper focuses on Google's past conduct, understanding that conduct may help us predict, and perhaps prevent, similar conduct in the future. For example, Google in 2017 launched YouTube TV, an ad-supported service that permits users to watch live broadcast television. The service later began including select cable offerings as well. See, e.g., Jose Antonio Diaz, *Want Your Ads on TV? Here's How With Google Ads*, WE ARE MARKETING (Nov. 29, 2018) <https://www.wearemarketing.com/blog/want-your-ads-on-tv-heres-how-with-google-ads.html>. This move may presage a broader effort to enter the TV advertising market. That market operates differently than, and independently of, the digital advertising market, but may be similarly be susceptible to a data-driven occupation strategy like the one Google has deployed in the digital advertising market.