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Lead Attorneys for Co-Lead Plaintiffs Police and Fire Retirement System of the City of Detroit and Bucks County Employees' Retirement System

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE ALPHABET, INC., SHAREHOLDER DERIVATIVE LITIGATION	CONSOLIDATED Case No. 5:21-cv-09388-RFL **VERIFIED AMENDED CONSOLIDATED SHAREHOLDER DERIVATIVE ACTION COMPLAINT AND JURY DEMAND** **DEMAND FOR JURY TRIAL**

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Co-Lead Plaintiffs the Police and Fire Retirement System of the City of Detroit and Bucks County Employees' Retirement System (together, "Plaintiffs"), by and through their attorneys, bring this action in the name of, and on behalf of, Nominal Defendant Alphabet, Inc. ("Alphabet" or the "Company"), formerly Google, Inc. (converted in 2017 into Google LLC) ("Google"). Plaintiffs bring this action against the Company's Board of Directors (the "Board," defined below) and certain executive officers of the Company (the "Officer Defendants," defined below, and together with the Board, the "Individual Defendants").

The allegations in this Verified Amended Consolidated Shareholder Derivative Complaint (the "Amended Complaint") are based upon Plaintiffs' personal knowledge regarding their own acts, and upon information and belief as to all other matters. Plaintiffs' information and belief is based upon the investigation of counsel, including, *inter alia*, their review of: (i) documents received pursuant to books and record demands made under §220 of the Delaware General Corporation Law (the "220 Documents"); (ii) the Company's filings with the U.S. Securities and Exchange Commission (the "SEC"); (iii) the Company's publications; (iv) news articles, analysts' reports, press releases, and other publicly available information concerning Alphabet, the Individual Defendants, and the misconduct described herein; (v) public filings and transcripts from the following foreign and domestic government actions: *Google Search (Shopping)* (Case AT.39740), 2017 O.J. L C9/11; *Google Android* (Case AT.40099), 2018 O.J. L C402/19; *Google Search (AdSense)* (Case AT.40411), 2019 O.J. L C369; *U.S. v. Google LLC*, Case No. 1:20-cv-03010 (D.D.C. 2020) (the "DOJ Search Action"); *U.S.A. v. Google LLC*, Case No. 1:23-cv-00108 (E.D. Va. 2023) (the "DOJ AdTech Action"); *Utah v. Google LLC*, Case No. 3:21-cv-05227 (N.D. Cal. 2021) (the "Utah AG Action"); *Texas v. Google LLC*, Case No. 4:20-cv-00957 (E.D. Tex. 2021) (the "Texas AG Action"); and *Colorado v. Google LLC*, Case No. 1:20-cv-03715 (D.D.C. 2020) (the "Colorado AG Action"); (vi) private civil litigation; and (vii) other publicly available information.

PRELIMINARY STATEMENT

1. This is a shareholder derivative action arising out of the Company's prolonged and ongoing monopolistic and anticompetitive business practices, which the Individual Defendants caused Alphabet[1] to adopt and maintain. Under the Individual Defendants' management and oversight, Alphabet systematically engaged in anticompetitive acts, including: (i) leveraging its dominant position in general search to expand to other markets and eliminate competition in vertical search; (ii) forcing anticompetitive tying agreements on manufacturers and mobile carriers for its Android mobile devices to secure a monopolistic applications store charging supracompetitive fees; (iii) monopolizing in-application payment processing on Android; (iv) unfairly leveraging in ad servers, exchanges, and markets, resulting in supracompetitive fees for publishers, advertisers, and consumers, among other anticompetitive conduct in those business segments; (v) unfairly extracting supracompetitive fees from small publishers and the destruction of the competitive header bidding that arose in response to Alphabet's original anticompetitive conduct in the ad purchase tools market, among other anticompetitive conduct in this segment; (vi) locking competitors out of voice-assisted search access points and future search access points to maintain general search monopoly; and (vii) unlawfully acquiring and agreeing with competitors to destroy competition and prevent nascent competitors from gaining market share.

2. As a result of these acts, the U.S. Department of Justice ("DOJ") and all State Attorneys General, as well as the attorneys general of the District of Columbia, Puerto Rico, and the U.S. Virgin Islands, have filed enforcement actions against the Company. The U.S. House of Representatives also called the Company to account, requesting testimony and releasing a report detailing Alphabet's monopolistic conduct.

3. Defendants Brin, Page, Schmidt, and Pichai asserted dominance and control over Alphabet. Under their leadership, and with the blessing of the Board, Alphabet pursued an array

[1] Google is the predecessor company to Alphabet. In October 2015, Google re-organized and Alphabet came into existence as the holding company for Google. All of Google's directors and officers remained the same. Google's shareholders' interests were maintained in Alphabet, which does not have its own operations. "Alphabet" is defined herein to include Google and its subsidiaries.

of illegal and anticompetitive business plans, including leveraging dominance in certain business markets to capture and monopolize others. The Board had no direct oversight over the Company's illegal business practices, having utterly failed to monitor compliance requirements for a wide variety of products and services that the Board knew would be potentially monopolistic or anticompetitive. The Board never investigated nor even inspected the illegal business practices that were the subject of the mounting regulatory investigations facing the Company. By sanctioning Alphabet's illegal conduct and allowing it to continue even after receiving numerous red flags that a vast majority of Alphabet's products and services were being used to conduct anticompetitive business practices and extract supracompetitive fees that could not otherwise be sustained in a competitive market, the Individual Defendants breached their duties owed to the Company.

4. As a result of the anticompetitive practices described herein, Alphabet has suffered substantial harm, spent tens of millions of dollars on investigations and civil actions, and faces billions of dollars in potential fines, and Alphabet's reputation has suffered immense harm.

5. This action seeks to hold the Individual Defendants — who are the controlling shareholders, senior executives, and Board of Directors of Alphabet — accountable for the Company's anticompetitive and monopolistic business practices.

6. The Individual Defendants (defined below) have known for years that innovation through competition and user choice are mission critical to Google's long-term business strategy. They also knew that they were responsible for risk oversight, including regulatory exposures, which presented material risk to the Company's long-term success. Yet, time and again, the Individual Defendants ignored significant red flags regarding the Company's antitrust compliance. Taken together, their complete lack of oversight over antitrust risk is nothing short of a sustained bad faith failure to oversee the Company's compliance with antitrust and competition laws at home and abroad. This bad faith failure caused regulatory enforcement and civil actions on multiple fronts, a federal jury to find liability, and a U.S. District Court to find that "Google is a monopolist, and it has acted as one to maintain its monopoly."

JURISDICTION AND VENUE

7. This Court has original jurisdiction over this action under 28 U.S.C. §1332(a)(1) because the matter in controversy, exclusive of interests and costs, exceeds the sum or value of $75,000 and is between citizens of different States. This Court also has jurisdiction over the causes of action asserted herein pursuant to the California Constitution, Article VI, §10, and C.C.P. §410.10, because this case is not a cause given by statute to other courts, as this derivative action is brought pursuant to Cal. Corp. §800 to remedy the Defendants' violations of law.

8. This Court has personal jurisdiction over each Defendant. Alphabet maintains its headquarters in California, and because the allegations contained herein are brought derivatively on behalf of Alphabet, Defendants' conduct was purposefully directed at California. This Court retains general jurisdiction over each named Defendant who is a resident of California. Additionally, this Court has personal jurisdiction over each named non-resident Defendant because their affiliations with California are so continuous and systematic as to render jurisdiction by this Court permissible under traditional notions of fair play and substantial justice. Moreover, the locus of the conduct at issue in this action occurred substantially in California, where Alphabet maintains its headquarters. Exercising jurisdiction over any non-resident Defendant is reasonable under these circumstances.

9. Venue is proper in this Court pursuant to C.C.P. §395(a) because the conduct at issue took place and had an effect in this County where Alphabet maintains its headquarters.

10. Divisional Assignment: Pursuant to L.R. 3-5(b), on December 7, 2021, the above-captioned case was assigned to Chief Judge Richard G. Seeborg of the District Court for the Northern District of California. On November 27, 2023, the above-captioned case was reassigned to this Court for all further proceedings.

PARTIES

A. Plaintiffs

11. Plaintiff Police and Fire Retirement System of the City of Detroit is, and at all relevant times was, a resident of the State of Michigan, and has continuously held Alphabet (or its predecessor, Google) common stock since December 2005.

12. Plaintiff Bucks County Employees' Retirement System is, and at all times relevant was, a resident of the Commonwealth of Pennsylvania, and has continuously held Alphabet (or its predecessor, Google) common stock continuously since 2003.

B. Nominal Defendant

13. Nominal Defendant Alphabet is a Delaware corporation with its principal executive offices at 1600 Amphitheatre Parkway, Mountain View, California 94043. Alphabet, formerly Google, underwent corporate restructuring on October 2, 2015, through which Alphabet became the holding company of Google and its subsidiaries.

14. Alphabet is an information technology company that, through its largest subsidiary, Google, provides internet search services, as well as a mobile operating system, browser services, cloud computing, video streaming, advertising services, and other software and hardware. Google operates a variety of online and cloud-based programs, including Google Search, Android, Google Maps, Chrome, YouTube, Google Play, and Gmail. These products are the dominant products in their respective areas (*i.e.*, Google Search is the dominant general search engine ("GSE"); Android is the dominant mobile operating system; Google Maps is the dominant navigation platform; Chrome is the dominant web browser; YouTube is the dominant video platform; Google Play is the dominant app store on Android devices; and Gmail is the dominant email provider).

15. Google's and Alphabet's primary source of revenue and profit comes from advertising relating to Google's Search business. Most of Alphabet's revenues (nearly 80%) come from digital advertisements, and historically the largest component has been ads displayed on Google's search engine results page. In 2022, Google reported Search+ revenues of over $162 billion. Mem. Op. at 9, DOJ Search Action (Aug. 5, 2024), ECF No. 1033 (citing UPX8085 at

879, 899 (including "other Google owned and operated properties like Gmail, Google Maps, and Google Play")). Between 2014 and 2021, Google's Search+ revenues more than tripled, with gross margins ranging from 76%-82% annually.

C. Individual Defendants

16. Defendant Larry Page ("Page") is a co-founder of Google, served as Google's Chief Executive Officer ("CEO") from September 1998 to July 2001, and from April 2011 until July 2015. From July 2015, Page served as CEO of Google's parent company, Alphabet, until December 2019. Page has also served as a director of the Company since its inception in September 1998. Page is also Chair of the Company's Executive Committee, for which a formal charter was adopted in 2004. From July 2001 to April 2011, Page served as Google's President, Products. In addition, from September 1998 to July 2002, Page served as Google's Chief Financial Officer ("CFO"). According to the Schedule 14A the Company filed with the SEC on April 26, 2024, Page is a beneficial owner of approximately 26.7% of Alphabet's voting stock and holds 389,051,160 shares, or 44.9%, of Alphabet Class B Common Stock.

17. Defendant Sergey Brin ("Brin") is a co-founder of Google and served as the Company's President from October 2015 until December 2019. Brin has also served as a director of the Company since its inception in September 1998. Brin is a member of the Board's Executive Committee, for which a formal charter was adopted in 2004. From July 2001 to April 2011, Brin served as Google's President, Technology. From September 1998 to July 2001, Brin served as the Company's President and Chair. According to the Schedule 14A the Company filed with the SEC on April 26, 2024, Brin is a beneficial owner of approximately 25.0% of Alphabet's voting stock, and holds 363,474,028 shares, or 41.9%, of Alphabet Class B Common Stock.

18. Defendant Eric E. Schmidt ("Schmidt") served as the Executive Chairman of the Board from April 2011 to January 2018, and as a member of the Board from March 2001 until June 2019. Schmidt was a member of the Board's Executive Committee, for which a formal charter was adopted by the Company in 2004. Schmidt is also a member of the Company's Operating Committee ("OC"). Schmidt has also served as Google's CEO from July 2001 to April

2011. According to the Schedule 14A the Company filed with the SEC on April 26, 2024, Schmidt is a beneficial owner of approximately 3.8% of Alphabet's voting stock and holds 6,879,424 shares of Alphabet Class A Common Stock, and 54,115,182 shares of Alphabet Class B Common Stock. The same Schedule 14A and Schmidt's February 14, 2024 SEC-filed Schedule 13G note that he owns and controls 53,410,980 of his overall 54,115,182 shares of Alphabet Class B Common Stock through a living trust and partnership under his control. Alphabet paid Schmidt the following compensation as an executive:

Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan	All Other Comp.	Total
2019	$0	$0	$0	$0	$0	$3,414,224	$3,414,224
2018	$1,250,000	$0	$0	$0	$0	$362,016	$1,612,016
2017	$1,250,000	$0	$0	$0	$0	$3,476,592	$4,726,592
2016	$1,250,000	$0	$0	$0	$0	$3,059,791	$4,309,791
2015	$1,254,808	$6,000,000	$0	$0	$0	$783,370	$8,038,178
2014	$1,250,000	$6,000,000	$100,443,838	$0	$0	$996,934	$108,690,772
2013	$1,250,000	$6,000,000	$11,365,184	$0	$0	$708,196	$19,323,380
2012	$1,250,000	$6,000,000	$0	$0	$0	$378,624	$7,628,624
2011	$937,500	$0	$55,643,040	$38,136,040	$6,000,000	$263,682	$100,980,262
2010	$1	$1,785	$0	$0	$0	$311,433	$313,219
2009	$1	$1,660	$0	$0	$0	$243,661	$245,322
2008	$1	$0	$0	$0	$0	$508,763	$508,764
2007	$1	$1,898	$0	$0	$0	$478,662	$480,561
2006	$1	$1,723	$0	$0	$0	$555,742	$557,466

19. Defendant Sundar Pichai ("Pichai") has been the CEO of Google since August 2015. Pichai also became the CEO of Google's parent company, Alphabet, in December 2019, replacing Page. Pichai has also served as a member of the Board since July 2017. He was a member of the OC (Google's executive-level Operating Committee). In August 2014, Defendant Pichai was awarded 353,939 restricted stock units, which fully vested in April 2018 with a market

value on that date of $370,361,770. In addition, between 2015 to the end of 2023, the Company paid Pichai the following compensation:

Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan	All Other Compensation	Total
2023	$2,000,000	$0	$0	$0	$0	$6,802,824	$8,802,824
2022	$2,000,000	$0	$218,037,684	$0	$0	$5,947,461	$225,985,145
2021	$2,000,000	$0	$0	$0	$0	$4,322,599	$6,322,599
2020	$2,000,000	$0	$0	$0	$0	$5,410,162	$7,410,162
2019	$650.000	$0	$276,612,072	$0	$0	$3,359,480	$280,621,552
2018	$1,250,000	$0	$0	$0	$0	$362,016	$1,612,016
2017	$1,250,000	$0	$0	$0	$0	$3,476,592	$4,726,592
2016	$1,250,000	$0	$0	$0	$0	$3,059,791	$4,309,791
2015	$1,254,808	$6,000,000	$0	$0	$0	$783,370	$8,038,178
2014	$1,250,000	$6,000,000	$100,443,838	$0	$0	$996,934	$108,690,772
2013	$1,250,000	$6,000,000	$11,365,184	$0	$0	$708,196	$19,323,380
2012	$1,250,000	$6,000,000	$0	$0	$0	$378,624	$7,628,624
2011	$937,500	$0	$55,643,040	$38,136,040	$6,000,000	$263,682	$100,980,262
2010	$1	$1,785	$0	$0	$0	$311,433	$313,219
2009	$1	$1,660	$0	$0	$0	$243,661	$245,322
2008	$1	$0	$0	$0	$0	$508,763	$508,764
2007	$1	$1,898	$0	$0	$0	$478,662	$480,561
2006	$1	$1,723	$0	$0	$0	$555,742	$557,466

20. Defendant John L. Hennessy ("Hennessy") has served as a member of the Board since April 2004 and as Lead Independent Director from April 2007 to January 2018. In January 2018, Hennessy was appointed to serve as Alphabet's Chair of the Board. Between 2007 to the end of 2020, the Company paid Hennessy the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$100,000	$497,633	$0	$597,633
2022	$100,000	$511,532	$0	$611,532
2021	$100,000	$520,310	$0	$620,310
2020	$100,000	$503,314	$0	$603,314
2019	$100,000	$504,711	$0	$604,711
2018	$83,717	$402,711	$0	$486,428
2017	$75,000	$355,567	$0	$430,567
2016	$75,000	$351,676	$0	$426,676
2015	$75,000	$351,198	$0	$426,198
2014	$75,000	$350,216	$0	$425,216
2013	$75,000	$351,913	$0	$426,913
2012	$75,000	$343,856	$0	$418,856
2011	$75,000	$352,267	$0	$427,267
2010	$75,000	$358,187	$0	$433,187
2009	$0	$497,156	$0	$497,156
2008	$0	$0	$196,285	$196,285

2007	$0	$0	$432,334	$432,334

21. Defendant Frances Arnold ("Arnold") has served as a member of the Board since December 2019. In 2020, the Company paid Arnold the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$75,000	$348,392	$0	$423,392
2022	$75,000	$359,455	$0	$434,455
2021	$75,000	$364,217	$0	$439,217
2020	$38,248	$1,188,057	$0	$1,226,305

22. Defendant L. John Doerr ("Doerr") has served as a member of the Board since May 1999. Doerr has also served as a member of the Board's Audit Committee from May 2007 to January 2012, and from December 2015 to June 2016. According to the Schedule 14A the Company filed with the SEC on April 23, 2021, Doerr is a beneficial owner of approximately 1.5% of Alphabet's voting stock and holds 145,594 shares of Alphabet Class A common stock and 1,117,447 shares of Alphabet Class B Common Stock. Between 2009 to the end of 2023, the Company paid Doerr the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$75,000	$348,392	$0	$423,392
2022	$75,000	$359,455	$0	$434,455
2021	$75,000	$364,217	$0	$439,217
2020	$75,000	$352,320	$0	$427,320
2019	$75,000	$353,298	$0	$428,298
2018	$75,000	$350,786	$0	$425,786
2017	$75,000	$355,567	$0	$430,567
2016	$75,000	$351,676	$0	$426,676
2015	$75,000	$351,198	$0	$426,198
2014	$75,000	$350,216	$0	$425,216
2013	$75,000	$351,913	$1,221,776	$1,648,689
2012	$75,000	$343,856	$0	$418,856
2011	$75,000	$352,267	$0	$427,267
2010	$75,000	$358,187	$0	$433,187
2009	$0	$497,156	$0	$497,156

23. Defendant Roger W. Ferguson, Jr., ("Ferguson") has served as a member of the Board since June 2016. Ferguson has also served on the Board's Audit Committee since June

2016. Between June 2016 to the end of 2023, the Company paid Ferguson the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$75,000	$348,392	$0	$423,392
2022	$75,000	$359,455	$0	$434,455
2021	$75,000	$364,217	$0	$439,217
2020	$75,000	$352,320	$0	$427,320
2019	$75,000	$353,298	$0	$428,298
2018	$75,000	$350,786	$0	$425,786
2017	$71,552	$339,156	$0	$410,708
2016	$0	$1,004,789	$0	$1,004,789

24. Defendant Ann Mather ("Mather") has served as a member of the Board since November 2005. Mather has also served as Chair of the Audit Committee since November 2005. Between 2007 to the end of 2023, the Company paid Mather the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$140,755	$348,392	$0	$489,147
2022	$100,000	$359,455	$0	$459,455
2021	$100,000	$364,217	$0	$464,217
2020	$100,000	$352,320	$0	$452,320
2019	$100,000	$353,298	$0	$453,298
2018	$100,000	$350,786	$0	$450,786
2017	$100,000	$355,567	$0	$455,567
2016	$100,000	$351,676	$0	$451,676
2015	$100,000	$351,198	$0	$451,198
2014	$100,000	$350,216	$0	$450,216
2013	$100,000	$351,913	$0	$451,913
2012	$100,000	$343,856	$0	$443,856
2011	$100,000	$352,267	$0	$452,267
2010	$0	$507,915	$0	$507,915
2009	$0	$0	$0	$0
2008	$0	$257,415	$157,104	$414,519
2007	$0	$435,973	$268,296	$704,269

25. Defendant Alan R. Mulally ("Mulally") has served as a member of the Board since July 2014. Mulally has also served as a member of the Audit Committee since July 2014. Between 2014 to the end of 2023, the Company paid Mulally the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	--	--	--	--
2022	$75,000	$0	$0	$75,000

2021	$75,000	$364,217	$0	$439,217
2020	$75,000	$352,320	$0	$427,320
2019	$75,000	$353,298	$0	$428,298
2018	$75,000	$350,786	$0	$425,786
2017	$75,000	$355,567	$0	$430,567
2016	$75,000	$351,676	$0	$426,676
2015	$64,674	$302,667	$0	$367,341
2014	$0	$1,002,475	$0	$1,002,475

26. Defendant K. Ram Shriram ("Shriram") has served as a member of the Board since September 1998. Shriram has also served as a member of the Audit Committee from November 2005 to July 2014. Between 2011 to the end of 2023, the Company paid Shriram the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$75,000	$348,392	$0	$423,392
2022	$75,000	$359,455	$0	$434,455
2021	$75,000	$364,217	$0	$439,217
2020	$75,000	$352,320	$0	$427,320
2019	$75,000	$353,298	$0	$428,298
2018	$75,000	$350,786	$0	$425,786
2017	$75,000	$355,567	$0	$430,567
2016	$75,000	$351,676	$0	$426,676
2015	$75,000	$351,198	$0	$426,198
2014	$75,000	$350,216	$0	$425,216
2013	$75,000	$351,913	$283,670	$710,583
2012	$75,000	$343,856	$0	$418,856
2011	$75,000	$352,267	$0	$427,267

27. Defendant Robin L. Washington ("Washington") has served as a member of the Board since April 2019. Between April 2019 to the end of 2023, the Company paid Washington the following compensation:

Year	Fees Paid in Cash	Stock Awards	All Other Comp.	Total
2023	$75,000	$348,392	$0	$423,392
2022	$75,000	$359,455	$0	$434,455
2021	$75,000	$364,217	$0	$439,217
2020	$75,000	$352,320	$0	$427,320
2019	$11,071	$1,036,238	$0	$1,047,309

28. Since Google's 2005 Initial Public Offering, there has always been at least one Individual Defendant on the Audit Committee:

Year	Members		
2004	Michael Moritz	Paul S. Otellini	K. Ram Shriram* (CC)[2]
2005	Ann Mather* (CC)	Michael Moritz	K. Ram Shriram*
2006	Ann Mather* (CC)	Michael Moritz	K. Ram Shriram*
2007	Ann Mather* (CC)	L. John Doerr*	K. Ram Shriram*
2008	Ann Mather* (CC)	L. John Doerr*	K. Ram Shriram*
2009	Ann Mather* (CC)	L. John Doerr*	K. Ram Shriram*
2010	Ann Mather* (CC)	L. John Doerr*	K. Ram Shriram*
2011	Ann Mather* (CC)	Diane B. Greene	K. Ram Shriram*
2012	Ann Mather* (CC)	Diane B. Greene	K. Ram Shriram*
2013	Ann Mather* (CC)	Diane B. Greene	K. Ram Shriram*
2014	Ann Mather* (CC)	Diane B. Greene	Alan R. Mulally*
2015	Ann Mather* (CC)	L. John Doerr*	Alan R. Mulally*
2016	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	Alan R. Mulally*
2017	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	Alan R. Mulally*
2018	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	Alan R. Mulally*
2019	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	Alan R. Mulally*
2020	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	Alan R. Mulally*
2021	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	
2022	Ann Mather* (CC)	Roger W. Ferguson, Jr.*	
2023	Ann Mather* (CC)	Roger W. Ferguson, Jr.* (CC)	Robin L. Washington

29. Collectively, Defendants Page, Brin, Pichai, Hennessy, Arnold, Doerr, Ferguson, Mather, Mulally, Shriram, and Washington are referred to herein as the "Director Defendants."

30. Collectively, Defendants Page, Brin, Schmidt, and Pichai constitute the above-referenced Officer Defendants, and together with the Director Defendants, constitute the above-referenced Individual Defendants.

31. Collectively, Defendants Doerr, Ferguson, Mather, Mulally, and Shriram are referred to herein as the "Audit Committee Defendants."

[2] "*" means Individual Defendant. "(CC)" means Committee Chair.

SUBSTANTIVE ALLEGATIONS

I. A LONG HISTORY OF COMPETITION INVESTIGATIONS AND ACTIONS IN EUROPE PUT ALPHABET'S BOARD ON NOTICE OF THE COMPANY'S ANTITRUST AND COMPETITION PROBLEMS

A. The European Commission's Antitrust Actions Against Google

32. Article 102 of the Treaty on the Functioning of the European Union ("TFEU") and Article 54 of the Agreement on the European Economic Area ("EEA Agreement") prohibit abusive conduct by companies like Google that have a dominant position on a particular EU market. They state:

> Any abuse by one or more undertakings of a dominant position within the territory covered by this Agreement or in a substantial part of it shall be prohibited as incompatible with the functioning of this Agreement in so far as it may affect trade between Contracting Parties.
>
> Such abuse may, in particular, consist in:
>
> (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;
>
> (b) limiting production, markets or technical development to the prejudice of consumers;
>
> (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;
>
> (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

33. After conducting three multiyear investigations between 2010 and 2019, the European Commission (the "Commission" or "EC") found that Google had a position of dominance in particular EEA markets and abused its position in each case in violation of Article 102 of TFEU and Article 54 of the EEA Agreement. The Commission investigations resulted in collective fines against Alphabet and Google exceeding €8.2 billion. Many of the abusive business practices cited by the Commission would later appear in the DOJ Search Action and *Epic Games, Inc. v. Google LLC*, No. 3:20-cv-05671 (N.D. Cal.) (the "Epic Action").

B. The Commission's 2010 Investigation into Google Search (Shopping)

1. Procedural History

34. Between November 3, 2009, and June 27, 2012, the EC received 19 complaints against Google from entities doing business in the EEA. The Commission provided each complaint to Google, who then provided comments to the EC.

35. On November 30, 2010, the Commission initiated proceedings against Google. The proceedings concerned Google's unfavorable treatment of competing vertical search service providers in its unpaid and sponsored search results, along with alleged preferential placement of Google's own services. The Commission also announced its intention to investigate Google's alleged exclusivity obligations on advertising and distribution partners, and suspected restrictions on portability of advertising campaign data to competing online platforms.

36. The Commission announced that these practices may constitute an infringement of Article 102 of TFEU and Article 54 of the EEA Agreement. The Commission began its investigation by sending questionnaires to approximately 1,000 market participants and analyzing more than 600 replies.

37. On May 21, 2012, Joaquín Almunia ("Almunia"), Vice President of the Commission responsible for Competition Policy, gave a speech announcing the EC's preliminary conclusions. Before the announcement, he stressed that fast-moving markets like the ones at issue "would particularly benefit from a quick resolution of the competition issues identified." Almunia also noted that Google had "repeatedly expressed to me its willingness to discuss any concerns that the Commission might have without having to engage in adversarial proceedings." That is why he gave Google "an opportunity to offer remedies to address the concerns we have already identified." Almunia identified four business practices where Google could be abusing its dominance. Almunia "sent a letter to Eric Schmidt setting out these four points."

38. First, in its general search results, Google displayed links to its own vertical search services and displayed them differently than it did for competitors.

39. Second, Google scraped, *i.e.*, appropriated, content from competing vertical search services and used it in its own vertical offerings. In some instances, this practice involved copying original content created by competitors without receiving prior authorization.

40. Third, agreements between Google and its partners resulted in de facto exclusivity, thus requiring them to obtain all or most of their search ad requirements from Google.

41. Fourth, restrictions Google put on the portability of online search advertising campaigns from AdWords to the platforms of competitors.

42. On March 19, 2013, the Commission took the preliminary view that Google engaged in business practices that potentially violated Article 102 of TFEU and Article 54 of the EEA Agreement. The business practices at issue were:

- the favorable treatment, within Google's horizontal Web search results, of links to Google's own vertical Web search services as compared to links to competing vertical Web search services ("first business practice");
- the use by Google without consent of original content from third-party websites in its own vertical Web search services ("second business practice");
- agreements that de jure or de facto oblige websites owned by third parties (referred to in the industry as "publishers") to obtain all or most of their online search advertisement requirements from Google ("third business practice"), and
- contractual restrictions on the management and transferability of online search advertising campaigns across search advertising platforms ("fourth business practice").

43. In response to the EC's preliminary view, Google offered commitments to meet the EC's preliminary competition concerns. In doing so, Google stated that it did not agree that it engaged in the business practices as alleged by the EC, nor did it agree with the EC's preliminary assessment.

44. Google offered three sets of commitments. The first was submitted on April 3, 2013, the second on October 21, 2013, and the third on January 31, 2014. Between May 27 and

August 11, 2014, the Commission sent a letter to the complainants stating that Google's third set of commitments could address the concerns identified in the EC's Preliminary Assessment. After receiving and analyzing the written observations of the 19 complainants to Google's third set of proposed commitments, the Commission decided it could not proceed with binding them and informed Google of its decision on September 4, 2014.

45. On April 15, 2015, the Commission adopted a Statement of Objections ("SO") addressed to Google, wherein it reached the provisional conclusion that the conduct alleged against Google constituted an abuse of a dominant position in violation of Article 102. On April 27, 2015, the Commission granted Google access to the file. On August 27, 2015, Google submitted its response to the Statement of Objections.

46. On July 14, 2016, the Commission initiated proceedings against Alphabet and adopted a Supplementary Statement of Objections ("SSO") addressed to Google and Alphabet in relation to the same conduct. Alphabet and Google were granted access to the file on July 27, 2016. On November 3, 2016, Google and Alphabet submitted their response to the Supplementary Statement of Objections.

47. On February 28, 2017, the Commission sent Google and Alphabet a Letter of Facts drawing their attention to pre-existing evidence that was not expressly relied on in the SO and the SSO, but which, on further analysis of the file, could be potentially relevant to support the preliminary conclusion reached in the SO and the SSO. On March 1, 2017, the Commission again granted Google and Alphabet access to the file. On April 18, 2017, Google and Alphabet provided their response to the Letter of Facts.

48. The Commission issued its final decision on June 27, 2017. The final amount of the fine imposed on Google was €2,424,495,000, of which €523,518,000 was a joint and several obligation with Alphabet. The Commission concluded that the basic amount of the fine should be multiplied by 1.3 after taking into account: (i) the need to ensure that the fine has a sufficiently deterrent effect not only on Google and Alphabet, but also on undertakings of a similar size and with similar resources; and (ii) the fact that Alphabet had a particularly large turnover in 2016

(approximately €81,597 million) beyond the revenues generated by Google's comparison shopping service in each of the thirteen national markets in which the Conduct takes place.

2. The Commission's Key Conclusions

a. General Search Services Is a Distinct Product Market

49. The Commission concluded that the provision of general search services constitutes a distinct product market for three reasons. First, the provision of general search services is an economic activity. Second, "there is limited demand-side substitutability and limited supply-side substitutability between general search services and other online services[.]" Third, this conclusion "does not change if general search services on static devices versus mobile devices are considered."

b. Google Held a Dominant Position in General Search Services

50. The Commission found that since 2007, Google has held a dominant position in each national market for general search in the EEA, apart from in the Czech Republic, where Google has held a dominant position since 2011. The Commission reached this conclusion based on: (1) Google's market shares; (2) the existence of barriers to expansion and entry; (3) the infrequency of user multi-homing; and (4) the existence of brand effects and the lack of countervailing buyer power. The Commission found that the conclusion was the same notwithstanding the fact that Google Search is offered free of charge, and regardless of whether general search on static devices constitutes a distinct market from general search on mobile devices.

c. Google Abused Its Dominant Position in General Search

51. The Commission concluded that Google abused its dominant position in general search services by "positioning and displaying more [favorably], in its general search results pages, its own comparison shopping service compared to competing comparison shopping services." Google's conduct was found to be abusive because it: "(i) diverts traffic away from competing comparison shopping services to Google's own comparison shopping service, in the sense that it decreases traffic from Google's general results pages to competing comparison shopping services

and increases traffic from Google's general search results pages to Google's own comparison shopping service; and (ii) is capable of having, or likely to have, anti-competitive effects in the national markets for comparison shopping services and general search services."

i. Google Gave Preferential Treatment to Its Own Shopping Services in General Search Results

52. In concluding that Google's conduct was abusive, the Commission explained that Google's general search results displayed its own comparison shopping services differently than its competitors. First, the Commission found that "certain dedicated algorithms make competing comparison shopping services prone to having their ranking reduced in Google's general search results pages and how this negatively affected their visibility in Google's general search results."

53. Second, the Commission found that Google's comparison shopping service was positioned prominently and not subjected to "dedicated algorithms" that make competing services "prone to having their ranking reduced in Google's general search pages." The Commission also found that Google's own comparison shopping service was "displayed with enhanced features at or near the top of the first general search page, while such features are inaccessible to its rivals."

ii. Google's Self-Preferencing Diverted Traffic from Competitors

54. Google's manipulation of general search results had a real impact on user behavior. Specifically, the Commission found evidence that users tend to click more on links which are more visible on the general search results page.

55. The Commission found evidence of an "immediate influence of the ranking of generic search results in Google Search" on click-through rates in those results, and "more [favorable] positioning and display of Google's comparison shopping service in its general search results" led to "an increase in traffic to that service." Evidence of traffic to Google's comparison shopping service confirmed that "the more prominently positioned and displayed it is within Google' general search results pages, the more it gains traffic." And generic search traffic from Google's general search results pages "accounts for a large proportion of traffic to those services."

56. Finally, the Commission also concluded that none of the existing alternative sources of traffic currently available to competitors could effectively replace generic search traffic from Google's general search results pages.

d. Google's Conduct Had Anti-Competitive Effects

57. The Commission concluded that Google's conduct had several potentially anti-competitive effects. First, the potential to foreclose competing comparison shopping services, which may lead to higher fees for merchants, higher prices for consumers, and less innovation. Second, a likelihood that consumers will be less able to access the most relevant comparison shopping services. Third, Google's conduct would also have potential anti-competitive effects even if comparison shopping services did not constitute a distinct relevant product market, but rather a segment of a possible broader relevant product market comprising both comparison shopping services and merchant platforms.

58. Google did not provide verifiable evidence to prove that its conduct was indispensable to realizing efficiencies and that there are no less anti-competitive alternatives capable of producing the same efficiencies. Google also failed to show that the likely efficiencies brought about by its conduct outweigh any likely negative effects on competition and consumer welfare in the affected markets.

59. The Commission concluded that Google's conduct "ha[d] an appreciable effect on trade between Member States and between the Contracting Parties to the EEA[, and Google]." The Decision required that Google stop the abusive conduct and refrain from any act or conduct which would have the same or similar object or effect. Google "ha[d] 90 days from the date of the notification of the Decision to implement a remedy that would effectively bring the abuse to an end."

60. The fine imposed on Alphabet and Google for the abusive conduct was calculated on the basis of the principles laid out in the 2006 Guidelines on the method of setting fines imposed pursuant to Article 23(2)(a) of Regulation (EC) No 1/2003. The EC's June 27, 2017 Decision concludes that the final amount of the fine imposed on Alphabet and Google is €2,424,495,000.

3. Red Flags Ignored by the Individual Defendants

61. Google's Audit Committee and the Board of Directors had responsibility for risk oversight. During the Commission's Google Shopping investigation there were numerous red flags which should have prompted action by the Individual Defendants to change Google's business practices.

62. The Board received quarterly litigation and regulatory updates, including regarding competition concerns. GOOG-BC-SHD-00000064; GOOG-BC-SHD-00000272; GOOG-BC-SHD-00000313; GOOG-BC-SHD-00000468; GOOG-BC-SHD-00000697; GOOG-BC-SHD-00001000. However, the Board's examination of Alphabet's litigation risk, including the risk that the Company's conduct ran afoul of antitrust law, failed to seriously examine the Company's business practices. Instead, the Board paid only lip service to its oversight function, and its review was limited to a single quarterly bullet point which attempted to summarize the vast array of "global" competition investigations and inquiries facing the Company. GOOG-BC-SHD-00000003; GOOG-BC-SHD-00000024. During this period, the Commission would investigate Google's panoply of anticompetitive business practices, starting with Google Search.

63. On November 30, 2010, the Commission initiated antitrust proceedings against Google concerning its unfavorable treatment of competing vertical search service providers in general search services. The Commission also announced it would investigate Google's "alleged imposition of exclusivity obligations by Google on its advertising and distribution partners and suspected restrictions on advertisers as to the portability of campaign data to competing online advertising platforms." There are no references to the Commission initiating the investigation among the 220 Documents, even though the Audit Committee met six times in 2010.

64. On May 21, 2012, Almunia, Vice President of the European Commission responsible for Competition Policy, gave a speech in which he announced that he sent a letter directly to Defendant Schmidt outlining the Commission's competition concerns and offering Google the "possibility to come up in a matter of weeks with [the] first proposals of remedies to

address each of these points." There are no references to the Commission's letter to Defendant Schmidt in the 220 Documents, even though the Audit Committee met six times in 2012.

65. On March 6, 2013, the Commission adopted a Preliminary Assessment addressed to Google taking the view that Google engages in four business practices that "may infringe article 102 of [TFEU] and Article 54 of the EEA Agreement." During 2013, the Audit Committee held six meetings and acted by unanimous written consent five times. There is nothing in the 220 Documents suggesting the Commission's Preliminary Assessment was discussed by the Audit Committee or the Board.

66. On February 4, 2014, Almunia, Vice President of the European Commission responsible for Competition Policy, gave a speech about the Google Shopping investigation. He stated that "[d]uring the last 3 years, we have been discussing with Google whether the Commission's concerns could be removed through binding commitments." Almunia added that he had rejected two prior commitment proposals from Google. There are no references in the 220 Documents to the binding commitment negotiations between 2010 and 2014.

67. On April 15, 2015, the Commission sent a Statement of Objections under EU antitrust rules alleging that Google is "abusing a dominant position, in breach of EU antitrust rules, by systematically [favoring] its own comparison shopping product in its general search results pages in the European Economic Area (EEA)." Although Google provided a response to the SO, there are no references to the Commission's investigation in the 220 Documents.

68. On July 14, 2016, the Commission initiated proceedings against Alphabet and adopted a Supplementary Statement of Objections concerning Google's conduct. Again, there are no references to a Supplementary Statement of Objections or Google's response in the 220 Documents despite regular meetings of Alphabet's Audit Committee.

69. On February 28, 2017, the Commission sent Google and Alphabet a Letter of Facts regarding "pre-existing evidence that was not expressly relied on in the SO and the SSO, but which, on further analysis of the file, could be potentially relevant to support the preliminary conclusion

reached in the SO and the SSO." Although Google and Alphabet responded to the Letter of Facts on April 18, 2017, there is no mention of the Commission's investigation in the 220 Documents.

70. On June 26, 2017, the Final Report of the Hearing Officer was issued. The Hearing Officer summarized the Commission's draft decision that Google and Alphabet infringed EU antitrust rules. Regarding the draft decision, the Hearing Officer was tasked with considering whether the draft decision "deals only with objections in respect of which the parties have been afforded the opportunity of making known their views." The Hearing Officer concluded that it did. He also concluded that "the effective exercise of procedural rights has been respected throughout the procedure."

71. On June 27, 2017, the Commission adopted the draft decision, finding that Google abused its dominant position in general search services. The Decision concluded that Google "must bring the abuse to an end and refrain from any act or conduct which would have the same or similar object or effect." The Decision gave Google "90 days from the date of the notification of the Decision to implement a remedy that would effectively bring the abuse to an end" and fined Alphabet and Google €2,424,495,000.

C. The Commission's Android and Google Play Store Investigation

1. Procedural History

72. On April 15, 2015, the Commission initiated proceedings against Google in relation to certain conditions in agreements associated with the use of Google's mobile operating system, Android, and certain proprietary mobile apps and services.

73. On April 20, 2016, the Commission sent a Statement of Objections to Google. The Commission informed Google that it had taken the preliminary view that Google had "abused its dominant position by imposing restrictions on Android device manufacturers and mobile network operators."

74. Specifically, the Commission took the view that Google had "implemented a strategy on mobile devices to preserve and strengthen its dominance in general internet search." The Commission alleged that Google breached EU antitrust rules by: (i) tying the Google Search

app with Google's Play Store; (ii) making the licensing of the Play Store conditional on Google Search being set as the default general search service; (iii) tying the web browser Google Chrome with the Play Store and the Google Search app; (iv) making the licensing of the Play Store and the Google Search app subject to "anti-fragmentation obligations"; (v) granting revenue share payments to original equipment manufacturers ("OEMs") and mobile network operators ("MNOs") on condition that they pre-install no competing general search service on any device within an agreed portfolio; and (vi) granting revenue share payments to OEMs and MNOs on the condition that they pre-install no competing general search service on a given device.

75. On December 1, 2017, Google submitted a letter and term sheet to the Commission describing changes that it would be ready to implement in the framework of commitments. After reviewing Google's letter and term sheet, the Commission informed Google on February 12, 2018, that it intended to continue the adversarial procedure.

76. On March 14, 2018, Google submitted a letter to the Commission concerning factual and legal developments since the Statement of Objections. On March 27, 2018, the Commission met with Google.

77. On June 11, 2018, Google submitted a letter to the Commission entitled "the Commission has failed to assess Google's Android agreements in their relevant economic and legal context."

78. On June 20, 2018, Google submitted a letter requesting that it be afforded at least 90 days to comply with any remedies that the Commission may impose.

79. On July 18, 2018, The Commission adopted its decision in the matter, which is summarized below.

2. Market Definition

80. The Commission concluded that the relevant product markets are: (i) the worldwide market (excluding China) for the licensing of smart mobile operating systems ("OSs"); (ii) the worldwide market (excluding China) for Android app stores; (iii) the national markets for general search services; and (iv) the worldwide market for non OS-specific mobile web browsers.

81. The Decision also concluded that since 2011, Google holds a dominant position in: (i) the worldwide market (excluding China) for the licensing of smart mobile OSs; (ii) the worldwide market (excluding China) for Android app stores; and (iii) each of the national markets for general search services in the EEA.

82. The conclusion that Google holds a dominant position in the worldwide market (excluding China) for the licensing of smart mobile OSs is based on Google's market share, the existence of barriers to entry and expansion, the lack of countervailing buyer power and the insufficient indirect constraint from non-licensable smart mobile OSs (such as Apple's iOS).

83. The conclusion that Google holds a dominant position in each of the national markets for general search services in the EEA is based on Google's market shares, the existence of barriers to entry and expansion, the infrequency of user multi-homing and the existence of brand effects, and the lack of countervailing buyer power.

84. The conclusion that Google holds a dominant position in the worldwide market (excluding China) for Android app stores is based on Google's market share, the quantity and popularity of apps available on the Google Play Store, the automatic update functionalities of the Play Store, the fact that the only way for original equipment manufacturers (OEMs) to obtain Google Play Services is to obtain the Play Store, the existence of barriers to entry and expansion, the lack of countervailing buyer power of OEMs, and the insufficient constraint from app stores for non-licensable smart mobile OSs (such as Apple's AppStore).

3. Google's Abuse of Its Dominant Position

a. Tying the Google Search App with the Play Store

85. The Commission concluded that since at least January 1, 2011, Google has tied the Google Search app with the Play Store. The Commission concluded that this conduct constitutes an abuse of Google's dominant position in the worldwide market (excluding China) for Android app stores.

86. First, the Decision demonstrated that: (i) the Play Store and the Google Search app are distinct products; (ii) Google is dominant in the market for the tying product (worldwide market

(excluding China) for Android app stores); and (iii) the tying product (Play Store) cannot be obtained without the tied product (the Google Search app).

87. Second, the Decision concluded that tying the Google Search app with the Play Store is capable of restricting competition because: (i) tying provides Google with a significant competitive advantage that competing general search service providers cannot offset; and (ii) the tying helps to maintain and strengthen Google's dominant position in each national market for general search services, increases barriers to entry, deters innovation, and tends to harm, directly or indirectly, consumers.

88. Third, the Decision concludes that Google has not demonstrated the existence of any objective justification for the tying of the Google Search app with the Play Store.

b. Tying Google Chrome with the Play Store

89. Since August 1, 2012, Google has tied Google Chrome with the Play Store and the Google Search app. The Commission concluded that this conduct constituted an abuse of Google's dominant position in the worldwide market (excluding China) for Android app stores and the national markets for general search services.

90. First, the Decision demonstrates that: (i) Google Chrome is a distinct product from the Play Store and the Google Search app; (ii) Google is dominant in the markets for the tying products (worldwide market (excluding China) for Android app stores and national markets for general search services); and (iii) the tying products (the Play Store and the Google Search app) cannot be obtained without the tied product (Google Chrome).

91. Second, the Decision concluded that the tying of Google Chrome with the Play Store and the Google Search app is capable of restricting competition. This is because: (i) the tying provides Google with a significant advantage that competing non-OS-specific mobile browsers cannot offset; and (ii) the tying deters innovation, tends to harm, directly or indirectly, consumers of mobile web browsers, and helps to maintain and strengthen Google's dominant position in each national market for general search services.

92. Third, the Decision concluded that Google has not demonstrated the existence of any objective justification for tying Google Chrome with the Play Store and the Google Search app.

c. Anti-Fragmentation Requirements

93. Since at least January 1, 2011, Google makes the licensing of the Play Store and the Google Search app conditional on hardware manufacturers agreeing to the anti-fragmentation obligations in the anti-fragmentation agreements ("AFAs"). The Commission concluded that this conduct constituted an abuse of Google's dominant positions in the worldwide market (excluding China) for Android app stores and the national markets for general search services.

94. First, the Decision demonstrated that entering into anti-fragmentation obligations is unrelated to the licensing of the Play Store and the Google Search app, that Google is dominant in the worldwide market (excluding China) for Android app stores and in the national markets for general search services, and that the Play Store and the Google Search app cannot be obtained without entering into the anti-fragmentation obligations.

95. Second, the Decision established that anti-fragmentation obligations are capable of restricting competition because: (i) Android forks constitute a credible competitive threat to Google; (ii) Google actively monitors compliance with, and enforces, the anti-fragmentation obligations; (iii) the anti-fragmentation obligations hinder the development of Android forks; (iv) compatible forks do not constitute a credible competitive threat to Google; (v) the capability of the anti-fragmentation obligations to restrict competition is reinforced by the unavailability of Google's proprietary application programming interfaces ("APIs") to fork developers; and (vi) Google's conduct helps to maintain and strengthen Google's dominant position in each national market for general search services, deters innovation, and tends to harm, directly or indirectly, consumers.

96. Third, the Decision concluded that Google has not demonstrated the existence of any objective justification for making the licensing of the Play Store and Google Search conditional on the anti-fragmentation obligations.

d. Revenue Share Payments

97. Between at least January 1, 2011, and March 31, 2014, Google granted payments to OEMs and wireless on condition that they pre-installed no competing general search service on any device within an agreed portfolio. The Decision concluded that this conduct constituted an abuse of Google's dominant position in the national markets for general search services.

98. First, the Decision concluded that Google's portfolio-based revenue share payments constituted exclusivity payments.

99. Second, the Decision concluded that Google's portfolio-based revenue share payments were capable of restricting competition. This is because Google's portfolio-based revenue share payments: (i) reduced the incentives of OEMs and MNOs to pre-install competing general search services; (ii) made access to the national markets for general search services more difficult; and (iii) deterred innovation.

100. Third, the Decision concluded that Google did not demonstrate the existence of any objective justification for the grant of portfolio-based revenue share payments.

101. The Decision concluded that the four different forms of conduct described above constitute a single and continuous infringement of EU antitrust rules for two reasons. First, the four different forms of conduct all pursue an identical objective of protecting and strengthening Google's dominant position in general search services and thus its revenues via search advertisements. Second, the four different forms of conduct are complementary in that Google creates an interlocking interdependence between them.

102. The Decision required Google and Alphabet to bring effectively to an end the single and continuous infringement and each of the four separate infringements, within 90 days of notification of the Decision, insofar as they have not already done so, and to refrain from adopting any act or conduct having the same or equivalent object or effect. The Decision indicated that if Google and Alphabet failed to comply with the requirements of the Decision, the Commission would impose a daily periodic penalty payment of 5% of Alphabet's average daily turnover in the preceding business year. The Decision imposed a fine of €4,342,865,000 on Google, of which

€1,921,666,000 was owed jointly and severally with Alphabet. Between the Search and Android investigations, the Commission had fined Google more than €6.5 billion.

4. Red Flags Ignored by the Individual Defendants

103. Again, Google's Audit Committee and the Board of Directors had responsibility for risk oversight. During the Commission's Android investigation there were red flags which should have prompted action by the Individual Defendants to change Google's anticompetitive business practices.

104. On April 20, 2016, the Commission sent a detailed Statement of Objections to Google. The Statement of Objections set out in detail six anticompetitive business practices around Android licensing and revenue sharing. The 220 Documents include a copy of Google's February 2016 "Global Competition Policy," which says that "Google is committed to competing fair and square." The Global Competition Policy also states that "Google complies with antitrust, competition, anti-monopoly, and fair trade laws worldwide[.]"

105. During Google's fiscal second quarter 2016 earnings conference call on July 28, 2016, then-Chief Financial Officer and Senior Vice President Ruth Porat ("Porat") was asked about recent regulatory filings. Given the timing, the question was likely referring to the European Commission's July 14, 2016 Statement of Objections regarding syndication of AdSense for Search. Porat avoided discussion of Google's search practices and focused on Android. "[I]n our discussions, one of the very important points is we operate in a very vibrant, competitive environment. And we're also proud of the fact that we're investing meaningfully in the ecosystem. For example, Android has helped foster a remarkable and sustainable ecosystem of manufactures and app developers and entrepreneurs based on open-source software and open innovation, and that's really the kind of the thrust of it and the emphasis is, we're continuing to work constructively with regulators, no additional update." Porat's statement about operating in a competitive environment and Android openness is diametrically opposed to the allegations about Google's Android practices in the Statement of Objections.

106. During Google's fiscal third quarter 2016 earnings conference call on October 27, 2016, in the midst of the Commission's Android investigation, Defendant Pichai spoke about Google's commitment to openness in the Android ecosystem. "[W]e deeply remain committed to building an open ecosystem because, at the end of the day, we want Google to be there for every user everywhere. And to do that well, we want to work with partners and build a great ecosystem to make it happen."

107. During 2016, Alphabet's Audit Committee held six meetings and acted by unanimous written/electronic consent three times. There are no 220 Documents suggesting the discussion of the Commission's Statement of Objections or recommending any remedial actions.

108. On June 27, 2017, Google was fined €2.42 billion by the Commission in the Google Search (Shopping) matter while the Android investigation was still pending.

109. On December 1, 2017, Google submitted a letter and term sheet to the Commission describing changes that it would be ready to implement in the framework of commitments. Google's outreach was rejected by the Commission about two months later.

110. During 2017, Alphabet's Audit Committee held six meetings and acted by unanimous written/electronic consent three times. There are no 220 Documents suggesting the discussion of the Commission's Statement of Objections or recommending any remedial actions.

111. On July 18, 2018, the Commission announced that it had fined Google €4.34 billion "for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine." Commissioner Margrethe Vestager, in charge of competition policy, made the following statement:

> Today, mobile internet makes up more than half of global internet traffic. It has changed the lives of millions of Europeans. Our case is about three types of restrictions that Google has imposed on Android device manufacturers and network operators to ensure that traffic on Android devices goes to the Google search engine. In this way, Google has used Android as a vehicle to cement the dominance of its search engine. These practices have denied rivals the chance to innovate and compete on the merits. They have denied European consumers the benefits of effective competition in the important mobile sphere. This is illegal under EU antitrust rules.

112. During 2018, the Audit Committee held six meetings and acted by unanimous written/electronic consent three times. There are no 220 Documents suggesting that the Audit Committee or the Board discussed the Commission's Statement of Objections, €4.34 billion fine, or recommending any remedial actions. In fact, Porat's and Pichai's comments during earnings calls in 2016 strongly suggest that Google intended to press on with its anticompetitive conduct notwithstanding the multi-billion-euro fines issued by the Commission.

113. The red flags that Porat and Pichai ignored would resurface in the DOJ Search Action and the Epic Action and the resulting corporate trauma.

D. The Commission's 2016 Investigation into AdSense

114. In 2016, the Commission adopted a Statement of Objections addressed to Google and Alphabet regarding its online search intermediation services for third-party display advertising. Google's contracts with the most commercially significant publishers were individually negotiated and contained exclusionary terms.

115. The Commission found that starting in 2006, Google included exclusivity clauses in its contracts such that publishers were prohibited from placing search advertisements from Google's competitors on their search results pages.

116. The Commission found that as of March 2009, Google gradually began replacing the exclusivity clauses with "Premium Placement" clauses. These required publishers to reserve the most profitable space on their search results pages for Google's advertisements and request a minimum number of Google advertisements. Google's competitors were therefore prevented from placing their search advertisements in the most visible and clicked on parts of the websites' search results pages. Google also included clauses requiring publishers to seek written approval from Google before making changes to the way any rival advertisements were displayed. In this way, Google controlled how attractive, and therefore clicked on, competing search adverts were.

117. The Commission concluded that Google's search intermediation practices amounted to an abuse of Google's dominant position in the online search advertising intermediation market by preventing competition on the merits.

118. The Commission further concluded that Google's conduct was harmful to competition and consumers and stifled innovation. Google's competitors were prevented from growing and offering alternative online search advertising intermediation services. Importantly, Google did not demonstrate that the exclusive clauses created any efficiencies that would justify the anticompetitive results.

119. The Commission issued its decision on March 20, 2019, fining Google €1,494,459,000 for its anticompetitive conduct in ad intermediation.

1. Red Flags Ignored by the Individual Defendants

120. Notwithstanding the fact that by the end of March 2020, the Commission had fined Google more than €8 billion for anticompetitive conduct, the 220 Documents do not reflect any Board engagement with the conduct at issue in the EC investigations or actions.

E. The 220 Documents Show Minimal Engagement with U.S. Antitrust Issues and No Follow-Up to U.S.-Based Antitrust Red Flags

121. Despite active investigations by various U.S.-based authorities that culminated in domestic antitrust actions starting in 2020, the 220 Documents suggest the Individual Defendants believed nothing needed to change. Aside from perfunctory quarterly litigation updates, the Board held special meetings on June 3, 2019, and October 1, 2019, to receive an "Antitrust Update" from Defendant Pichai and Alphabet's Chief Legal Officer, Kent Walker. GOOG-BC-SHD-00000089; GOOG-BC-SHD-00000319.

122. The Board's tepid engagement with the antitrust risks was a dereliction of their fiduciary duties. The Commission investigations and fines put the Board on notice that the Company's products were likely violating antitrust law. They also had reason to know because they received frequent warnings in quarterly "Product Updates" that the Company's product offerings were under intense antitrust scrutiny. For example:

- In Q2 2019, the Board was informed that both its Google Search and Android offerings were the subject of antitrust scrutiny and DOJ antitrust investigations, respectively. GOOG-BC-SHD-00000015; GOOG-BC-SHD-00000020.

- In Q3 2019, the Board was again informed that its Android offering "may be" the focus of a U.S. DOJ investigation. GOOG-BC-SHD-00000285.
- In Q4 2019, the Board was again informed that its Android offering "may be" the focus of a U.S. DOJ investigation. GOOG-BC-SHD-00000460.

123. Again, the Board's purview consisted of single surface-level sentences alerting them to the existence of antitrust risk, with no discussion of the Company's business practices, the allegations pursued by regulators, the context of the wrongdoing, or any potential remedial measures.

124. Despite this clear and present danger, the Board never demanded that the Company internally investigate its business practices to ensure they complied with antitrust law. The Board knew that Alphabet's core business practices over a broad range of products and services were drawing regulatory review for their anticompetitive nature, but failed to inquire further – for instance, an October 23, 2019 presentation alerted the Board to the fact that the DOJ and 48 State Attorneys General were pursuing antitrust investigations against the Company – with no further context or information regarding those investigations. GOOG-BC-SHD-00001109; GOOG-BC-SHD-00001118. The Board took no apparent action in response. Indeed, as would become clear from the results of these investigations, the Board is incapable of ensuring that management tailor its business plans to comply with existing antitrust law in the United States.

125. Even the Company's outside auditors, who in 2019 had been hired to examine Alphabet's "market, regulatory, and legal considerations," provided just a single note to the Board relevant to the Company's anticompetitive conduct in a presentation dated July 24, 2019: "U.S. Justice Department antitrust investigations." GOOG-BC-SHD-00000035. The Board took no apparent action in response to the fact that the Company was being investigated by the DOJ. It did not attempt to determine from its outside auditor which business practices were anticompetitive; it did not call for or pass resolutions empowering a committee to investigate and ensure that the Company was within the bounds of U.S. antitrust law; it did not even apparently concern itself regarding the Company's responses to the DOJ. Instead, the Board was content to

bury its collective head in the sand while Defendants Brin, Page, and Schmidt continued to lead the Company further into its myriad monopolization schemes.

126. April 22, 2020, was the first time the Board heard anything substantive about the Company's anticompetitive conduct. The Board learned that the Company was in dire straits due to its pervasive monopolistic and illegal business plans. The Board was given a "Privileged & Need-to-Know" "Global Antitrust Regulatory Landscape" update, telling them that "[t]he US Department of Justice, 48 State Attorneys General, and the House Judiciary Committee (with a range of motivations) continue their wide-ranging competition investigations into our business practices." GOOG-BC-SHD-00000730; GOOG-BC-SHD-00000678.

127. The Board also was made aware that the DOJ and State Attorneys General investigations included "ad tech" and were "Major Global Competition Matters" for 2020, and that the House Judiciary Committee intended to file an antitrust report about Google, pending for 2020. GOOG-BC-SHD-00000679. The Board was further informed that "Sundar [Pichai] was asked to testify" before the House Judiciary Committee for its antitrust panel, and that the House Committee's report about Alphabet's anticompetitive conduct was expected to be released in Q2 2020. GOOG-BC-SHD-00000680.

128. Simultaneously, on April 22, 2020, the Board was presented with "Key Global Regulatory Issues," again marked with "Privileged & Need-to-Know." GOOG-BC-SHD-00000711. The Board was again informed that, "[t]he US Department of Justice, 48 State Attorneys General (led by Texas), and the House Judiciary Committee are conducting broad investigations into our business." The Board was further informed of coming "[l]awsuits this summer," which "may allege competition violations regarding" categories of business conduct that were redacted for privilege in the documents provided to Plaintiffs. GOOG-BC-SHD-00000712. The Board was further informed that the "DOJ & State AGs – Ad tech" complaints were pending for 2020, and likely to be filed by the third quarter. GOOG-BC-SHD-00000721. This all confirmed for the Board that, by April 22, 2020, the DOJ and 48 State Attorneys General were

past the point of investigating, readying to file competition complaints against the Company, and believed that broad swaths of the Company's business were anticompetitive.

129. The Board was given another "Privileged & Need-to-Know" regulatory and policy update on July 15, 2020. GOOG-BC-SHD-00000809. The Board learned that the Company had had "very public legal and policy moments" in the third quarter 2020, including U.S. competition "cases" – signaling that the Board knew the U.S. House of Representatives, DOJ, and 48 State Attorneys General led by the State of Texas were pursuing multiple actions based on the Company's anticompetitive business practices. GOOG-BC-SHD-00000810; GOOG-BC-SHD-00000813.

130. By at least July 2020, the Board knew that the antitrust claims being brought against the Company represented a significant risk and would lead to probable losses for which the Company would need to establish reserves and make disclosures in accordance with Accounting Standards Rule ASC 450-20 (quantitative calculations for reserves). GOOG-BC-SHD-00000905. Accordingly, the Company's outside auditor named "ongoing legal matters, including competition" as one of its main external focus areas for its 2020 audit plan, which it presented to the Board on July 20, 2020. GOOG-BC-SHD-00000888; GOOG-BC-SHD-00000890.

131. The Company's legal jeopardy was again confirmed when the Board received an October 21, 2020 Regulatory & Policy Update. GOOG-BC-SHD-00001019; GOOG-BC-SHD-00001124. In this update, the Board was told that the Company faced two main pillars of potential liability: (1) conduct investigations ongoing from the DOJ and State Attorneys General, and (2) legislative proposals based on a report released by House Antitrust Subcommittee Chairman David N. Cicilline, finding that Alphabet holds monopoly power over significant sectors of the American economy and calling for the monopolies to end. GOOG-BC-SHD-00001022.

132. The Board also learned that the DOJ and various State Attorneys General had joined each other's competition investigations into the Company's conduct, and that in addition to ongoing scrutiny from the House of Representatives, the Senate was planning to hold a committee

hearing on Alphabet's monopoly power and that future litigation was planned to help curtail monopoly power. GOOG-BC-SHD-00001024.

133. Though a few antitrust compliance presentations were made to employees at Google, the 220 production does not indicate that the Board itself received antitrust compliance training, which further indicates that the Board paid scant attention to these mission-critical issues.

134. Google is now exposed to potentially billions of dollars in liability from these private lawsuits, in addition to the major regulatory actions. Google has already lost the Epic Action and DOJ Search Action, and it is poised to lose the AdTech trial. Indeed, remedy proceedings are underway in the DOJ and Epic cases that will likely include sweeping injunctive relief that will permanently change the way Google does business. Had the Individual Defendants lived up to their fiduciary duties, much of this corporate trauma could have been avoided.

II. AS THE BOARD IGNORED RED FLAGS FROM THE EUROPEAN INVESTIGATIONS, U.S. AUTHORITIES CLOSED IN AND FINALLY FILED SUITS ALLEGING WIDESPREAD ANTICOMPETITIVE CONDUCT, AND U.S. COURTS HAVE ADJUDICATED LIABILITY AGAINST GOOGLE

A. The United States District Court for the District of Columbia Found Google Liable for Antitrust Violations in the General Search Services and General Search Text Advertising Markets

135. On October 6, 2020, the Majority Staff of the House Committee on the Judiciary issued a multi-hundred-page report detailing a wide variety of anticompetitive practices by several major technology providers, including Google.[3]

136. On October 20, 2020, the DOJ, joined by 11 States, filed the DOJ Search Action, alleging that Google had violated Section 2 of the Sherman Antitrust Act of 1890 (the "Sherman Act"), 15 U.S.C. §2, by unlawfully maintaining a monopoly in three product markets – general search services, search advertising, and general search text advertising. According to the DOJ Search Action, Google accomplished this by "entering into exclusive agreements to secure default distribution on nearly all desktop and mobile devices in the United States."[4]

[3] From MAJORITY STAFF OF H. COMM. ON THE JUDICIARY, 116TH CONG., REP. AND REC. ON INVESTIGATION OF COMPETITION IN DIGITAL MARKETS (Oct. 6, 2020), https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf (the "House Report").

[4] Mem. Op. at 5, DOJ Search Action (Aug. 5, 2024), ECF No. 1033.

137. On December 17, 2020, 38 additional states filed the CO AG Action, which adopted the allegations in the DOJ Search Action's complaint but differed in three ways. First, the complaint in the CO AG Action alleged a third advertiser-side market for general search advertising but not one for general search advertising. Second, they alleged Google engaged in exclusionary conduct that targeted SVPs. Third, they alleged Google engaged in further exclusionary conduct through its advertising platform, SA360, to harm competition in all markets. The DOJ Search and CO AG Actions were consolidated for pretrial purposes and for trial at the request of the parties. Liability and damages were bifurcated, also at the request of the parties.

138. After Google lost most of its motion for summary judgment, trial took place between September 12 and November 16, 2023, with thousands of exhibits and dozens of lay witnesses and expert witnesses. Each party filed post-trial briefs and closing arguments were held on May 2 and 3, 2024. The Court issued its 277-page Memorandum Opinion and Order on August 5, 2024, which held:

> Google is a monopolist, and it has acted as one to maintain its monopoly. It has violated Section 2 of the Sherman Act.
>
> Specifically, the court holds that (1) there are relevant product markets for general search services and general search text ads; (2) Google has monopoly power in those markets; (3) Google's distribution agreements are exclusive and have anticompetitive effects; and (4) Google has not offered valid procompetitive justifications for those agreements. Importantly, the court also finds that Google has exercised its monopoly power by charging supracompetitive prices for general search text ads. That conduct has allowed Google to earn monopoly profits.

1. Google Has Monopoly Power in the General Search Services and General Search Text Advertising Markets

a. General Search Services Is a Relevant Product Market

139. According to the Court, the evidence at trial "established that general search services is a relevant product market and alternative sources for query information, like SVPs and social media sites, are not adequate substitutes." In reaching this conclusion, the Court looked at the relevant "practical indicia" from *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962).

140. The Court observed that "[a]lthough Google began as a GSE [general search engine], today its core services include a suite of applications widely used on mobile and desktop devices, including Gmail, Google Drive, Google Maps, Google Photos, Google Play, and YouTube." The Court also made a special point to highlight three Google products:

- "In 2008, Google developed **Android**, an open-source operating system for mobile devices. . . . An open-source system allows third-party developers to create new smart devices and technologies by customizing the Android system to the device or technology. . . . Today, hundreds of millions of devices run on the Android operating system." [Emphasis in original].
- "Also in 2008, Google launched **Chrome**, a web browser. . . . A web browser is software that allows users to access websites on the internet, among other things. . . . Chrome was designed to increase the speed and seamlessness of web navigation by users. . . . 'Chromium is the underlying engine which powers Chrome,' and it is fully open source, like Android. . . . Google is the default search engine on Chrome." [Emphasis in original].
- "Google also acquired an online advertising platform, DoubleClick, in 2008, which it developed into what today is known as **SA360**. . . SA360 is a search engine marketing tool, which allows advertisers to purchase digital advertisements across multiple platforms." [Emphasis in original].

141. The Court also made a point of highlighting Google's revenues relating to search: "In 2022, Google reported Search+ revenues over $162 billion. . . . Between 2014 and 2021, Google's Search+ revenues more than tripled, with gross margins ranging from 76%-82% annually. . . . The vast majority of Alphabet's revenues (nearly 80%) come from digital advertisements, and historically the largest component has been ads displayed on Google's search engine results page." As Satya Nadella, Microsoft's CEO, testified at trial, "search or Internet search [is] the largest software category out there by far. There's nothing even close. . . . Just by

share, revenue, margins. Whichever way you look at it today, you know, it's dominated by one player, so therefore it's got high margins."

142. First, the Court found that GSEs have peculiar characteristics and uses, in that they are not interchangeable with SVPs or social media platforms. According to the Court, GSEs are "both a reservoir of information and a conduit to other sources on the web. And it serves that purpose over and over again. No SVP or social media platform can meet user needs in the same way. They therefore are not functionally interchangeable with GSEs."

143. Second, there was "significant evidence" showing that market participants considered GSEs to be a "distinct product with no adequate substitutes." These market participants were browser developers, Android OEMs, mobile carriers, advertisers, and Google itself.

144. Third, the Court found that Google's unique qualities support a finding that GSEs are a relevant product market. In other words, if Google's search quality substantially degraded, SVPs and social media platforms would not be able to shift resources and put out a competing product to capture dissatisfied Google users. "Absent extraordinary cost and expense, neither Amazon nor Meta could become a source for noncommercial or navigational queries."

b. Google Has Monopoly Power in the General Search Services Market

145. The Court found that the plaintiffs offered both direct evidence and indirect evidence showing that Google has monopoly power in the general search services market.

146. The Court also distinguished between general search services and search in general. Included in the general search services were GSEs, of which there were four major ones: Google, Bing, Yahoo, and DuckDuckGo ("DDG"). The general search services market did not include specialized vertical providers ("SVPs"), which "are platforms that respond to queries centered on a particular subject matter. . . . Examples of SVPs include Amazon, Expedia, and Yelp[,]" and social media platforms, which "[u]sers go to . . . primarily to interact with others and view photos and videos."

147. Though Google does at times compete with SVPs and social media companies, the searches run on these platforms differ from general searches in that they are usually confined to a

specific platform (*e.g.*, Facebook searches are limited to what is on the Facebook platform, Yelp searches are limited to what is on the Yelp website) and in the case of SVPs, often to a specific subject matter (*e.g.*, retail for Amazon, travel for Expedia). Thus, neither SVPs nor social media platforms can provide substitutes for GSEs. Furthermore, SVPs are complementary to GSEs in that SVPs often rely on GSEs to direct traffic to them. Moreover, "Google's own employees recognize that SVPs are not GSEs." But even though there is competition between GSEs and SVPs, especially for commercial queries, "[e]ven for overlapping queries, GSEs and SVPs can serve as complementary search platforms." As one expert, "Dr. Baker opined, 'it wouldn't be surprising if, for example, a search user entered a query for red shoes on a general search firm, saw a link to a shopping SVP, and then clicked on it and entered a search for red shoes there." Another witness testified, "Prime members who in any way intend to shop at Amazon might come to Google and do a lot of research before they do it." Moreover, "SVPs are often reliant upon GSEs for traffic." One expert "demonstrated that 33-88% of SVPs' online traffic (depending on the vertical) flows through GSEs, either via organic links or advertisements." And even though "this analysis omits traffic through mobile applications, the conclusion is bolstered by Google's own analysis showing that 'Amazon' was Google's fourth highest query by volume in 2018."

148. Because SVPs rely on GSEs for traffic, "SVPs are top advertisers on GSEs." And "[e]mpirical research—performed by Google—demonstrates that use of SVPs is complementary, rather than cannibalistic. In other words, there is no evidence that increased use of SVPs correlates with a diminished use of Google or other GSEs. . . . Google's 2019 Project Charlotte study showed that users who were members of SVP loyalty clubs (e.g., Amazon Prime) or who were otherwise engaged with SVPs were *more* likely to enter queries on Google. . . . [A] 2018 Google analysis concluded that Android users who were active on the Amazon application yielded $2.31 per user in incremental search revenue for Google. . . . [A] 2020 Google study found a positive correlation between Amazon application use and query volume on Google, ultimately determining that a user's adoption of any of six major SVP application—Amazon, eBay, Walmart, Pinterest, Spotify, or Twitter—was related to increased revenues and queries on Google mobile, with no significant

change on desktop behavior." [Emphasis in original]. Furthermore, "SVPs do not view themselves as competing with general search, although they may compete with GSEs' vertical offerings."

149. With regard to social media platforms, "Google's internal studies suggest that younger users may be increasingly using social media for search-related needs" but "[t]he majority of Google users are not in that narrow age range." And even though "Google views social media sites like Facebook, Instagram, and TikTok as competitive threats[,]" yet, "[t]he evidence does not show . . . that increased use of social media corresponds to a decrease in use at Google. In fact, a 2009 Google study showed that users who increase their use of Facebook tend to use Google more often, not less."

150. As one internal presentation noted at trial, Google's "amazing business" is comparable to addictive drugs because it can "ignore the fundamental laws of economics" in that it can essentially not "worry about supply and demand[.]" Instead, "[w]hen talking about revenue, [Google] can mostly ignore the demand side of the equation (users and queries), and only focus on supply side of advertisers, ad formats, and sales." After Google "buil[t] the best product" and "made smart marketing/distribution investments to get [its] product everywhere," Google "could essentially tear the economics textbook in half." As Booking.com's CEO testified, for example, "the travel industry and any company [are] completely reliant on Google to open the door to the courtyard. . . . [I]f you picture companies having market stalls on a courtyard, there are several doors into a courtyard. Every door of the courtyard is kind of directly controlled, partially controlled by Google."

151. Direct evidence came in the form of Google's admission that it does not "consider whether users will go to other specific search providers (general or otherwise) if it introduces a change to its Search product." That Google can make product changes "without concern that its users might go elsewhere is something only a firm with monopoly power could do."

152. Indirect evidence came in the form of Google's dominant market share and the significant barriers to entry for potential GSE competitors.

i. Google's Dominant Market Share

153. There was never a doubt that Google's market share was dominant. It had an 89.2% share of the general search services market and a 94.9% share of general search services on mobile devices. Google has enjoyed an over 80% share of the general search services market since at least 2009. Google's nearest competitor, Bing, has a 5.5% share on all queries, which has dropped from a high of 12%. Bing's share of queries is even lower on mobile devices, but it does somewhat better on desktops because it is the default search engine on the Microsoft Edge browser, which itself is the default browser for Microsoft Windows-equipped computers. Kamy Bazbaz, SVP of Public Affairs at DuckDuckGo, recently testified at a Senate hearing, "We are the second largest search engine on mobile devices in the United States" but has only "a market share of about 2.5%." Google and Bing are the only GSEs that crawl the web and generate their own search results. Yahoo and DuckDuckGo, the next largest GSEs, syndicate their results from Bing.

ii. Barriers to Entry

154. The Court found four barriers to entry for potential Google competitors: high capital costs; control of key distribution channels; brand recognition; and scale.

1) High Capital Costs.

155. One of the main barriers to entry is the high capital investment required to get a GSE off the ground and then maintain it. The Court found, "[t]he first step in developing a search engine is to crawl the web." This is achieved through a program called a "crawling bot" that "starts with a list of websites." The web has to be periodically re-crawled because websites keep changing. Owing to privacy concerns, many crawlers are blocked by individual websites. But Google's crawler is consistently ***not*** blocked because its existing dominant position means that websites need Google to direct traffic towards them more than Google needs the website to be in its index.

156. Google and other GSEs also obtain information through partnerships. "Structured data," *i.e.*, specialized information on a specific category, such as hotels and restaurants, is often obtained through data sharing agreements where Google or another GSE partners with another

organization, often a specialized vertical provider, to obtain structured data in return for directing traffic to the provider, sharing revenues with it, or simply paying for the data. Microsoft, for example, has partner agreements with more than 100 providers, but in some instances, providers have been reluctant to continue partnerships with Bing because of its smaller scale compared to Google.

157. Obtaining raw data is just the first step. The results then would need to be organized in an index. The index is the source from which a response to a user query is drawn. Today, only Google and Bing have the capacity to both crawl the entire web and index the results.

158. The Court found, "[a]n index is only useful if the GSE understands what the user is seeking with a query." In the process of interpreting queries, Google needs to identify spelling and synonyms, use "query-based salient terms" that are likely to be present in a responsive document, and use other semantic tools such as query clustering and segmentation.

159. Furthermore, a GSE must retrieve and rank websites responsive to the query, by prioritizing thousands of search hits from what can potentially be "a nearly infinite number of potentially responsive sites[.]"

160. This all requires a massive amount of money. The Court found: "Constructing a GSE is an extremely capital- and human-resource intensive endeavor. . . . Developing just the technical infrastructure alone requires billions of dollars." One witness, Neeva's founder and former Google Senior Vice President of Ads and Commerce Sridhar Ramaswamy, described how building a search index alone is a "Herculean problem." In 2020, Google estimated that for Apple to develop just the technical infrastructure for a competing search engine, it would cost approximately $10billion-$20 billion, and an additional $4 billion annually just on infrastructure.

161. Maintaining a GSE also costs billions of dollars. The Court found: "In 2020, Google spent $8.4 billion to operate its search engine (excluding revenue share payments). This expense is attributable to a variety of inputs. By way of example, the 'petabytes' of user data that Google maintains are 'expensive to store[.]'. . . Certain highly effective ranking mechanisms, such as artificial intelligence-driven models, are computationally more expensive than others because

they are costly to train and require significant engineering capabilities. . . . Adding features to the SERP [search engine results page] also dramatically increases costs. . . . There are many other contributing costs." Furthermore, "Apple itself has estimated that it would cost $6 billion annually (on top of what it already spends developing search capabilities) to run a GSE."

162. The Court further found that "building and maintaining a GSE is only half of the cost equation. Monetizing a GSE is also an expensive proposition. In 2020, Google spent $11.1 billion to operate its search ads business. By comparison, it spent $8.4 billion in search (excluding revenue share payments). . . . In 2020, Bing earned only $7.7 billion *total* in search ads revenue." [Emphasis in original].

163. These high costs operate as a high barrier of entry that prevents potential competitors from even attempting to create rival search engines. Smaller companies have difficulty securing funding, because venture capitalists think of search as "the biggest no fly zone." As the Court found, "[n]ew investment has not poured in despite the promise of high profit margins in general search."

2) Google's Control of Key Distribution Channels.

164. Google's greatest barrier of entry that it erected was control of key distribution channels, or "search access points." Google did so by using various means to ensure that Google Search would be the default GSE on key search access points. The Court found, "[t]he most efficient channel of GSE distribution is, by far, placement as the preloaded, out-of-the-box default GSE." Google understands this importance because it shares tens of billions of dollars per year in search ad revenue with Apple, major browser companies, phone manufacturers, and phone plan providers to secure default status in key search access points.

165. The key search access points where Google secured default status include: the integrated search bar in Apple's Safari browser (and to some extent, Apple's voice assistant, Siri, and on-device search, Spotlight); the search widget on Android devices' home screen; the search toolbar in the Chrome browser (which typically appears on the home screen of Android devices in the "hotseat" – the row of applications that appear at the bottom of the home screen – or in a folder

on the home screen with other Google applications). Google is also the default search engine on the Firefox browser. Even though a user can switch defaults, "the default remains the primary search access point. Roughly 50% of all general search queries in the United States flow through a search access point covered by one of the challenged contracts. . . . Of that 50%, 28% of those queries are entered into search access points covered by the Google-Apple Internet Services Agreement, 19.4% through Google's agreements with Android OEMs and carriers, and 2.3% through search access points on third-party browsers[.]" Moreover, "[a]nother 20% of all general search queries in the United States flow through user-downloaded Chrome, which defaults to Google." 30% of all queries run through other search access points, and "[a] large percentage of those searches still are entered into Google, but through channels other than the default search access points, such as user-downloaded Google Search app or a search on www.google.com."

166. The Court credited the testimony of the plaintiffs' expert, Dr. Antonio Rangel, who testified that "'the vast majority of individual searches or queries, are carried out [by] habit,' because search is a high frequency activity done on a familiar device that provides an instant response." [Alteration in original]. This speaks to what behavioral economists call the "power of defaults," which shows how "defaults have a powerful impact on consumer decisions." Another illustration of the power of defaults is Bing's relatively higher market share when it is the default browser – on Microsoft Edge – where it captures 80% of the shares while Google has 20%. In all other areas, Google beats Bing by such a wide margin in market share that Bing's total market share is under 6%.

167. Furthermore, "[i]ndividuals often are not aware that they are acting out of habit. . . . Consequently, when users are habituated to a particular option, they are unlikely to deviate from it. As Google's behavioral economics team wrote in 2021: 'Inertia is the path of the least resistance. People tend to stick with the status quo, as it takes more effort to make changes.'" Moreover, "[m]any users do not know that there is a default search engine, what it is, or that it can be changed."

168. "Even users who 'are not in this habitual mode and [] try to change the default will get frustrated and stop the process' if there is 'choice friction.'. . . 'Choice friction' refers to the concept that subtle challenges or barriers make it increasingly more difficult to implement a change. . . . '[T]he more choice friction it takes to change the defaults, the stick[i]er the defaults are.'" [First and second alterations in original]. How strong this "choice friction" is depends on several factors: the quality of the product, where lower quality leads to less friction, but where user satisfaction leads to stronger default effects; and the type of device, where "[d]efault effects are stronger on mobile devices, as opposed to desktop computers, in part because of the smaller interface." Furthermore, "switching certain default settings on an Android device is arguably harder than on an iPhone." Google exploits these behaviors: "Google understands that switching on mobile is more challenging than on desktop. To illustrate, in 2016 and 2020, Google estimated that if it lost the Safari default placement, it would claw back more search volume on desktop than on mobile." Moreover, "Google appreciates that increased choice friction discourages users from switching the default." Google's behavioral economists state, in a 2021 document, that "'small friction points in user experiences can have a dramatically disproportionate effect on whether people drop or stick'" and of "'the tiny fraction of end users who try to change the default, many will become frustrated and simply leave the default as originally set[.]'" Defendant Pichai testified that since "you're taking existing users, and by giving them more convenient access points, you're making them search more" and "[d]one correctly, and if you're putting a product out in front of users which users like and want to use, yes, defaults can make a difference." Moreover, the Court found, "[i]n 2017, over 60% of all queries entered on Google flowed through defaults" – specifically, "60% of iOS queries were through the Safari default, and 80% of Android queries were through defaults secured by the distribution deals." By contrast, "[f]ar fewer users search directly on Google's website."

169. Google understood "that securing the default placement is extremely valuable for monetizing search queries. In 2017, Google estimated that its default placements drove over half (then 54%) of its overall search revenue, a percentage that had grown since 2014. . . . For devices

manufactured by Samsung—the largest Android OEM—80% of search revenue earned on those devices in 2016 flowed through default placements secured by the [Mobile Application Distribution Agreements ("MADAs")] (Chrome and the Google Search Widget). . . . In 2019, about 50% of all search revenue on Android devices flowed through the Google Search Widget. . . . In 2020, Google's internal modeling projected that it would lose between 60–80% of its iOS query volume should it be replaced as the default GSE on Apple devices, [] which would translate into net revenue losses between $28.2 and $32.7 billion (and over double that in gross revenue losses)[.] And in a 2015 presentation, Google expressed confidence in its standing among Apple users, but warned that its position 'is still very vulnerable if defaults were to change.'"

170. There was evidence that Google controls "the most efficient and effective channels of distribution for GSEs." Google Search is the default GSE on all Apple desktop and mobile devices, all Android mobile devices, and most third-party browsers. Moreover, Google has multi-year, multi-billion-dollar revenue sharing agreements with counterparties who control these distribution channels. Finally, Google Search is the default GSE on Chrome, which hosts 20% of the search queries in the United States.

3) Brand Recognition.

171. Google's brand, which it "built . . . by offering a high quality product[,]" has now also become a barrier of entry. "Perhaps the best example of Google's brand is that the public uses the term 'Google' interchangeably with internet search" and "a search for 'google.com' is one of the most frequently entered search queries on Bing." Moreover, "Google has long recognized that 'the affinity of the Google brand was something that was valued by users[.]'" Google's distribution partners value the Google brand, while Google benefits from being selected as the default GSE by major brands like Apple. Building this brand is another barrier to a competitor to enter the general search space.

172. Google has also conducted studies to see whether degrading search quality would lead to less demand or to switching to competitors, and has found that it has not. In 2020, Google tested degrading search quality through changing its large ranking components, such as Navboost

or Synonyms, for about three months – equivalent to the loss of two times the information contained in all of Wikipedia. But "[[t]his quality-reduction experiment correlated with only a 0.66-0.99% decline in global search revenue." The Court thus found that "this study demonstrates that a significant quality depreciation by Google would not result in a significant loss of revenues."

4) Scale.

173. Google also benefits from its overwhelming dominance in the number of queries, by which it achieves unparalleled scale in terms of data generated through queries and click activity, which, in turn, improves the quality of its search results and entrenches its dominance. Thus, scale (*i.e.*, the sheer amount of user data) serves as a key barrier to entry.

174. The Court found: "Early on, Google understood that the information gleaned from user queries and click activity were a strong proxy for users' intent and that such information could be used to deliver superior results." The Court cites a Google presentation that states: "'most of the knowledge that powers Google, that makes it magical, ORIGINATES in the minds of Google users. . . . As people interact with the search results page, their actions teach us about the world. . . . If a document gets a positive reaction, we figure it is good. If the reaction is negative, it is probably bad. Grossly simplified, this is the source of Google's magic."

175. The Court illustrated Google's scale by finding: "As the most widely used GSE in the United States, Google receives nine times more queries each day than all of its rivals *combined* across all devices. The disparity is even more pronounced on mobile. There, Google receives *nineteen* times more queries than all of its other rivals put together." [Emphasis in original].

176. Google's scale is manifest through two types of user data: "Click data . . . includes the search results on which a user clicks; whether the user returns to the SERP and how quickly; how long a user hovers over SERP results; and the user's scrolling patterns on the SERP. . . . From such data, a GSE learns not only about the user's interests but also the relevance of the search results and quality of the webpages that the user visits." "[Q]uery data" helps Google "learn what information users are looking for. Google's scale means that it not only sees more queries than its rivals, but also more unique queries, known as 'long-tail queries.' To illustrate the point, [the

plaintiffs' expert] analyzed 3.7 million unique query phrases on Google and Bing, showing that 93% of unique phrases were only seen by Google versus 4.8% seen only by Bing. On mobile, where Google has more scale, the disparity was even higher. . . . 98.4% of unique phrases [were] seen only by Google, 1% by Bing; 99.8% of tail queries on Google [were] not seen at all by Bing[.]"

177. The Court found: "Google has used its scale advantage to improve the quality of its search product. At every stage of the search process, user data is a critical input that directly improves quality."

178. "*Crawling*. GSEs must determine the order in which they crawl the web. User data helps GSEs determine which sites to crawl, because it allows general search providers to understand the relative popularity of various sites. . . . User data also helps GSEs determine the frequency with which to crawl websites. . . . 'Freshness,' or the recency, of information is an important factor in search quality." [Emphasis in original].

179. "*Indexing*. While click data is 'not particularly important for indexing,' query data is: GSEs need to ensure their index covers queries that are frequently entered. . . . User data also helps determine where a webpage resides within the larger index. . . . Google divides its index into tiers. . . . Each page is assigned to a tier based on how fresh it needs to be, and the fresher tiers are rebuilt more frequently." [Emphasis in original].

180. "*Retrieval and Ranking*. Because humans are imperfect, so too are their queries. Google relies on user data to decipher what a user means when a query is typed imprecisely. For example, user data allows Google to identify misspellings and reformulate queries using synonyms to produce better results. . . . Google scores potentially relevant results to determine the order in which they are placed, or ranked, on the SERP. Scoring is done using a number of signals and ranking systems, which are technologies that attempt to discern the user's intent and thus identify the most relevant results for a particular query. . . . Many of these signals . . . rely on user data." [Emphasis in original].

181. The Court further explained the different ranking algorithms that Google used that relied heavily on user data:

> Query-based Salient Terms, or QBST, is a Google signal that helps respond to queries by identifying words and pairs of words that "should appear prominently on web pages that are relevant to that query.". . . QBST is a "memorization system[]" that helps the GSE "understand facts about the world[.]" It is trained on about 13 months of user data.

[Alterations in original].

182. "Navboost is another signal that pairs queries and documents through memorizing user click data. . . . It allows Google to remember which documents users clicked after entering a query and to identify when a single document is clicked in response to multiple queries. . . . Prior to 2017, Google trained Navboost on 18 months of user data. . . . Since then, it has trained Navboost on 13 months of user data." But because of Google's greater scale – its greater amount of user data – "Thirteen months of user data acquired by Google is equivalent to over 17 *years* of data on Bing." [Emphasis in original].

183. "More recent ranking signals developed by Google rely less on user data." However, "they were designed with user data and continue to be trained on it, albeit using less volume." For example, "older signals used up to 1 trillion examples, whereas newer algorithms require only 1 billion[.]" But even Google's newest models, including its generative AI algorithms, "did not replace Navboost and QBST in ranking." Rather, they are "used as 'additional signals that get balanced both against each other as well as against other signals[.]'" Furthermore, "[t]raditional systems like Navboost can also beat out" newer models "in certain aspects of SERP production, like freshness."

184. The Court noted that, though "there are diminishing returns to user data, . . . that inflection point is far from established. . . . Google continues to maintain significant volumes of data—despite the expense of storing it—because its value outweighs that cost." The Court cited testimony that while the "cost of keeping and using [user] data goes up with the amount of data that [Google] keep[s, t]he value goes up as well. . . . There's a sweet spot where you would stop doing it, and Google hasn't stopped doing it yet." The Court also cited testimony from Gabriel

Weinberg, CEO of DuckDuckGo, on how the "lack of scale" is detrimental, because it prevents DuckDuckGo from "do[ing] as much experimentation as we want."

185. The Court noted that the rapid growth of generative artificial intelligence and its use in general search introduces competition, but "has not supplanted the traditional ingredients that define general search. . . . And it is not likely to do so anytime soon." Moreover, "generative AI has not (or at least, not yet) eliminated or materially reduced the need for user data to deliver quality search results." As Sridhar Ramaswamy explained, the "problem of figuring out what are the most relevant pages for a given query in a given context still benefits enormously from query click information. And it's absolutely not the case that AI models eliminate[s] that need or supplant[s] that need." Moreover, "because 'deep learning systems are much harder to understand[,]'" Google continues to rely on "'an infrastructure that [it] understand[s],' i.e., traditional ranking signals." Another indication of how important user data is for Google is that while it "recognizes that users increasingly care about the privacy of their online activity[,]" it also "believes that there is a trade-off between search quality and user privacy." Thus, "Google cho[oses] to retain 18 months" of user data, "even though some survey data suggest[s] users preferred a shorter retention period." Yet, "[t]he decision to retain 18 months of a user's data versus fewer months was largely arbitrary."

186. Trial testimony by Microsoft employees further illustrated the importance of scale. Mikhail Parakhin ("Parakhin"), a Microsoft executive in charge of its search business, testified as to how scale results in a self-feeding virtuous cycle while lack of scale creates a vicious cycle: "Relative traffic, if I have more traffic than my competitors, that participates in multiple feedback loops driving quality and driving index completeness, which in effect is driving quality. And not unimportant, it is very impactful for revenue. Revenue in search – in advertising in general is nonlinear: If you're twice as big as your opponent, you will make four times as much money. Not exactly these numbers, but I'm just trying to illustrate the concept of nonlinearity."

187. Moreover, Parakhin testified that better algorithms cannot make up for lack of scale: "If you don't have scale, you can to a certain degree try to mitigate it by trying to be smarter

and running more sophisticated machine learning algorithms. It will give you some way forward, which is why Bing very quickly embraced machine learning and was fully machine learning-based even in early – or late 2000s. It's not a substitution or a solution, it can be mitigation. But empirically, even significant improvement in algorithms does not tend to outweigh importance of scale."

188. Furthermore, Parakhin testified that increased market share, even when it does not lead to better quality, leads to much greater revenues: "If you have more than 70 percent share, then each new share – probably each new percent of share probably won't give you much quality improvement. But it will still give you exponential returns in terms of revenue." Furthermore, "revenue continues to grow in accelerated pace, even up to last percent. You know, if you have 95 percent share or 100 percent share, you probably can make twice as much money with 100 percent share than the 95." This is largely because having a greater market share makes the search engine much more attractive to advertisers, and that leads to more bidding among them, which drives up revenue for the search provider: "The more volume you have, the more advertisers you have. The more advertisers you have, the denser the auction is. Like our term density means more advertisers compete for the same result. That means they're more willing to raise prices competing against each other, and that has [a] very beneficial impact on revenue. It also makes it more expensive for advertisers." And while Bing has an overall small market share that would generally have made it an unviable competitor, it "was able to survive and become profitable essentially in [the] United States on desktop" where it has a viable market share owing in part to its placement as the default on Windows devices.

189. Because of Google's dominant market share and the significant barriers to entry in the general search services market, the Court concluded that Google has monopoly power in the general search services market.

c. General Search Text Ads Is Relevant Product Market

190. Within the digital advertising industry, the Court found several different types of ads and markets. "Search advertisements are a form of digital advertising. Search advertisements

are paid, or 'sponsored,' postings published in response to a user's query on a search platform. . . . Search advertisements appear on GSEs and SVPs, as well as occasionally on social media platforms." Search ads respond to "a uniquely strong signal" – *i.e.*, "an indicator of a consumer's intent to purchase a good or service" – "because they are delivered in response to a user's query. . . . This signal is all the more powerful because it represents the user's declared intent in real time, that is, at the moment the intent is manifest. . . . As a result, advertisers view paid search as particularly efficient at driving conversions."

191. The Court found that General Search Text Ads are distinguishable from social media, display ads, and other types of search ads, including shopping ads, also known as PLAs. They also have "peculiar characteristics and uses[.]"

192. First, text ads have a similar appearance to organic search results and provide a link to the advertiser's site. General search text ads are largely text based, while PLAs often use images. Second, advertisers have control over the copy in text ads but not for PLAs. Third, text ads are available to a far broader range of advertisers than PLAs because they do not require images.

193. There are differences in pricing as well. Text Ads are priced higher than PLAs. And while PLA prices remained stagnant or decreased between 2016 and 2020, text ad prices climbed steadily higher.

194. "Text ads are thus the predominant form of advertising on Google, whether measured by revenue or number of advertisers. . . . In 2020, text ads made up about 80% of Google's search ads by revenue. . . . In 2020, text ads made up about 80% of Google's search ads by revenue. . . . In terms of ad types, 52.8% of ad dollars spent on Google come from advertisers who purchase only text ads; 46.9% is generated from advertisers who purchase both text ads and PLAs; and a mere 0.1% is originated by PLA-exclusive advertisers. . . . When measured by number of advertisers, 92.5% of Google's advertisers purchase only text ads, 5.5% purchase PLAs and text ads, and 2% purchase only PLAs."

195. Retail advertisers use both text ads and PLAs "to drive sales" – and will therefore "'relatively allocate their budgets on text ads or shopping ads in order to achieve that objective at the lowest possible cost and highest effectiveness.'" Moreover, "[b]ecause tangible goods can be advertised using either a text ad or PLA, both ad types sometimes will appear on the same SERP. Certain retail advertisers attempt to purchase both to maximize their visibility on a given SERP" – a "brand can attempt to 'own the SERP' by purchasing the top placements for both text ads and PLAs." Google understands this phenomenon because it "recognizes that some advertisers use text ads and PLAs together to maximize their SERP 'real estate.'" Advertisers also sometimes attempt to steer away rivals' customers by purchasing the rivals' branded keywords, or "[c]onquesting[, which] is most effective through text advertising[.]"

196. Google is the dominant player in search text advertising: "Google's market share in the text ads market measured by ad spending is 88%. . . . Of those text ads dollars, 45% comes from text ads that are displayed in response to a query entered into a default search access point covered by Google's distribution agreements."

197. SVPs also sell search ads, primarily as PLAs. But because SVPs are generally closed systems, an advertiser needs to have their product or service to be sold on the SVP – "[a] user that clicks on a search ad delivered on an SVP thus will remain on the platform, unlike a click of a GSE search ad that takes the user to the advertiser's website. . . . As a consequence, a firm that does not sell on an SVP also will not advertise on it."

198. Google is also involved in placing display ads and, to a more limited degree, social media ads, which "are essentially display ads that are integrated into a social media feed." Because "[s]ocial media is a growing destination for advertisers[,]" Google has attempted to capitalize on that growth "with a new advertising product called 'Discovery Ads,' or Demand Gen ads. Discovery ads are placed within a user's feed on YouTube or Gmail." Though Google and Alphabet do not publicly point out what portion of ads in YouTube are discovery ads, the platform has seen significant ad growth year-to-year, with total ad sales of $36.15 million in 2024 versus $31.51 million in 2023.

199. Advertisers decide what type of ads to purchase depending on what they seek to achieve – whether it is to get a customer to be aware of a product or service – or whether to take action and buy the product. These goals are sometimes visualized in the form of a "funnel" – where the top of the funnel is achieving "awareness" in the product or service, which drives down to gaining the potential customer's "interest," and then "desire," and finally the "action" – *i.e.*, purchasing the good as the bottom of the funnel. Another advertising metaphor is the "push" and "pull" of ads – "Push ads" raising awareness and "pull ads" tending to be the search ads on a GSE in response to an inquiry for something one is already looking for. Advertisers generally consider "display ads [to be] superior at establishing product awareness, whereas search ads are more effective at driving conversions." Hal Varian at Google expressed in an internal presentation, "One way to think about the difference between search and display/brand advertising is to say that search ads help *satisfy* demand, while brand advertising helps to *create* demand." [Emphasis in original]. The Court found: "Display ads therefore are considered more effective upper-funnel tools and search ads more effective lower-funnel tools. . . . Search ads can be effective for upper-funnel goals . . . but that is not how advertisers largely conceive of them[.]"

200. Moreover, "[a]dvertisers often use different ad channels as complements as part of a 'full-funnel strategy.'. . . Google itself touts the importance of a 'full-funnel' strategy." "Large advertisers typically organize themselves along ad channels, with different teams and distinct budgets based on ad channel." Advertisers allocate or shift spending between different channels depending on the goal of the advertisement; return on investment ("ROI") and return on ad spend ("ROAS") "are metrics advertisers use to evaluate the effectiveness of their ad spend. . . . But it is challenging for advertisers to calculate ROI and ROAS."

201. Thus, while "advertisers do try to estimate and maximize ROI and ROAS across channels, they do not substitute away significantly from search ads to other channels, like display or social. These channels are less effective at achieving the same marketing goals as search ads. Advertiser witnesses uniformly testified that purchasing search ads on Google is essential to digital ads campaigns because search ads are uniquely able to capture high-intent consumers. . . . There

is no evidence that advertisers have significantly shifted spend away from search ads at any point." Furthermore, "[a]dvertisers rely heavily on search ads for traffic and revenue. When advertisers have experimented by turning off search ads for a portion of queries or products, they have lost revenue."

202. Moreover, "[w]hen it comes to general search text ads, advertisers have a fixed budget that largely mirrors the relative market shares for Google and Bing" – approximately 90% to Google and 10% to Bing – "[a]dvertisers buy nearly all of their text ads from these two GSEs." They have also "consistently testified that shifting significant ad spending from Google to Bing would be ineffective (and unwise) because of Bing's lack of scale." More common is shifting spending between text ads and PLAs, where an advertiser purchases both. However, only retail advertisers fall into this category. Moreover, "[s]ome of Google's largest advertisers cannot make that shift" because "among Google's top 20 queries in the United States in 2018, only three pertained to a physical product for which advertisers could shift spend from text ads to PLAs." Moreover, "[e]ven for retail advertisers, PLAs are not perfect substitutes for text ads."

203. Text ads are sold through auctions where advertisers bid in the "split second, between the time a user enters a query and when the SERP is displayed. Google designs the auction and controls underlying inputs that can affect the ultimate price generated by the auction. . . . Google runs billions of search ads auctions each day."

204. The Court further describes how the mechanics of the auction determine the ads displayed and the order in which they appear on the SERP. An advertiser whose text ad appears on a SERP only pays Google if a user clicks on the ads. A text ad is priced on a "cost-per-click" ("CPC") basis. "The price of a text ad 'is determined based on the results of the auction, and the maximum cost per click is specified by the advertiser.'. . . Google sets a 'reserve price' for text ads, or a minimum price below which it will not sell the ad." The "text ads auction is a classic second-price auction, with modifications. A second-price auction is one where multiple bidders enter the auction, and the winner, instead of paying the price of their highest bid, plays one cent above the first runner-up. . . . This makes the 'second price,' or the runner-up's bid, very important.

. . . Google runs a second-price auction because it views it as more advertiser-friendly. . . . It is also more efficient for Google, because when the final price is determined by something other than the top bid, advertisers will not 'be constantly trying to move their bids up or down to see if they can get the same outcome for less money,' which is burdensome for both advertisers and Google's advertising system (which is responsible for 'consuming all these changing bids at all times and processing them')." Moreover, "[a]n auction winner is not determined solely based [on] its bid. The auction also relies on certain qualitative metrics, including the quality of the ad and the advertiser's website."

d. Google Has Monopoly Power in the General Search Text Ads Market

205. The Court found that Google had monopoly power in the general search text market. The Court found this to be a distinct market from general search ads because they have "various unique features that also different them from other types of search ads, most notably shopping ads, or PLAs[,]" for the same reasons as in the general search services market.

206. Google and advertisers both "recognize text ads as a distinct product submarket" from search ads. "Google has repeatedly acknowledged that text ads and shopping ads are different products. . . . It even has different teams for text ads and PLAs." Furthermore, "[a]dvertisers also recognize each ad type as a distinct product. Non-retail advertisers emphasized that they simply cannot use PLAs, and thus they view text advertising as its own channel." Even for "[r]etail advertisers who purchase PLAs[, they] view [text ads] as a complementary product. Text ads can be used in conjunction with PLAs to 'own the SERP,' that is, take up as much real estate on the search results page as possible." And while "text ads and PLAs arguably serve a similar function from a user's perspective," advertisers "view them as distinct products."

207. As with General Search, Google has a "large and durable share in the text ads market, which is protected by significant entry barriers."[5] Google's market share of text ads is dominant and continues to grow. In 2016 it was 80%. Over the next four years it grew steadily to

[5] Mem. Op. at 189, DOJ Search Action (Aug. 5, 2024), ECF No. 1033.

88%. Google's text ad dominance was confirmed by advertisers, who testified that their text ad spends on Google and Bing mirror their query volume, *i.e.*, 90% to Google and 10% to Bing.

208. The Court found that the same barriers to entry that exist for the general search services market also exist for the text ad market. The Court specifically highlighted prohibitive capital investment costs, citing Google's annual tab of $11.1 billion for search ads and $8.4 billion on search.

209. The Court also found, as direct evidence of Google's monopoly power in the General Search Text Ad submarket, the "undisputed" fact "that Google does not consider competitors' pricing when it sets text ads prices." The Court observed, "[t]hat is 'something a firm without monopoly would have been unable to do.'"

210. Moreover, one striking fact that the Court found was that Google can raise prices with almost impunity, which further evidenced Google's monopoly power, as well as the harm that Google's monopoly power inflicted on its customers, the advertisers. The Court found: "Over the years, Google has tested whether it can profitably raise its text ads prices by 5% or more without losing substantial advertisers, and the results have been largely consistent—it can."

211. Specifically, while Google does not set a specific price directly, it "can affect the final price paid for an ad through so-called 'pricing knobs' or 'pricing mechanisms.'. . . Google has used three primary pricing knobs to influence prices: (1) squashing, (2) format pricing, and (3) randomized generalized second-price auction. Google has referred to these levers as 'intentional pricing."

212. "Squashing" affected one of the auction factors of the runner-up bid, which "increase[d] the likelihood that the runner-up takes the top spot (even if its bid is not the highest)." The purpose of squashing was that "by making the runner-up more competitive, [it] thereby create[ed] upward pressure on the top-rated bidder. That top bidder must pay more to win the auction. . . . As a result, on average, the winner of an auction subject to squashing pays more than they would have absent squashing."

213. "**Format pricing** is Google's practice of charging advertisers for 'formats,' or additional text and links that appear on general search text ads. . . . Formats allow an advertiser to create a customized and complex ad copy that provides the consumer with more information than an ordinary text ad. When first implemented, formats came at no extra cost to advertisers. . . . But in 2017, Google adjusted the auction to impose price increase for formatted ads, after it determined that 'strongly increased format prices' resulted in long-term revenue gains." [Emphasis in original].

214. "In 2019, Google developed a randomized generalized second-price auction, or **rGSP**, another ad launch that affected pricing." This method would "occasionally randomly switch[]" the bidding "scores of the two top auction entrants, thereby allowing the runner-up to win the auction despite its originally lower . . . score. . . . Much like squashing, rGSP artificially enhances the runner-up's score, creating more competitive auctions and driving up final prices. . . . rGSP replaced format pricing because it was even more effective at driving revenue. . . . Advertisers cannot opt out of rGSP." [Emphasis in original].

215. Google used these pricing knobs to raise text ad prices, and these "'intentional pricing launches,' or 'intentional exploration,' arose from the concern that [Google] was not capturing in its pricing the full value of the ad to the advertiser. In other words, Google believed that it could increase ad prices because its pricing was below what advertisers would be willing to pay for an ad."

216. Google had learned from 2017 "ad experiments that small but substantial price increases would generate sustained long-term profits."

217. In a 2017 study called "Gamma Yellow," Google "exposed 15% of advertisers to 'strongly increased format prices' for six weeks. . . . Google found that '50% of the initial revenue gains stuck' and 'found no evidence of notable format opt-out behaviour.'"

218. In a 2017 experiment Google called "Momiji[,]" it again "sought to determine how much Google could raise prices through format pricing. . . . Google admitted that it had 'no way to say what formats should cost,' but it knew that format pricing was the 'best knob to engender

large price increases.'. . . Because it had 'no principle to say what the cost should be,' Google decided to 'follow [its] long term revenue focus.'" [Alteration in original]. Google pushed forward with capturing "headroom" when "its experiments revealed that advertisers would not drop out in significant numbers."

219. A 2017 study Google called "Kabocha" showed that "squashing was 'long term revenue positive[.]'. . . The study showed that the 'stickage factor' after price increases 'was also [] roughly 50%,' meaning Google 'expected 50% of gains to stick post advertiser response to the changes introduced[.]'" [Alterations in original].

220. In January 2018, in an internal presentation, Google ought to capture even more of the "significant upside left in the different auction pricing knobs" and that Google had "only dared capture[] a small fraction." Google sought to "Control the walk" of advertisers where it "believe[d] the ceilings are *still high* and . . . want[ed] to maximize [long-term] revenue." [Alterations and emphasis in original]. The Court found that "Google believed that it could raise prices using pricing knobs without losing advertisers—since 'ceilings are still high'—thereby growing its revenues." These price increases would be "made through '[i]ncidental launches throughout the year,' and '[p]rice adjustments to the new state of the world would be done once or twice a year through dedicated pricing exploration using existing … and [h]olistic … tools.'" [Alterations and ellipses in original].

221. Google continued to raise format pricing through 2018, which "had risen to make up about 20% of Google's text ads revenue," and "[t]he launch of rGSP in 2019 was equally successful." By February 2020, the price increases achieved by rGSP meant that when a "bidder was successful, it would ultimately pay significantly more than it otherwise would have for the same ad placement."

222. "Google's records make clear that growing its revenue was a principal goal in launching these price tunings. . . . In fact, Google used ad launches to meet revenue goals or make up for perceived deficits in its ad revenue growth." Google sought to meet an annual increase of 20% in ad revenues – "[a]nd Google met that objective year after year. . . . Google has enjoyed

unusually consistent revenue growth from 2010 to 2018 that hovered at or above the 20% expectation."

223. Indeed, when "Google grew concerned about meeting its revenue targets, it called for a 'Code Yellow effort,' where its 'top priority' would be to 'deliver [] revenue launches' through intentional pricing."

224. Moreover, "Google's pricing decisions also reflected an understanding that increasing its revenue" through these price knobs "might occasionally come at a cost (or no improvement) to advertisers." Google did not measure the success of its price launches based on what in litigation it purported to be concern for advertisers' well-being, but rather by whether the method "produced positive revenues for Google."

225. Nevertheless, "[w]hen it made pricing changes, Google took care to avoid blowback from advertisers." To ensure that advertisers did not know they were subject to intentional price launches or experiments by Google, it "endeavored to raise prices incrementally, so that advertisers would view price increases as within the ordinary price fluctuations, or 'noise,' generated by the auction." In an internal presentation regarding format pricing, "one Google document states: 'A progressive ramp up leaves time to internalize prices and adjust bids appropriately[.]'"

226. The Court concluded: "Google's incremental pricing approach was successful. In 2018 and 2019, Google conducted ROI Perception Interviews, which raised no red flags about advertisers' attitudes as to ad spending on Google. . . . While advertisers could tell that prices were increasing, they did not understand those changes to be Google's fault. Google's studies revealed that advertisers facing CPC changes 'dominantly attribute[d] these shifts to themselves, competition[,] and seasonality (85%)—not Google." [Alterations in original].

227. Furthermore, "[w]hen it made these pricing changes, Google did not consider its rivals' text ads pricing."

228. Another harm that Google inflicted on advertisers was to "depreciate[] the quality of its text ads products in two primary ways: by reducing the information available to advertisers

in Search Query Reports and by loosening keyword matches to create more crowded and higher price-generating auctions."

229. Since 2007, Google has offered Search Query Reports ("SQRs") to assist advertisers in determining whether to add affirmative or negative keywords (the latter being keywords to avoid in an auction). Before 2020, SQRs included all queries that resulted in even a single ad click. But "[o]stensibly out of privacy concerns, Google removed the one-click threshold. . . . It did so notwithstanding 'substantial' projected data loss for advertisers and knowing that specific major advertisers, like Expedia and Booking.com, had stated they would be harmed.'" Yet "Google's own records show that the privacy rationale was suspect. . . . Some advertisers . . . also view Google's privacy-related justifications with skepticism. . . . Still, Google decided in the fall of 2020 that all queries must receive 50 cookied impressions daily to appear on an SQR."

230. Instead, the effect of "less fulsome SQRs negatively impacted advertisers, who already have limited insight into how Google's auctions work." Moreover, "Google did not inform advertisers how the threshold had changed. . . . And because advertisers no longer received a report of every query that involved an ad click, advertisers purchased ads on certain queries generating fewer than 50 cookied impressions."

231. Moreover, advertisers are informed not only by "keywords that may trigger participation in an auction, they also can identify so-called 'negative keywords,' which are keywords that an advertiser selects so as to avoid entry into an auction. . . . Without the single-click information, Google thus not only constrained advertisers' ability to withdraw keywords but also to identify negative keywords to remove themselves from undesirable ad auctions."

232. Google also harmed advertisers by expanding its "keyword matching" functionality; this, in turn, constrained advertisers from removing themselves from auctions they did not want to participate in, but benefited Google by creating larger auctions that drove auction bids upward. Google's keyword matching includes "semantic matching" – where Google seeks to understand a keyword's meaning by replacing it with "'analogous words so that things that

mean the same thing in a particular way are treated the same way'" and "expanded match" – which "initially included only the keyword itself or grammatical variations (e.g., plurals) but today includes misspellings." About 25% of advertisers, including many of the largest, such as Amazon, sought to opt out of expanded match that included misspellings, but in 2014, "Google removed the opt-out option[.]"

233. The Court found that this practice harmed advertisers: "Because broader matching enters more advertisers into an auction, it leads to thicker auctions (i.e., more auction participants), which creates upward pricing pressure. . . . As advertisers cannot opt out of matching, the only way to ensure that a certain query does not trigger an ad is to provide a negative keyword. . . . But identifying negative keywords is a far more cumbersome way for advertisers to avoid undesirable auctions, a challenge made even more difficult with less information from SQR reports."

234. With these factors in mind, the Court found that the plaintiffs proved that Google monopolized the market for general search text advertising.

2. Google's Distribution Agreements Are Exclusive and Have Anticompetitive Effects

a. The Agreements Are Exclusive

235. One of the key methods by which Google secured its scale was through securing key distribution points. Google secured these key distribution points by getting key players in the browser and mobile ecosystem to make itself the exclusive default distribution point on several search access points.

236. The most important of these agreements was the Internet Services Agreement ("ISA") between Apple and Google, "wherein Google pays Apple a share of its search ads revenue in exchange for Apple preloading Google as the exclusive, out-of-the-box default GSE on its mobile and desktop browser, Safari. . . . Apple is a crucial partner to Google, in part due to 'Apple's sizable and valuable user base, for which Apple controls distribution.'"

237. As a further indication of the importance of default positioning on iOS to Google, the Company's officers spend significant time on the Apple relationship. At trial in the DOJ Search Action, Pichai testified that the 2016 ISA required him and Tim Cook, Apple's CEO, to

meet every year. In December 2018, Cook and Pichai met to discuss how the companies could work together to drive search revenue growth, which memorialized in a trial exhibit that consisted of Google President of Global Partnerships Donald Harrison's notes. The notes conveyed that Apple and Google were "***deep, deep partners, deeply connected where our services end and yours begin***[.]" [Emphasis added]. Harrison, in an email attaching the notes, further stated that either Pichai or Cook conveyed the message: "***Our vision is that we work as if we are one company***." [Emphasis added].

238. Google and Apple entered their current ISA in 2016, which they extended in 2021 for a period of five years until 2026. Apple has the option to unilaterally extend the agreement until 2028, and afterwards, the parties can agree to further extend the agreement until 2031. The Court found that the ISA "requires both parties to cooperate to defend the agreement, including in response to regulatory actions."

239. The ISA's main anticompetitive provisions are its "default and revenue share provisions" and its "restrictions on Apple's product development."

240. "The ISA requires Apple to set Google as the default search engine on Safari for all its devices. . . . Under the ISA, a 'Default' search engine is one that 'will automatically be used for responding to Search Queries initiated from the Web Browser software, unless the End User selects a different third-party search service.'" A "'Search Query' under the ISA is defined as any user input seeking information that is entered on Apple's voice assistant, Siri; its on-device search, Spotlight; or Safari." The default placement is only required for Safari: "Between Siri, Spotlight, and Safari, Apple gets about 10 billion user queries per week. Roughly 80% of those queries are entered into Safari. . . . Across all Apple devices, 65% of searches are entered into Safari's default access point, which is the integrated search bar." Between default and non-default search access points, the vast majority of queries on Apple devices are run through Google. For example, "[o]nly 5.1% of all searches on iPhones are conducted on a GSE other than Google. . . . So, Google receives almost 95% of all general search queries on iPhones."

241. Moreover, "[q]ueries entered through the Safari default (both mobile and desktop) account for 28% of all queries in the United States."

242. Because the default placement on Safari contributes to such an outsized share of total Google queries, Google pays a significant (but not publicly disclosed) percentage of its ad revenue on Safari and Chrome (downloaded on Apple devices), including queries run through Safari's default bookmarks. Google values the Apple queries so much that it "pays revenue share on Chrome queries, notwithstanding the fact that Apple does not preload Chrome onto its devices." The total amount Google pays Apple is also higher than for its other contracts combined: "In 2022, Google's revenue share payments to Apple was an estimated $20 billion (worldwide queries). . . . This is nearly double the payment made in 2020, which was then equivalent to 17.5% of Apple's operating profit. . . . Google's 2022 payment under the ISA is more than all of its other revenue share payments combined and is approximately double that combined value."

243. When Google originally entered an ISA with Apple in 2002, it was merely a licensing agreement that "granted Apple the right to license Google Search, allowing its users to access the Google SERP directly from the 'search box' in Apple's web browser. . . . The contract was not exclusive as to either party: Apple could preload rival search engines, and Google could license its search product to other third parties."

244. But in 2005, Google approached Apple with "the idea of an exchange of revenue share for default exclusivity after it grew concerned that Yahoo might replace Google. . . . Apple did not ask for revenue share." The parties then amended the 2002 ISA to provide for Google to "pay Apple a one-time sum of $10 million, plus 50% of its annual advertising revenue. . . . As consideration, Apple agreed to preinstall Google as the default GSE on Safari, such that it would 'automatically be used for web search unless the user selects another search provider.'. . . The 2005 amendment was set to terminate after three years, with Apple retaining the right to unilaterally terminate the agreement any time during the last year."

245. When Apple launched the iPhone in 2007, Google and Apple "amended the ISA to include the Safari default placement on mobile devices and other platforms." In addition, there were "two notable amendments":

- "First, it required that 'Apple shall not pre-populate the search box with search terms that are not initiated by the end user,' but that 'queries utilizing auto complete features … shall be considered input by the End User.'" [Ellipsis in original].
- "Second, the 2007 amendment secured Google's default status in the Safari search bar not only on the iPhone but also on various other Apple products, including iPods and Safari for Windows. . . . The 2007 amendment also made clear that Google would not pay revenue share to Apple if it decided to create a homepage on Safari that included a search service other than Google. . . . This term apparently grew out of a worry that Apple install Yahoo as a default GSE on a Safari for Windows homepage. . . . Apple apparently never implemented such a homepage on any version of Safari, so Google remained the only default GSE on Apple devices."

246. In 2009, Apple sought more flexibility by no longer requiring Google to be set as the default search provider, proposing that it would receive 40% revenue share for non-default queries and 50% for default queries. But "Google rejected those terms in large part because Apple 'could decide to work with an alternate provider for the desktop/Safari search solution,' i.e., use Google as the default for some, but not all, locations or product lines/versions. . . . The agreement remained exclusive."

247. In 2012, Apple again sought to make Google default placement optional but "Google stood firm that '[i]f they wanted to receive revenue share,' Apple had to maintain Google as the exclusive Safari default. . . . The resulting amendment, entitled the 2014 Joint Cooperation Agreement, maintained Google as the exclusive default search engine." In 2014, the amended ISA "also provided for the creation of 'default bookmarks,' which required Apple to include a bookmark for Google Search 'prominently displayed on the Safari default bookmarks page' and obligated Google to pay revenue share 'for all traffic initiated via the Google search bookmark.'.

. . Apple, however, was not precluded from offering default bookmarks that linked to rival GSEs, and it reached agreements with Bing and Yahoo for bookmark placement."

248. The ISA is also designed to stymie Apple from developing and launching a competing GSE. "Google has long recognized that, if Apple were to develop and deploy its own search engine as the default GSE in Safari, it would come at great cost to Google. . . . For example, Google projected that without the ISA, it would lose around 65% of its revenue, even assuming that it could retain some users without the Safari default."

249. Indeed, "Apple has taken steps to grow its capacity in search. In 2018, it hired the former head of Google Search, John Giannandrea, as its Chief of Machine Learning and AI Strategy. . . . Under his leadership, Apple has made a significant commitment to developing certain foundational elements of a GSE, including crawling and indexing the web and creating a knowledge graph. . . . It also has integrated machine learning into its development efforts."

250. However, "Apple has decided not to enter general search at this time. . . . Apple would forego significant revenues under the ISA if it were to do so. . . . It would also have to undertake the risk of consumer backlash [if its product is "not better for users"], and forgo investment in other areas of product development[.]"

251. Google perceived some of Apple's search-related efforts, such as providing "Suggestions as a threat to its search volume. It believed that Apple's 'increasing use of their own variety of suggestions to the user [wa]s pushing the user away from completing the search on' Google. . . . This meant that Google could not earn advertising revenue on those queries, which could decrease its overall search revenue on Apple devices." [Alteration in original].

252. To meet this perceived threat, "Google negotiated a new term in the 2016 ISA, which required that Apple's implementation of the Safari default must 'remain substantially similar' to prior implementations." However, "[a]t present, Apple does not view the ISA as a limitation on its ability to respond to user queries on Suggestions or Siri."

253. Similarly, Apple has an intra-device search function called Spotlight, which "is not a GSE, but Spotlight offers links to websites as if entered directly on Safari." While the ISA

preserves Apple's "'ability to alter, modify and innovate in Spotlight,'" it "also requires that Apple's 'initial implementation of the Spotlight Services for Search Queries within Spotlight shall be generally equivalent to the current implementation of search within Spotlight,' though 'in future versions of Spotlight, Apple may offer better integrations of the Spotlight Services.'"

254. Furthermore, "Apple also does not 'preload any third-party application on [their] devices' and does not intend to do so under 'any scenario[.]'" While "Apple previously tried to preload third-party applications on desktop devices, and determined that 'it wasn't the best experience[.]'" [Alterations in original].

255. Further signs of how the ISA entrenched Google's monopoly were Microsoft's unsuccessful attempts to get Apple to dislodge Google for Bing.

256. In 2015, Microsoft first sought to have Apple replace Google with Bing as the default by arguing that "'increased competition between Microsoft and Google enabled by a search partnership . . . is in Apple's long-term economic interests[.]'" Microsoft "was 'willing to provide Apple with the majority of profits in a search partnership along with greater levels of flexibility and control over the product experience including user experience and branding,' with one example being improved private searching 'consistent with the broader Apple value proposition around respecting user privacy[.]'" As Microsoft CEO Satya Nadella testified, "Microsoft understood that it 'would have to pay and even subsidize the transfer' for the period of transition and was willing to do so for the long term. . . . Microsoft offered Apple a revenue share rate of 90%, or a little under $20 billion over five years." And when Microsoft's offer was rejected, "Microsoft proposed sharing 100% of its Bing revenue with Apple to secure the default or even selling Bing to Apple."

257. Apple, however, "disagreed" with Microsoft's assessment of Bing's search quality, and "was concerned that despite the high revenue share percentage, Bing would not be able to bring in sufficient revenues because it was 'horrible at monetizing advertising.'" Apple head of Services, Eddy Cue ("Cue"), testified, with respect to Bing, "[i]f you have an inferior search engine, customers wouldn't use it, and so, therefore, I don't know how you could monetize it well."

Furthermore, "Apple evaluated the potential financial impact of replacing Google with Bing. . . . The analysis assumed that Microsoft would initially pay Apple 100% of Bing's revenue share, while Google would continue paying Apple" its contractual "revenue share if retained as the default." The revenues from Google were more than twice what Microsoft could offer: "The analysis showed that if Apple extended the ISA, it would gain about $40 billion from Google in the next five years, and then $70 billion in the following five years. . . . This was double the $20 billion Microsoft offered Apple for the first five years."

258. In response to this analysis, Cue internally proposed terms that he rightly anticipated Microsoft would reject: "the only way Apple could make the switch was if Microsoft were to guarantee minimum annual revenues of $4 billion the first year and a stepped increases of $1 billion per year over the next four years, for a total of $30 billion in guarantees." This would still "produce revenues well short (by $10 billion) of Apple's expected earnings if it retained Google as the default." Moreover, "Cue concluded that a Microsoft-Apple deal would only make sense if Apple 'view[ed] Google as somebody [they] don't want to be in business with and therefore are willing to jeopardize revenue to get out. Otherwise it [was a] no brainer to stay with Google as it is as close to a sure thing as can be.'" [Alterations in original]. Cue testified that he thought Google was "a sure thing" because it has "the best search engine" and "kn[e]w how to advertise" and was "monetizing really well." Furthermore, Apple would have rejected the deal even if Microsoft had agreed to a guarantee: "According to Cue, there was 'no price that Microsoft could ever offer [Apple]' to make the switch, because of Bing's inferior quality and the associated business risk of making a change." Cue further emphasized at trial, "I don't believe there's a price in the world that Microsoft could offer us. They offered to give us Bing for free. They could give us the whole company."

259. Google also ran its own analysis, called "Alice in Wonderland," to figure out "what Microsoft would need to offer Apple in order to win the Safari default. . . . The analysis concluded that in order for Microsoft to match Google's financial contribution, it would have to pay Apple 122% of Bing's revenue share just to equal Google's then-33.75% revenue share. . . . Accordingly,

during ISA negotiations, Google understood that Bing was not a viable option, which minimized Apple's leverage."

260. DuckDuckGo also attempted to have Apple give it the default status for Safari's "private browsing mode," but "[u]pper-level Apple executives never genuinely considered" this option "in part because DDG operates as 'a veneer on top of other search engines,' as it syndicates its results from Bing" and "Apple's senior leadership also views DDG's search quality as inferior to Google's."

261. Google's second largest browser-based revenue sharing agreement, though much smaller than with Apple, is with Mozilla. Google pays an undisclosed revenue share percentage to Mozilla in exchange for being the default search placement on the Firefox browser. In 2021, Google paid Mozilla $400 million, which was 80% of Mozilla's operating budget: "Mozilla has repeatedly made clear that without these payments, it would not be able to function as it does today." The agreement can only be terminated by either party upon a breach.

262. From 2014 to 2017, Mozilla briefly switched from Google as the default Firefox search engine to Yahoo. Yahoo was required to pay Mozilla the higher of $375 million per year or 70% of revenue share. The switch in defaults measurably improved Yahoo's share of queries and worsened Google's. Google went from 80%-90% of Firefox queries to 60%-70%, while Yahoo's share increased from 10% to 30%. But to meet its payment guarantees, Yahoo increased the number of ads on its SERP, which worsened the user experience and led Mozilla to switch the default back to Google.

263. Furthermore, Mozilla periodically runs experiments where it would switch the default engine to one of Google's rivals, and each time it showed that an alternative browser would not be able to make up the same volume:

264. "In a 2016 experiment, Mozilla switched the default GSE on both new and existing users from Google to Bing. By the twelfth day, Bing had kept only 42% of the search volume. . . . After some additional time, those numbers dropped to 20-35%, depending on certain variables.

. . . Mozilla's takeaway was that switching the Firefox default to Bing would result in missing revenue targets."

265. "The same year, Mozilla conducted an experiment switching the default GSE to Yahoo. . . . Yahoo only retained 16.5% of the total search volume."

266. "From 2021 to 2022, Mozilla once again switched the default GSE to Bing for 0.5% of desktop Firefox users. . . . As a result, search volume decreased by 7% and ad clicks went down 13%."

267. "There is no evidence in the record of Mozilla running any experiments where it switched the default from Google to a non-GSE."

268. Google also "has comparable agreements with smaller browsers, like Samsung's S Browser, which have been renewed through amendments." While DuckDuckGo has sought to become the private browsing mode default for Samsung, Mozilla, and Opera, none moved forward because, DuckDuckGo CEO Gabriel Weinberg thought, it was out of a concern that this would impact their contracts with Google.

269. Google also had agreements with carriers and Android OEMs that the Court held as a matter of market reality were exclusive. These agreements consisted primarily of Mobile Application Distribution Agreements (MADAs) with OEMs and RSAs with carriers and OEMs.

270. Google required OEMs to sign MADAs if they wanted to license Google's proprietary applications developed for Android devices, which include the Google Search Widget, Chrome, YouTube, Gmail, Google Maps, Google Drive, Google Play Store, and others. As a condition for obtaining this license, the OEM must agree to preload certain applications in certain pivotal locations. MADAs may be terminated only by a breach by either party.

271. Though Google does not formally require any OEM to sign a MADA, as a practical matter, every Android OEM does, because Google Play Store, in particular, is essential to the customer experience. Google Play Store houses the most apps. Plus, the Google Play Store contains a set of APIs that "support the functionality of all Android applications—both those developed by Google and by third parties. . . . A user cannot effectively utilize GMS applications

without having the Google Play Store installed, because the GMS apps' APIs rely on the Play Store infrastructure." Thus, "[t]he Play Store is not just technically required, but it also contributes significantly to the user experience." Indeed, "[c]arriers view the Play Store as essential." Even "Samsung, which preloads its own proprietary app store onto its devices, does not see its 'Galaxy Store' as replacing the Play Store." Satya Nadella, Microsoft's CEO, states that "without Google Play, an Android phone is a brick." Thus, "[a]s of 2019, about 2.3 billion Android devices were subject to the MADA. . . . Google employees were not aware of any non-MADA Android device sold in the United States. . . . Moreover, there are no Android OEMs that have revenue share agreements but are *not* MADA signatories." [Emphasis in original]. "Even Microsoft signed a MADA (thereby preloading the rival Google Search Widget and Chrome) for its Duo mobile devices because it 'needed the license from Google[.]'"

272. The MADA helps entrench Google's monopoly by requiring the preinstallation of 11 GMS apps – including Google Search Widget, Chrome, YouTube, Gmail, Google Maps, Google Drive, and others. "Six of these applications, including the Google Search application and Chrome (which both default to Google), cannot be deleted by the user." Furthermore, these applications are bundled and tied with one another: "Without a MADA, an OEM cannot distribute any one of these GMS applications."

273. The MADA helps ensure another default access point for Google Search: "Part of the GMS suite of applications is the Google Search Widget (or Quick Search Box). Signatories of the MADA agree to preload and place the Widget on the default home screen of the device. . . . Signatories also receive Chrome, and generally speaking, they agree to place Chrome in the Google applications folder, which appears on the default home screen. . . . The MADA requires the Google applications folder to be on the default home screen, but it does not require its placement on the dock, sometimes known as the 'hotseat[.]'" The Google Search Widget can be deleted by users, but it is done at a relatively small rate: as of 2016, out of approximately 2.5 million daily Android activations, there were 200,000 widget deletions logged daily.

274. Although the MADA does not prohibit an OEM from preloading non-GMS applications in addition to the required 11 Google applications, as a practical matter, "OEMs recognize that preloading more than one of the same search access points, especially in similar prominent positions, is a suboptimal design that would degrade the user experience. This overloading of apps is known as 'bloatware.' . . . Even Microsoft avoided adding a Bing search widget on its Duo devices to avoid degrading the user experience." Similarly, because Samsung preloads its own browser on all Samsung devices, it is extremely unlikely to add a third browser, Microsoft Edge, when it already has Chrome and its own.

275. Google understands that preventing bloatware works to its advantage to have its apps be placed prominently. A document used at trial noted how a "device configuration with two preinstalled browsers and two default widgets [i]s '[a]llowed but not likely.'" Another witness testified for Google, "'from the angle of like a user experience for these devices, what we understood and what we were trying to convey here was that OEMs want to sell devices, they want to be competitive. And we thought that having two widgets was a little too much, so that OEMs are not likely to put two widgets on a device.'" Furthermore, "Google employees were unable to identify any Android device that is preloaded with two search widgets."

276. OEMs that enter a MADA can also enter a separate revenue share agreement, or RSA. "Each RSA generally follows a tiered structure, in which a carrier's or OEM's payment is tied to the degree of device exclusivity. The RSAs are device-by-device, meaning that partners can opt into different tiers based on the device model sold. The RSAs do not prohibit the preinstallation of social networks like Facebook and Instagram."

277. The Court found, "[a]lthough no OEM or carrier is required to enter into an RSA, all do so. It would be irrational for a profit-maximizing firm to sign a MADA but then forego at least some revenue share under the RSA."

278. Verizon, AT&T, and T-Mobile, the three major wireless carriers in the United States, all have signed RSAs with Google. The Court found: "Google has long viewed RSAs with carriers as essential to securing query traffic on Android devices to the exclusion of rivals. In fact,

Google viewed exclusivity on Android devices as 'very strategic to Google.'. . . In a 2011 email, Google executive Chris Barton wrote about then-existing exclusive distribution deals with T-Mobile, Verizon, and Sprint, 'I think this approach is really important otherwise Bing or Yahoo can come and steal away our Android search distribution at any time, thus removing the value of entering into contracts with them. Our philosophy is that we are paying revenue share *in return for* exclusivity.'" Another Google employee wrote as part of the same conversation, "'[t]he exclusive across all the [A]ndroid search entry points is very strategic to mobile search. [T]he nightmare scenario is for [Microsoft] (or others) to come and scoop us by simply paying more. [W]e know they have shown an appetite to do this in the past and will likely do so again to gain traction.' Barton finally added, '[w]e need to incentive carriers to ship Google using the same approach we at Google have used for many years: "We will pay for revenue share in return for exclusive default placement." This contract is an exchange…. Without the exclusivity we are not "getting" anything. Without an exclusive search deal, a large carrier can and will ship alternatives to Google[.]… Android is by far the greatest opportunity for Search monetization in mobile over the next years and is very strategic to Google. You can bet that Microsoft and Yahoo will enter into contracts for search on Android through carrier deals if we do not.'" [Ellipses in original]. And Pichai testified at trial, "If [Google is] currently doing a revenue share agreement, yes, we pay for setting Google on a device-by-device basis as the exclusive pre-loaded search provider, yes."

279. For each RSA with a carrier, Google incentivizes placement of Google as the default search engine.

280. Google has entered a three-tier RSA with Verizon: Core, Qualifying, and Preferred; where "Google pays Verizon [Redacted]% revenue share on devices where the 'core' search access points have been preinstalled and defaulted to Google. . . . Those include Chrome, the Samsung Browser (on Samsung devices only), and the Google Assistant application. . . . Verizon also receives [Redacted]% revenue share for old devices that comply with the prior RSA terms. . . . In exchange for more placements, Google pays more revenue share. The RSA requires Google to

pay Verizon [Redacted]% revenue share on Preferred Tier devices (a three-fold increase from Verizon's Core Tier), provided that those devices have several other default Google placements. . . . Those include, but are not limited to, the Google Search Widget, Chrome, and the default homepage on the browser." Google pays a higher revenue share for a higher level of exclusivity.

281. In 2018, Verizon sought a lower level of exclusivity with respect to the Google default because it wanted to promote its recently acquired Yahoo. But "Google insisted on the tiered revenue share system in effect at the time. . . . Google was insistent that Verizon could not preload any other GSE, such as Yahoo Search, and still receive the then-20% revenue share." Verizon would need to drop to a lower "Core" tier that does not require exclusivity, but Verizon viewed that lower revenue share percentage as "punitive." In an internal study, Verizon found that if it dropped to the lower RSA tier, it would lose $1.4 billion in revenue, which was "both due to the decreased revenue share from Google, as well as Yahoo's revenue projections," which would have been lower than the revenue Google would have generated. As a result, Verizon determined that it was "not worth it" to preload Yahoo general search. Ultimately, the Yahoo-related negotiations were moot because Verizon sold Yahoo before the 2021 RSA was executed.

282. Google has a simpler RSA with AT&T with one tier: it can enroll devices in the Preferred Tier, with the same conditions as Verizon, or not enter an RSA and forego any revenue share. The RSA provides that AT&T will have "all search access points default to Google and those devices preload the Google Search Widget on the default home screen."

283. Google has a different RSA with T-Mobile: "T-Mobile is compensated for the default placements on Qualifying Devices and Preferred Devices through a $[Redacted] bounty per device. . . . If T-Mobile does not configure a device on an exclusive basis, it is entitled to no bounty at all." Although T-Mobile had wanted two tiers (one that requires exclusivity and one that did not), Google did not.

284. Regarding all the carriers, the Court found: "It is not economically rational for any profit-maximizing carrier to opt for the lower-revenue share option. Consequently, all three major

carriers under their current RSAs have enrolled all Android devices sold at the highest revenue tier."

285. Google has also entered "RSAs with the two primary Android OEMs, Samsung and Motorola. These RSAs cover the relatively small number of Android devices sold directly by OEMs."

286. Samsung receives a percentage-based revenue share for devices that comply with a prior RSA. It then receives more revenue share for devices that "configure certain search access points to Google. 'Core Devices' per the Samsung RSA must have Google set as the default GSE on the S Browser and must not allow users to challenge the S Browser default from the browser search bar itself (as opposed to the device settings)." Samsung earns revenue share for "'Enhanced Devices,' which requires additional placements beyond the MADA, such as placing Chrome as the default browser (over S Browser) in the hotseat, or dock." While the revenue share percentage for "Core" and "Enhanced" Devices is the same, "that percentage applies to a broader set of search access points" for Enhanced Devices. Thus, "[n]early all Samsung devices sold in the United States are Enhanced Devices."

287. Motorola's RSA has Google pay a set amount (as opposed to percentage) of revenue share monthly by "meet[ing] the minimum requirements of the Foundation Tier (preinstallation of Chrome with Google as the default GSE in the device's dock or hotseat)." And a "Premier Tier requires exclusive preinstallation of Google as the default on all search access points on the device, in return for additional monthly payments. . . . Google estimates that the number of Motorola devices sold by the OEM that are subject to this RSA 'is north of 95 percent.'"

288. The Android carrier and OEM "RSAs contain a definition of 'alternative search services' that limits the partner's ability to preinstall or promote a different GSE."

289. "The 2021 Google-T-Mobile and 2020 Google-Motorola RSAs define 'Alternative Search Service' as 'any search service that is substantially similar to Google Search (as determined by Google in its reasonable discretion).'" Moreover, "[t]he 2021 Google-T-Mobile agreement prohibits T-Mobile, on Preferred Devices, from installing any Alternative Search Service or means

of navigating to one; marketing any other Alternative Search Service; suggesting an Alternative Search Service to end users; or adjusting settings that would interfere with Google's default search position. . . . The 2020 Google-Motorola RSA contains similar restrictions."

290. "The 2021 Google-Verizon RSA defines 'Alternative Search Service' as '(a) any web or (b) any on-device search service that in response to queries incorporates multiple vertical search functionalities, and that, in each case of (a) and (b), offers functionality that is substantially similar to Google Search (as determined by Google in its reasonable discretion).'. . . This definition expressly carves out 'search within a single mobile application that is limited to content within a particular, single or multiple vertical … that provides search results that [are] not substantially similar to Google Search (in its reasonable discretion)[.]' The 2021 Google-Verizon RSA restricts the installation of promotion of Alternative Search Services, with a limited carve-out for Yahoo verticals, which was never implemented." [Second ellipsis and all alterations in original].

291. "The 2021 Google-AT&T RSA defines 'Alternative Search Service' as 'any application, product, or service, other than Google Search, which, in response to queries, delivers search results consisting of (a) internet content or (b) content from multiple applications on a Device that [is] owned by entities that are not Affiliates of one another, in each case of (a) and (b), in a manner that is substantially similar to Google Search (as determined by mutual agreement of the Parties in accordance with section 7.2).'. . . The AT&T agreement carves out similar functionality to the Verizon agreement, including any vertical content 'that provides search results without searching the internet, other mobile applications, or web pages,' providing Spotify and Waze as examples. The AT&T agreement prohibits AT&T from preloading or otherwise promoting on Preferred Devices any Alternative Search Services, with limited exceptions." [Alteration in original].

292. "The 2017 Google-Samsung RSA used to define 'Alternative Search Service' as 'any web search service that is substantially similar to Google Search.'. . . That definition was changed in 2020, however, to include 'any web or on-device search service (including on-device

search that incorporates multiple vertical search functionalities) that offers functionality that is similar to Google Search.'. . . This change resulted from Samsung's preinstallation of an on-device search technology from Branch[.] . . . The 2020 Google-Samsung RSA limits Samsung's ability to install or promote Alternative Search Services on Enhanced Qualified Devices, with limited exceptions."

293. These definitions for "Alternative Search Service" factored into Samsung's and AT&T's decisions concerning whether to use Branch, a platform that deploys "deep-linking technology" that "primarily enables on-device search of mobile applications, but it also has the capacity to serve limited web search results if a user does not have a relevant mobile application on their device. This web search functionality was known as 'Discovery.'. . . Branch also developed a 'Deepview' functionality where, based on partnerships with SVPs, it would allow users who did not have a particular app downloaded to access the SVP's website information directly from the Discovery interface, without reverting to the web."

294. "Branch understood the Google-Samsung RSA to be a roadblock to its distribution, as linking to websites could conflict with the agreement. . . . Although Samsung eventually did preinstall Discovery on certain devices, its functionality was diminished. . . . Branch was limited to a predetermined list of applications so that Samsung could ensure those applications did not link to the web. . . . These restrictions affected Branch's ability to monetize Discovery because monetization was driven by user access." Afterwards, "the newly negotiated 2020 Google-Samsung RSA included an amended definition of 'Alternative Search Service' as 'any web or on-device search service (including on-device search that incorporates multiple vertical search functionalities) that offers functionality that is similar to Google Search.'"

295. "AT&T also considered installing Branch's technology. Ultimately, it decided not to partner with Branch after Google refused to clarify whether such a partnership would run afoul of the RSA. After initially meeting with Branch, AT&T was interested in distributing it, but sought reassurance from Google that if it did so, it would not violate the RSA. . . . AT&T felt that it was not 'black and white or cut and dry,' and that 'there might be some risks associated with' partnering

with Branch, because it could be 'considered a competing or alternative search,' which would require AT&T to 'forego[] the Internet search revenue from Google and instead just earn[] this on-device search revenue from Branch.'" [Alterations in original]. Similar to Samsung's experience, "AT&T was unable to get a clear response from Google, . . . and thus AT&T declined to preload Branch because it was not worth the risk[.]"

296. The Court held that the various default contracts constituted anticompetitive exclusive dealing that affected anticompetitive maintenance of Google's monopolies in the general search and search text ads markets in violation of Section 2 of the Sherman Act.

297. As a threshold matter, the Court first rebutted Google's contention that the contracts are merely a matter of fair competition. The Court held: "There is no genuine 'competition for the contract.' Google has no true competitor. Consider that Google's monopoly in general search has been remarkably durable. Its market share in 2009 was nearly 80%, and it has *increased* since then to nearly 90% by 2020. Bing, during that same period, has never held a market share above 11%, and today it stands at less than 6%—meaning that meaning that Google's biggest rival trails in market share by a whopping 84%. . . . Yahoo, long ago considered Google's closest competitor, today holds less than 2.5% of the market. . . . Thus, over the last decade, Google's grip on the market has only grown *stronger*." [Emphasis in original].

298. The Court also held that Google's dominant market share "is not the only evidence of market statis. Only once in the last 22 years has a rival dislodged Google as the default GSE, and in that case, Mozilla switched back from Yahoo to Google three years later. . . . Moreover, there have been only two new market entrants of note in the last 15 years – DDG and Neeva. One of them is no longer in business (Neeva), and the other has achieved a market share of 2.1% (as of 2020) after more than a decade in business. If there is genuine competition in the market for general search, it has not manifested in familiar ways, such as fluid market shares, lost business, or new entrants."

299. Thus, the Court concluded: "The market reality is that Google is the only real choice as the default GSE. Apple's Senior Vice President of Services, Eddy Cue, put it succinctly when,

in a moment of (perhaps inadvertent) candor, he said: '[T]here's *no price* that Microsoft could ever offer [Apple] to' preload Bing. . . . 'No price.' Mozilla stated something similar in a letter to the Department of Justice prior to the filing of this lawsuit. It wrote that switching the Firefox default to a rival search engine 'would be a losing proposition' because no competitor could monetize search as effectively as Google. . . . A 'losing proposition.' If 'no price' could entice a partner to switch, or if doing so is viewed as a 'losing proposition,' Google does not face true market competition in search." [Emphasis and alterations in original].

300. Moreover, the Court found, "Google understands there is no genuine competition for the defaults because it knows that its partners cannot afford to go elsewhere. Time and again, Google's partners have concluded that it is financially infeasible to switch default GSEs or seek greater flexibility in search offerings because it would mean sacrificing hundreds of millions, if not billions, of dollars that Google pays them as revenue share. . . . These are Fortune 500 companies, and they have nowhere else to turn other than Google." The Court further found, "That was the key takeaway from the testimony of Neeva's founder and former Google Senior Vice President of Ads and Commerce, Dr. Ramaswamy. The court found him to be a particularly compelling witness. He put it best. When the court asked why Google pays billions in revenue share when it already has the best search engine, he answered that the payments 'provide an incredibly strong incentive for the ecosystem to not do anything'; they 'effectively make the ecosystem exceptionally resist[ant] to change'; and their 'net effect . . . [is to] basically freeze the ecosystem in place[.]'" [Alterations in original]. The Court emphasized, "No one would ever describe a competitive marketplace in those terms. When the distribution agreements have created an ecosystem that has a 'strong incentive' to do 'nothing,' is 'resist[ant] to change, and is 'basically [frozen] in place,' there is no genuine 'competition for the contract' in search. It is illusory." [Alterations in original].

301. Furthermore, the Court noted that the case was not about whether Google fairly gained its initial monopoly but whether it unfairly and anticompetitively maintained it. On that ground, the Court found that "Google has succeeded in" unfairly maintaining a monopoly because

it "has thwarted true competition by foreclosing its rivals from the most effective channels of search distribution. . . . The result is that consumer use of rival GSEs has been kept below the critical levels necessary to pose a threat to Google's monopoly. . . . The exclusive distribution agreements thus have significantly contributed to Google's ability to maintain its highly durable monopoly." Furthermore, while Google may also have engaged in the same conduct before it achieved dominance, "[i]t is Google's status as a monopolist that makes its distribution contracts exclusionary, even if the same conduct did not have that effect when Google first began employing it."

302. The Court next concluded that the challenged agreements were indeed exclusive, a prerequisite to finding an exclusive dealing claim, noting that the agreements are exclusive "in practice" even if formally they did not always require exclusivity.

303. The Court held that Google's RSAs with Apple, Mozilla, and other browsers "are exclusive insofar as they establish Google as the out-of-the-box default search engine." These, in turn, gave Google an enormous number of queries:

304. "The Apple ISA requires that Google be preloaded as the exclusive default search engine on all Safari search access points[.] . . . The resulting query volume is substantial. About 65% of queries on all Apple devices (mobile and desktop), and 61.8% on iOS devices (mobile), flow through the Safari default, demonstrating that default placement is a 'primary channel[] for distribution of' search. . . . [Q]ueries entered on Safari (both mobile and desktop) account for 28% of all queries in the United States[.]" [Second alteration in original].

305. "The Mozilla RSA has a similar effect. Google is the default GSE on all Firefox search access points, including the navigation bar and the homepage, among others. . . . Google's default placements on Firefox generate 80% of Mozilla's overall operating revenue, demonstrating that the vast majority of query volume on Firefox goes through defaults."

306. The Court found Google's countervailing arguments to be lacking. Regarding how the agreements allow the browsers to list or promote other search engines, "[t]he fact that Google's

browser partners can contract with its rivals for distribution through less efficient channels does not, however, immunize the challenged agreements form being deemed exclusive."

307. The Court also found that "Google's additional counterargument that the ISA is not exclusive because Apple may not want more flexibility under the ISA is without merit. . . . A firm that agrees to distribute only the monopolist's product may itself benefit from such an agreement, but that does not render it non-exclusive. . . . Google also overlooks that Apple has previously tried to negotiate around exclusivity in the ISA to no avail." Rather, "The question of exclusivity turns on 'the opportunities for other traders to enter into or remain in [the] market.' . . . So, even if Apple does not want more flexibility, that is a market reality that heightens the anticompetitive effects of the ISA for 'other traders' who might seek to enter the market." [Alteration in original].

308. The Court also discounted how "the ISA does not prevent Apple from preloading a third-party's search application or a third-party browser on its browsers." The Court concluded: "[M]arket realities matter more than what is theoretically possible. . . . Apple has made clear it will not design its products to include third-party applications." Furthermore, the Court summarizes Defendant Pichai's testimony "that it is common knowledge in the industry that Apple does not preload third-party applications onto its devices." Thus, "even though the ISA contains no express exclusivity provision, its terms in combination with Apple's established business practices means that Google will be the only GSE preloaded on an Apple device. That makes it exclusive." The Court similarly discounted "Google's contention that the ISA permits Apple to preload its own search widget on mobile devices" because "[t]here is no record evidence that Apple has developed such a product or intends to do so."

309. The Court also discounted Google's argument that in fact the ISA was not exclusive because of the large percentage of inquiries that still flow through non-default entry points, instead concluding: "the fact that some consumers access search on non-default access points is not dispositive on exclusivity. On Apple devices, 65% of queries still go through the default. . . . That is a 'substantial amount of distribution[.]'. . . To be deemed exclusive, a contract need not foreclose all other avenues of distribution to which consumers might have access. It is enough

that the contract 'clos[es] to rivals a substantial percentage of the available opportunities for [] distribution.'" [Alterations in original].

310. The Court also did not credit Google's argument "that the ISA does not operate to prohibit *users* from accessing rival GSEs" [emphasis in original] and concluded: "But mere user access to these less efficient channels of distribution does not render the browser agreements non-exclusive." Furthermore, the Court found: "Users are free to navigate to Google's rivals through non-default search access points, but they rarely do. In 2020 only 5.1% of all search queries on iOS devices went to a rival GSE through a non-default access point. . . . That figure aggregates queries run through *all* non-default search access points, including organic searches, bookmarks, and downloaded search applications. Most non-default queries still go through Google. 'The mere existence of other avenues of distribution is insufficient without an assessment of their overall significance to the market.'. . . Thus, the fact that a small fraction of Apple and Firefox users search on non-default access points with a rival GSE does not render the browser agreements non-exclusive." [Emphasis in original].

311. The Court also concluded, "With the benefit of a full trial, the court can now conclude that the MADA [with Android OEMs and carriers] is exclusive in practice." The Court found that the MADAs' "exclusivity arises from two contractual requirements and two market realities. The two contractual requirements are that all MADA signatories must: (1) feature the Google Search Widget in the center of the home screen and (2) place Chrome on the home screen with Google as the default GSE. . . . The two market realities are that: (1) the Google Play Store is a must-have on all Android devices, . . . and (2) the industry-wide practice is to avoid excessive preloading of applications, or 'bloatware[.]'. . . This combination of factors has resulted in all Android OEMs and carriers entering into MADAs, with all Android devices featuring the Google Search Widget and Chrome on the home screen to the exclusion of rivals as a practical matter. No Android device carries a second search widget and, other than Samsung, no device comes with a second preinstalled browser (and even the S Browser defaults to Google because of the RSA). . . . These prized placements are extremely effective at driving searches to Google. To illustrate,

Samsung, the largest Android OEM, derives 80% of its on-device search revenue through searches performed via the Google Search Widget and Chrome default."

312. The Court discounted Google's argument that "the MADA's device-by-device optionality allows an OEM to choose either to preload Google's products on some or all of their devices." The Court instead found that "the argument overlooks the market reality that the Google Play Store is viewed by OEMs as essential to the Android customer experience. . . . As Microsoft CEO Satya Nadella put it, without the Play Store, the 'phone is a brick.'. . . Even Samsung, which has developed and preloads the Galaxy Store, deems the Play Store essential. . . . Not surprisingly then, every Android device sold in the United States is subject to the MADA. . . . That rival app stores might be developed in the future . . . is not relevant to the court's assessment of the market realities today. The MADA secures for Google the two most effective search access points—the search widget and the Chrome browser—on all Android devices, device-by-device optionality notwithstanding."

313. The Court also discounted Google's argument "that the MADA does not expressly prohibit OEMs from preloading other search access points on the home screen, like a second search widget or a different browser that defaults to a rival GSE." The Court found: "But market realities make such configurations unrealistic. The industry is concerned with app 'bloat,' that is, excessive preinstallation of out-of-the-box applications. Too many preloaded apps degrade the user experience. . . . So, while the MADA formally allows preloading of rivals' widgets or browsers, the industry practice of avoiding app 'bloat' means that Android devices rarely come preloaded with non-Google applications." Furthermore, the Court found: "Google recognizes this. It understands that OEMs are unlikely to place two search widgets on a device because to do so would create a negative customer experience. . . . Even Microsoft did not add a second Bing search widget to its mobile devices due to concerns over poor user experience."

314. The Court further held that Google's arguments about flexibility in the browser agreements rendering them nonexclusive were unavailing. While consumers can use non-default

GSEs, they rarely do. This is the reason why Google is willing to pay tens of billions of dollars to Apple annually for "traffic acquisition costs."

315. The Court concluded further: "The RSAs between Google and Android device distributors formalize the practical exclusivity of the MADAs. This has been their purpose from the outset." For the wireless carriers, Google admitted that exclusivity was its goal from the start. The Court cited a 2011 Google email about revenue sharing which stated: "Our philosophy is that we are paying revenue share *in return for* exclusivity," and "we are not 'getting' anything" without exclusivity. It is also a market reality that wireless carriers would opt in to revenue sharing. "No rational market actor would sell a MADA-compliant device without ensuring that it earned search revenue through the RSA."

316. The Court also found it not dispositive in Google's favor that "no distributor . . . is *required* to enter into an RSA with Google." [Emphasis in original]. But "[t]his optionality does not make the RSAs any less exclusive. . . . While financial incentives to deal exclusively may not thwart competition in the short-term, '[s]uch a scheme is problematic [] when the defendant is a dominant firm in a position to force manufacturers to make an all-or-nothing choice." [Alterations in original]. The Court held: "That is effectively how the RSAs operate. No rational market actor would sell a MADA-compliant device without ensuring that it earned search revenue through the RSA. . . . The forgone revenue is simply too great. For instance, Verizon considered switching away from the Google default but would have had to risk a $1.4 billion loss to do so. . . . The decision to stick with Google was the only rational choice. . . . Not surprisingly then, Google has identified no Android device presently sold in the United States that is subject to a MADA but not an RSA." Moreover, the fact that RSAs allow for a party to "earn *some* revenue share on a non-exclusive deal" [emphasis in original] is a "distinction [that] is not dispositive." This is because "the 'practical effect' of the tiered system is to induce carriers to select the highest-value tier. And that is precisely how the market has played out. Nearly all RSA-covered devices are presently enrolled at the highest-revenue tier, thus locking in Google as the only preloaded GSE." The Court concluded: "The RSAs therefore are properly treated as exclusive agreements."

317. The exclusive agreements helped increase Google's scale, and the scale initially was also what made the exclusive agreements attractive. The Court held that the exclusive agreements caused anticompetitive harm in the General Search Services market. The Court elaborated: "The key question then is this: Do Google's exclusive distribution contracts reasonably appear capable of significantly contributing to maintaining Google's monopoly power in the general search services market? The answer is 'yes.' Google's distribution agreements are exclusionary contracts that violate Section 2 [of the Sherman Act] because they ensure that half of all GSE users in the United States will receive Google as the preloaded default on all Apple and Android devices, as well as cause additional anticompetitive harm. The agreements 'clearly have a significant effect in preserving [Google's] monopoly.'" [Second alteration in original]. The Court further explained: "The agreements have three primary anticompetitive effects: (1) market foreclosure, (2) preventing rivals from achieving scale, and (3) diminishing the incentives of rivals to invest and innovate in general search."

318. The Court first sets the standard: "An exclusive agreement violates the Sherman Act only when its 'probable effect is to "foreclose competition in a substantial share of the line of commerce affected."' 'The share of the market foreclosed is important because, for the contract to have an adverse effect upon competition, "the opportunities for other traders to enter into or remain in that market must be significantly limited."' 'Substantial foreclosure allows the dominant firm to prevent potential rivals from ever reaching "the critical level necessary" to pose a real threat to the defendants' business.' Plaintiffs thus must 'prove the degree of foreclosure' in the relevant markets because of the exclusive deals."

319. The Court found: "U.S. Plaintiffs' expert, Dr. [Michael] Whinston found that 50% of all queries in the United States are run through the default search access points covered by the challenged distribution agreements." This figure includes "28% through the ISA, 19.4% through the MADAs and RSAs, and the remaining 2.3% through third-party browser agreements" but "does not include the 20% of all queries in the United States that flow through Google on user-downloaded Chrome."

320. "To be considered anticompetitive, the market foreclosure must be 'significant.'" The Court analyzed several qualitative factors and concluded that "[e]ach favors a finding of significant market foreclosure in this case."

321. The Court found that the duration of contracts tended to show that they caused significant foreclosure. "[T]he challenged contracts vary in term, but all are above the one year that courts have presumed reasonable under related antitrust provisions." The ISA, which "consists of a base five-year term with extension options for an additional five years[,]" has a "duration [that] amplifies the significance of the ISA's market foreclosure." While "[t]he Mozilla RSA and the Android agreements are shorter, varying in terms of either two or three years, with opportunities for renewal[,]" they nevertheless are "durations, depending on the circumstances, [that] can raise antitrust concerns." The Court found: "In this case, the Android agreements do raise such concerns because they foreclose 19.4% of the market and . . . they are not easily terminable. . . . As for the Mozilla RSA, although it forecloses a far smaller percentage of the search market, its effect is amplified by the significant foreclosure of larger channels." Furthermore, "[t]he absence of meaningful rebidding further aggravates the foreclosure effects. . . . Google's partners track rival GSEs' quality and occasionally have engaged with them . . . but the record reflects no meaningful competitive rebidding of the agreements. The more common story is Google's partners renewing the agreements without genuine consideration of an alternative."

322. The Court also found that "Google's partners cannot easily exit the agreements. Neither Apple nor Mozilla have a unilateral right to terminate without cause . . . and the RSAs and MADAs can be terminated only upon breach. . . . There is an added disincentive with the MADA, where termination would result in loss of the GMS license, including the essential Play Store. . . . The lack of flexibility for partners to exit the distribution agreements reinforces their foreclosure effect."

323. Furthermore, the Court found that "there are significant barriers to entry to the market for general search services. This means that new entrants are unlikely to emerge to meaningfully reduce the share of the market foreclosed by the distribution agreements."

324. Moreover, "There is no evidence on this record that consumers are apt to comparison shop among GSEs, likely in part due to the friction associated with switching the default or accessing a different search access point."

325. Considering all the above, the Court concluded: "These factors all demonstrate that Google's distribution agreements foreclose a substantial portion of the general search services market and impair rivals' opportunities to compete. This is not a market where 'a competitor can simply wait for contracts to expire or make alluring offers to initiate termination.'"

326. The Court also found: "Google's exclusive agreements have a second important anticompetitive effect: They deny rivals access to user queries, or scale, needed to effectively compete."

327. The Court found: "Scale is the essential raw material for building, improving, and sustaining a GSE." But "[f]or more than a decade, the challenged distribution agreements have given Google access to scale that its rivals cannot match."

328. This access to scale has been as beneficial to Google as the lack of scale has been harmful to other GSEs: "Google has used that scale to improve its search product and ad monetization. . . . Meanwhile, without access to scale, other GSEs have remained at a persistent competitive disadvantage, and new entrants cannot hope to achieve a scale that would allow them to compete with Google."

329. Google's access to scale leads to a virtuous cycle for Google and its rivals lack of access to scale leads to a vicious cycle for them: "Naturally then, GSE distributors prefer Google because of its search quality and because it would be economically irrational to sacrifice the high revenue share. They thus routinely renew the distribution deals with their exclusive terms. In this feedback loop, the revenue share payments 'effectively make the ecosystem exceptionally resistan[t] to change' and 'basically freeze the ecosystem in place[.]'" The Court quotes Satya

Nadella, Microsoft's CEO, to show how this is a vicious cycle for other GSEs: "'[T]his vicious cycle that [Microsoft is] trapped in can [] become even more vicious because the defaults get reinforced.'" [Alterations in original]. The Court concludes: "That is the antithesis of a competitive market."

330. The Court did not credit Google's attempt to downplay the importance of defaults. The Court found: "Numbers help explain the power of the search default settings. Half of all GSE queries in the United States are initiated through the default search access points covered by the distribution agreements. . . . An additional 20% of all searches nationwide are derived from user-downloaded Chrome, a market reality that compounds the effect of the default search agreements. . . . That means only 30% of all GSE queries in the United States come through a search access point that is not preloaded with Google. Additionally, default placements drive significant traffic to Google. Over 65% of searches on all Apple devices go through the Safari default. . . . On Android, 80% of all queries flow through a search access point that defaults to Google."

331. The Court also concluded that this traffic driving "makes the defaults extremely valuable. In 2021, Google spent $26.3 billion in traffic acquisition costs—the revenue share paid to its partners—which is four times more than the company's other search-related costs combined, including research and development. . . . The true value of the defaults is undoubtedly far greater." And the Court found: "Google, of course, recognizes that losing defaults would dramatically impact its bottom line. For instance, Google has projected that losing the Safari default would result in a significant drop in queries and billions of dollars in lost revenues. . . . The same would occur if Google were to lose the Android defaults. Over 50% of all search revenue on Android devices flows through the Google Search Widget alone. . . . [T]he Widget and Chrome make up 80% of search revenue on Samsung devices[.]" "The defaults are more than just 'incremental promotion.'. . . They supply Google with unequalled query volume that is effectively unavailable to rivals."

332. The Court did not credit Google's claim that users can easily switch between search engines. Rather, the Court found that "the combination of user habit, Google's brand, and choice

friction creates a powerful default effect that drives most consumers to use the default search access points occupied by Google." Moreover, "Google's discounting of the default also cannot be squared with Bing's success on the Edge browser on Windows desktops, where Bing is the default GSE. Of the users that remain on Edge, 80% of their searches are conducted using Bing. . . . That added search volume has allowed Microsoft to improve its search quality on desktop devices, to the extent that it is now nearly on par with Google." Furthermore, "Google's position on defaults is at odds with many internal records that recognize, from a behavioral standpoint, the power of the default. . . . It also is contrary to Google's well-documented early recognition of defaults as critical to driving query volume."

333. The Court then further explained how Google's scale "advantage impacts competition[,]" which "turns on the relationship between scale and a GSE's quality."

334. The Court found: "The sheer magnitude of Google's query volume, or scale, compared to rivals is startling: Users enter nine times more queries on Google than on all rivals combined. On mobile devices, that multiplier balloons to 19 times. NavBoost, one of Google's core ranking models, runs on 13 months of Google click-and-query data. . . . That is the equivalent if over 17.5 *years* of Bing data. . . . This wealth of data gives Google greater insight into search behavior in part because it simply sees more queries than other GSEs." [Emphasis in original]. For example, "98.4% of unique phrases [are] seen only by Google, 1% by Bing[, and] 99.8% of tail queries on Google [are] not seen at all by Bing."

335. The Court elaborated: "Armed with its scale advantage, Google continues to use that data to improve search quality. Google deploys user data to, among other things, crawl additional websites, expand the index, re-rank the SERP, and improve the 'freshness' of results (i.e., bring them up to date). . . . Click-and-query data also is used to build and train models that algorithmically improve results' relevance and ranking, as well as to run large-format experiments to develop new features." Furthermore, "[s]cale also improves search ads monetization. This is intuitive: Understanding which advertisements users click on (or scroll past) enables Google to evaluate ad quality and serve more relevant ads in the future. . . . The more precisely targeted an

ad, the greater likelihood that it will be clicked, which translates into higher revenues that Google uses to make larger revenue share payments."

336. The Court concluded: "The market for GSEs is thus characterized by a type of network effect[:] . . . (1) More user data allows a GSE to improve search quality, (2) better search quality attracts more users and improves monetization, (3) more users and better monetization attract more advertisers, (4) more advertisers mean higher ad revenue, and (5) more ad revenue enables a GSE to expend more resources on traffic acquisition costs (i.e., revenue-share payments) and investments, which enable the continued acquisition of scale." The Court found that Google "continues to rely on large volumes of user data at every step of the search journey, and no witness, even from Google, testified that LLMs had sufficiently advanced to supplant user data. . . . There is a reason that Google still retains 18-months of a user's data: It is still highly valuable to Google."

337. Furthermore, while "Google also maintains that the quantity of user data is less important than how it is used," the Court found: "that position blinks reality." The Court observed: "Microsoft has invested $100 billion in search in the last two decades and its quality now matches Google's on desktop search. . . . Yet, Microsoft's failure to anticipate the emergence of mobile search caused it to fall behind, and with Google guaranteed default placement on all mobile devices, Microsoft has never achieved the mobile distribution that it needs to improve on that platform. . . . This perpetual scale and quality deficit means that Microsoft has no genuine hope of displacing Google as the default GSE on Safari." The Court added: "As Apple's Eddy Cue testified, there was 'no price that Microsoft could ever offer [Apple] to prompt a switch to Bing, because it lacks Google's quality. . . . Google's massive scale advantage thus is a key reason why Google is effectively the only genuine choice as a default GSE." [Alteration in original]. Moreover, the Court found: "That barrier is reinforced by the size of Google's revenue share payments." The Court concluded: "The truth is, no new entrant could hope to compete with Google for the default on Firefox or any other browser. Google's query and quality advantage and high revenue share payments are strong incentives simply to stay put."

338. The Court further emphasized: "Google's distribution agreements have constrained the query volumes of its rivals, thereby inoculating Google against any genuine competitive threat. . . . When 'a monopolist's actions are designed to prevent one or more new or potential competitors from gaining a foothold in the market by exclusionary … conduct, its success in that goal is not only injurious to the potential competitor but also to competition in general.'. . . No current rival or nascent competitor can hope to compete against Google in the wider marketplace without access to meaningful scale, especially on mobile. The exclusive distribution agreements have substantially contributed to these anticompetitive market conditions." [Ellipsis in original].

339. The Court concluded: "In the end, Google's dismissal of the importance of scale is inconsistent with market realities. Google often warns that competition is 'only a click away.' However, '[t]he paltry penetration in the market by competitors over the years has been a refutation of [that] theory by tangible and measurable results in the real world.'" [Alterations in original].

340. The Court also concluded: "The distribution agreements have caused a third key anticompetitive effect: They have reduced the incentive to invest and innovate in search." The Court observed: "For more than a decade, the market for general search services has presented the opportunity to earn outsized profits. Google certainly has reaped the rewards. . . . Yet the general search services market has remained static for at least the last 15 years, with investments largely coming from established players. Only Google and Microsoft have made the sizeable capital investments needed to build a self-sustaining GSE. . . . Smaller competitors do [not even] compete as fully integrated search engines. Yahoo, once the market leader, no longer crawls the web and instead relies on Microsoft for web results. . . . DDG operates the same way." Furthermore, "[n]or has venture capital money rushed in. As Apple's John Giannandrea wrote in 2018: 'the reason a better search engine has not appeared is that it's not a VC fundable proposition even though it's a lucrative business.' . . . [Satya Nadella testified that] Silicon Valley venture funding in search [is] a 'no fly zone[.]'. . . As a result, DDG and Neeva are the only two notable market entrants in the last 15 years. Each attempted to innovate—DDG on privacy and Neeva through a subscription-based model—but found only limited success (DDG) or left the market altogether (Neeva)."

341. The Court concluded: "The foreclosure of efficient channels of distribution has contributed significantly to the lack of new investment. Neeva is a case in point. It could not gain a foothold in the market in part because it was relegated to less efficient means of distribution, such as app downloads. . . . Neeva was unable to gain a position as an alternative default GSE on any mobile device. . . . Ultimately, Neeva's inability to retain and attract users—and thus acquire scale—was a primary reason for its withdrawal from the market. . . . The loss of nascent competitors is a clear anticompetitive effect."

342. Another anticompetitive effect the Court found is the suppression of investment in search by Microsoft: "Today, Microsoft could investment more money in search but chooses not to without assurances of additional distribution on mobile. . . . That withholding of additional investment is in part attributable to Google's exclusive search distribution agreements. As Microsoft's former CEO of Advertising and Web Services, Mikhail Parakhin, testified, 'fundamentally it boils down to what kind of a long-term revenue we can achieve.… If you don't have [the] ability to effective distribute [through defaults], it's almost meaningless to invest in the area.'" [Second ellipsis and alterations in original]. The Court also found that Google's argument that "Microsoft's unwillingness to take [financial] risks is not an antitrust problem" "does not reflect market realities. Microsoft stood no realistic chance of beating Google for the Apple default, and there is no evidence of any serious negotiations for Android placements. No profit-driven firm in Microsoft's position would invest the substantial sums required to enhance its search product when there is little to no genuine opportunity for a default distribution deal." Thus, "Google's distribution agreements . . . appear reasonably capable of having significantly contributed to disincentivizing Microsoft from enlarging its investment in search."

343. The ISA was also a factor in Apple not entering the general search market: "The ISA revenue share is an important factor in Apple's calculus. In return for exclusive and non-exclusive default placements . . . Google pays Apple [a percentage of] its net ad revenue, which amounted to $20 billion in 2022. . . . This is almost double the payment Google made in 2020, which was at that time 17.5% of Apple's operating profit. . . . Google pays Apple more in revenue

share than it pays all other partners combined. . . . If Apple were at all inclined to enter the market for general search, it would have to be prepared to lose these large revenue share payments."

344. Moreover, in addition to the definite loss in revenue, Apple also faced significant risks that would amount to billions of dollars: "Although Apple has built an infrastructure to deliver some search results to its users, it would have to commit billions more to build and maintain a fully functioning GSE. . . . It also would need to develop an ad platform to monetize searches. Critically, Apple would have to be willing to put its brand reputation—and possibly device sales—at stake if it were to produce an inferior or unpopular product. . . . The required investment also would divert capital from other possibly profitable ventures. . . . Even if all went well, Apple's own projections estimate that it would lose over $12 billion in revenue during the first five years following a potential separation from Google."

345. The Court concluded: "Still, the ultimate question is whether the ISA reasonably appears capable of significantly contributing to keeping Apple on the sidelines of search, thus allowing Google to maintain its monopoly. . . . The revenue share payments unquestionably have that effect. The prospect of losing tens of billions in guaranteed revenue from Google—which presently come at little to no cost to Apple—disincentives Apple from launching its own search engine when it otherwise has built the capacity to do so."

346. The Court rejected Google's arguments that the agreements had procompetitive benefits, holding both that purported benefits did not flow from the agreements themselves, and that, in any event, Google failed to show how the ***exclusivity*** of the agreements caused the benefits.

347. The Court also held that the exclusive agreements had anticompetitive effects in the general search text ad market. The Court concluded that "Google's distribution agreements foreclose[d] 45% of the text ads market, measured by ad spend" and "that the market foreclosure is significant in light of [the] same factors that [the] [C]ourt considered in the general search market." The Court also concluded that there were three anticompetitive effects resulted.

348. First, "[t]he trial evidence firmly established that Google's monopoly power, maintained by the exclusive distribution agreements, has enabled Google to increase text ads prices

without any meaningful competitive constraint." The Court found: "There is no dispute that the cost-per-click for a text ad has grown over time." Moreover, "Google has used various 'pricing knobs' to drive these increase, often between 5% and 15% at a time, without a significant shift in advertiser spending to GSE competitors. . . . Ad experiments consistently showed Google achieving a 'stickage' rate of 50% for its pricing knob adjustments, meaning half of post-launch revenue increases translated into long-term gains. . . . Google also tweaked the pricing knobs when needed to achieve periodic revenue targets. . . . Google did so successfully, as its ad revenues have grown consistently at a rate of 20% or more year over year."

349. Moreover, the Court found, "there is no evidence that any rival constrains Google's pricing decisions. In fact, Google admits it makes auction adjustments without considering Bing's prices or those of any other rival. . . . The only apparent constraint on Google's pricing decisions are potential advertiser outcry and bad publicity. . . . Google, however, has managed to avoid those pitfalls by ramping up its pricing incrementally, which has allowed advertisers 'to internalize prices and adjust bids appropriately[.]'. . . Many advertisers do not even realize that Google is responsible for the changes in price. . . . Thus, through barely perceptible and rarely announced tweaks to its ad auctions, Google has increased text ads prices without fear of losing advertisers."

350. Google's ability to increase prices at will has fueled its profits and that in turn creates a feedback loop where it can further entrench its default positions because it can pay distributors more. As the Court put it: "Unconstrained price increases have fueled Google's dramatic revenue growth and allowed it to maintain high and remarkably stable operating profits. . . . Google in turn has used these monopoly profits to secure the next iteration of exclusive deals through higher revenue share payments."

351. The Court found that another anticompetitive effect is how "Google's text ads product has degraded in two ways: (1) advertisers receive less information in search query reports (SQRs) and (2) they no longer can opt out of keyword matching. . . . These are arguably small changes, but they reveal Google as a monopolist unconcerned about product changes that have

decreased advertisers' autonomy over the auctions they enter and the ads they purchase. Google has suffered no consequences because it does not operate in a competitive text ads market."

352. The Court also found a third anticompetitive effect in that "[t]he exclusive distribution agreements allow Google to maintain its text ads monopoly in much the same way as in the general search services market. That is, Google's rivals must distribute their GSEs through less efficient, non-default access points, which results in fewer users and fewer ad dollars spent to target those users. . . . With less ad revenue, Google's rivals are limited in their ability to reinvest in quality improvements (both as to search and general search text ads) to attract more users and more ad dollars. . . . That cycle puts rivals in no position to compete with Google for the increased ad revenue that accompanies greater query volume." Furthermore, "[a]dvertising witnesses consistently testified to this reality. They uniformly cap their text ads spending on Bing at no more than 10% to approximate its relative market share. . . . So, even if Bing's ads were to offer better value than Google's, Bing could not effectively constrain Google's ad pricing. As one witness put it, once the spending maxes out on Bing, there is simply '[nowhere] else to go.'. . . By locking in a huge comparative query volume advantage through its exclusive agreements, Google ensures that advertisers will continue to spend 90% of their text ad dollars with Google, regardless of increases in price or decreases in quality. That is an anticompetitive effect in the marketplace." [Alteration in original].

353. Google claimed the exclusive agreements offered three types of procompetitive benefits. They: "(1) enhance the user experience, quality, and output in the market for general search services, (2) incentivize competition in related markets that redounds to the benefit of the search market, and (3) produce consumer benefits within the related markets." The Court easily rejected all three.

354. First, even if the default positioning enhanced user experience, quality, and output, the agreements did not have to be exclusive to achieve that end. In other words, non-exclusive agreements could just as readily have provided those benefits to consumers. Other purported user

benefits of the exclusive agreements advanced by Google either did not exist or did not outweigh their anticompetitive effects.

355. Second, the Court found that increased competition in the browser and mobile device markets was either marginal or benefited Google rather than the larger search market. Third, the Court found no evidence in the record that supports "Google's contention that the exclusive agreements have resulted in procompetitive benefits in related markets."

356. Having found these three anticompetitive effects in the general search text ads market and then also finding that Google did not offer any procompetitive justifications other than the ones the Court already rejected, the Court concluded: "Plaintiffs have proven that Google's exclusive distribution agreements substantially contribute to maintaining its monopoly in the general search text advertising market, violating Section 2 of the Sherman Act."

3. The House Report Details Other Ways Google Has Established Its Dominance

a. Web Browsers

357. Google Chrome is the leading computer web browser in the United States, with approximately 60% of the market share. As the House Report (defined *infra*) notes, Google used its dominance in search to build up its position in the browser market, and then used its default positioning of Google Search in its browser to help entrench its general search dominance. Furthermore, Google officers and other executives deliberately built up and maintained dominance in the general search market, starting with the browser market before the development of smartphones made mobile search more important. According to the House Report, Google recognized approximately 14 years ago, in 2007, in an internal presentation, "Continued leadership in search underpins the whole business." Yet more troubling, the same presentation shows how a lot of information was deliberately withheld from the Board: "Each quarter we gather comprehensive search and market share data even though we [do] NOT share it with the board anymore." In 2009, according to the House Report, a senior executive circulated an email listing Google's market share in search, at that time 71.5% of general searches in the U.S.; and in 2010, another Google employee noted in an internal email, "Google leads competitors. This is our bread-

and-butter" and also noting that Bing was "making clear, significant progress" on "bringing the two search engines closer to parity" and therefore it was "critical to redouble our efforts to maintain our lead." Google's plan has succeeded, as described in more detail below, because Google has grown its market share into the 80s and 90s percentages, while its largest remaining competitor, Bing, has only a single-digit percentage market share.

358. Google also used cross-promotion between its own products to grow and reinforce dominance in different markets. For example, Google used Search to grow in the browser market, and used its increasing dominance in the browser market to further cement its dominance in general search services. Google initially grew market share for Google Chrome ("Chrome") by bundling it with the Google search homepage, as well as by constantly asking users to set Chrome as a default. According to the House Report, in a 2009 email, one Google employee noted, "I find the very, very high-profile promotion of Google Chrome on Google.com quite frankly, startling." Nevertheless, in the same year, Pichai, as then-Vice President of Product Development, encouraged the Chrome team to "promote through Google.com" and push users to set Chrome as their default browser. Then-Director of Product Management, Brian Rakowski, told his team how well this strategy was working, stating that promoting Chrome through Google Search was "performing exceptionally well" and "driving tremendous number of downloads." In 2011, Chrome employees noted how the growth rate decreased when the promotion stopped: "organic growth slowed a bit because our homepage promo was down for a couple of weeks." Google then used Chrome to further cement its search dominance since Google Search was set as the default search option for the browser. Google requires a multi-step process for a user to attempt to switch to another search engine. Moreover, Google then prompts users to return to Google Search as a default even when they switched to another.

359. Google early realized the importance of preset defaults to gaining and maintaining dominance, and aggressively pushed to make itself the preset default in browsers. According to the House Report, when Google was starting off in the browser market, Google executives closely tracked Microsoft's Internet Explorer's search default selections and expressed concerns that non-

Google defaults would impede Google Search. Google began to build dominance for Chrome by having Chrome automatically sign users into other Google products when signed into Chrome, adding to user convenience, but also helping Google collect more user data. Google claimed, in a 2019 presentation to the DOJ, that Chrome was launched to protect users' access to Google's products. But the House Report shows that in 2010, one of Google's strategy documents listed Chrome as a driver of "significant value" – *i.e.*, that it would offensively be used for growth rather than be merely defense, and in 2011, then-Google CEO Schmidt told the whole company that the rise of cloud computing meant that the browser, as the primary means for accessing the cloud, would be increasingly critical to Google's success.

360. As Google gained dominance in the browser market, it then unilaterally set standards because other companies must adhere to those standards for compatibility with Chrome, and they need to be compatible because Chrome's dominance means that they would lose market share if they do not adhere to Chrome's standards. Even further, Google has an oversized representation in the World Wide Web Consortium ("W3C"), one of the leading standards organizations in the browser market. Google employees comprise 106 members in the W3C web platform incubator community group, which is eight times the representation of the next largest stakeholder, Microsoft.

b. Android Mobile Ecosystem

361. The House Report contains additional detail about how Google used Android from the outset to protect and enhance the positioning of its already dominant Search. According to the House Report, then-Vice President of Product Development, Director of Engineering for Android, Patrick Brady ("Brady"), recalled that in a 2013 meeting with Defendant Pichai, "His main feedback was . . . Search is sacred, must be front and center." Brady added, "Our proposal covers that through more prescriptive search placement requirements." And Google senior executives remain concerned about ensuring Google's default placement on Android devices. In a 2017 presentation quoted in the Utah AG Action, Google executives ask, "If we were honest we would

admit that most users and developers aren't consciously 'choosing' they are going with the default. If they really had to choose, how would they do that and would they choose us?"

4. Google Controls Consumer Traffic, Harming Competition from Vertical Search Providers

362. As a monopolist in the general search market, Google has become a gatekeeper controlling who gains access to exposure across the internet, charging supracompetitive prices along the way. As detailed in the House Report and in various lawsuits, because of its dominance as a GSE, Google effectively maintains the power to control the flow of consumer traffic to determine the business fate of specialized vertical search providers.

363. Specialized vertical search providers must rely on Google's general search services as a critical means to reach users, because Google's general search does not have a competitive alternative. Many users start their internet search at a GSE (overwhelmingly, Google's), and seek to click through to vertical search providers to complete specific transactions, such as booking a flight or hotel. Vertical search providers rely on click-through from Google's general search for roughly 30% to 40% of their traffic, although the number can be considerably higher depending on the vertical search market. Because of the centrality of Google's general search to generate business, vertical search providers increasingly must purchase general search and general search text advertising in addition to appearing in normal search results returned from Google's search algorithms.

364. Vertical search providers do not compete in the general search market and general search text advertising markets, they nevertheless threaten Google's monopoly position in the general search market and general search text advertising market because, should vertical search providers become too successful, Google's general search would become a mere landing page only for situations where finding information had sufficiently low monetization potential so that no niche vertical search provider would build a space with a better alternative. If vertical search providers became the primary means through which users interacted with the Internet, Google would lose its general search position as a gatekeeper for the rest of the Internet. Google has recognized that vertical search providers have specialized, rich information concerning specific

topics, which could draw users away from Google's general search – in effect, the user would choose a vertical search provider through which to search the Internet rather than starting with Google.

365. If significant numbers of users chose to forego Google's general search and instead went straight to vertical search providers, Google's monopoly over general search would be less relevant, barriers to entry would weaken, and other general search engines might enter the market. With more options in general search, vertical search providers would in turn have meaningful choice over which general search engine to prioritize for advertising and user acquisition, incentivizing greater competition between Google and other general search providers to attract vertical search providers and provide a better experience for users.

366. In response to this threat, Google entered into the vertical search space by embarking on an exclusionary campaign. Google selected particular commercial segments it saw as profitable, and denied specialized vertical search providers from purchasing advertisements for these segments or appearing on the Google search results page in Google's "OneBox," a feature that typically provides listings for a relevant commercial segment responsive to a user's keyword search (for example, in response to a search for "hotels," Google would provide a OneBox of local hotels with a map and associated listings). Google's decision to exclude vertical search rivals has no legitimate business justification and is designed to, and has had the effect of, excluding its rivals.

367. While Google willingly sells advertisements to vertical search providers on behalf of their local service providers, Google injures competition through the exclusionary terms it attaches to these transactions with vertical search providers. For example, Google does not allow vertical search providers to prominently display their names, but rather requires that local service providers be displayed alongside advertising. The vertical search provider may have significantly wider brand recognition than a local service provider, and Google's restriction limits the ability for a vertical service provider to obtain wider and more prominent placement such that a large consumer base would begin to bypass Google's general search as a starting point to look for the

vertical search service. Instead, Google only allows the vertical search provider paying for the advertisement to appear in subtext below other information, including the service provider's name, consumer reviews, and the "Google Guaranteed" mark, obfuscating the vertical search provider's role in vetting or guaranteeing the local service provider.

368. Google's policies significantly harm vertical search providers by preventing them from directly advertising the fact that they provide more granular comparison services than Google. Instead, consumers who receive the ads bought by the vertical search providers are only relegated to subordinate text below Google's green checkmark, despite the fact that the vertical service provider has recommended the local service and has the deeper relationship that led to the recommendation. Further, a user being served the vertical search provider's ad, who clicks on the ad, is taken to a Google page instead of the vertical search provider's own website. As a result, the vertical search provider does not establish a typical business relationship with the user but is instead intermediated through Google's own site. In this way, Google prevents vertical search providers from making consumers aware of the value provided by the vertical search providers, harming competition, consumers, and advertisers. Google thereby degrades access to vertical search provider services, inserting itself as an intermediary to specialized search services that it could not otherwise match and eliminating them as a competitive threat.

369. Google also restricts vertical search providers by favoring its own products in its OneBox. The advertising Google provides to vertical search providers in its OneBox is limited to text; but Google's own vertical search products appear on a map and with further relevant information, like price, that does not require a consumer to click through to see the offerings. Similarly, for local services, Google does not allow providers of local service information to appear in unpaid local listings in its OneBox. Additionally, vertical search providers are not able to purchase advertisements in their own name with direct links to their own websites for advertisements placed near Google's map. However, Google permits vertical search providers to have a similar location on search results pages in other commercial segments where it does not compete.

370. Google discriminates in its OneBox policies in order to exclude vertical search providers that present a threat to its monopoly power. Google allows users to directly connect to vertical search providers where revenue is small or not an otherwise important business segment for Google (*e.g.*, books, educational courses, movies, events, or recipes). However, Google does not offer the same opportunities for vertical search providers whose business segments directly compete with Google. Internally, Google's own organizational structure recognizes this distinction: for the segments in which Google does not compete, vertical search advertising is handled by the general search team, while the specialized vertical search segments that Google does compete in oversee their own specific, more lucrative vertical segments.

371. Google's differential treatment of vertical search providers in its OneBox and in its treatment of their advertisements demonstrates that vertical search providers' presence presents a competitive threat to Google. Google's degradation of the vertical search providers' access is part of an anticompetitive response by Google to eliminate any threat to its dominance. There are no offsetting competitive benefits to this exclusionary conduct.

372. Google further limits competition by denigrating the effectiveness of "organic" search results – the results that are displayed as a result of search, organically as a result of an algorithm returning results based on relevance. As a result of Google's elevation of advertising above general organic search results, vertical search providers will need to purchase additional advertising from Google in its monopoly position in order to continue to attract customers. The advertising Google provides, which appears above organic search results, is also provided at higher prices and lower quality than would be available in a more competitive market, subject to conditions that unfairly disadvantage vertical search provider advertisers.

373. Google over time has increased the space devoted to advertisements, pushing organic search results further and further down its search results pages. Google search users are significantly more likely to view the ads that appear above organic search results and ignore content "below the fold." By limiting the presence of visible organic results, Google has limited

the avenues for vertical search providers to acquire customers – requiring them to buy advertising space in order to gain visibility.

374. The House Report has detailed how Google's self-preferencing and increasing number of ads has essentially made it a requirement for many companies to "pay to play" to appear in search results, because hoping to be listed organically would result in a low ranking after being crowded out by ads and Google's own products. Thus, to appear early in search results, these companies would have to pay for advertisements on Google to be ranked high up. David Heinemeier Hansson ("Hansson") illustrated this phenomenon at a Congressional hearing, showing how Basecamp bought an ad, which states: "Basecamp.com | We don't want to run this ad." Explaining "We're the #1 result, but this site lets companies advertise against us using our brand. So here we are. A small, independent co. forced to pay ransom to a giant tech company." Hansson testified: "Google uses this monopoly to extort businesses like ours to pay for the privilege that consumers who search for our trademarked brand name can find us because if we don't, they will sell our brand name as misdirection to our competitors." Furthermore, he added, "You will find no competitor ads for any of Google's own important properties." Hansson also testified that Google's practices amounted to erecting "tollbooths" and that the tolls had to be paid because of its dominance as a source of leads. He observed that 40% of Basecamp's leads came from Google, and no other search engine accounted for even 1%. Sonos' CEO also confirmed that it had to buy its own brand name from Google to stay high in the search results.

375. In addition, Google has inordinate control over organic search results by virtue of its monopoly position: Google decides the content to include in the text of organic search results, and to which third-party webpage any click-through traffic will flow. For example, a vertical search provider that features ratings and reviews on its own website could find that Google does not include those features in its organic search results or link to them. By contrast, on the same search results page provided by Google, it will include features such as ratings and reviews for its own content.

376. Google further harms competition by requiring certain of its business partners to provide it with valuable and proprietary data, which Google then combines with its own data to gain an artificial advantage over companies that pose a competitive threat to it. Counterparties have no choice but to accept Google's terms and share their proprietary data, because they depend on Google for search traffic. For example, Google's "Hotel Unit" (the name it gives to its OneBox for hotel results) include price, star rating, and review count based on an automatically populated date for a one-night stay and the ability to change the date within the search results. Hotel results provided by vertical search providers are not allowed to pay to appear in the Hotel Unit OneBox that appears on the Google search results page. Instead, the prices listed alongside the Hotel Units results come in part from Google's "partners" – vertical search providers that are required to provide their proprietary information to Google for use in the Hotel Unit.

377. Google also obtains additional proprietary data from vertical search providers by forcing them to supply it in exchange for permission to appear in the second page of Google's Hotel Unit click-through page. Google collects much more data than is necessary to carry out a transaction for a user seeking to book a hotel stay. Google displays prices, ratings, and other information available from vertical search providers in tis Hotel Unit results – the same information that Google does not allow vertical search providers to display in Google's general search results advertisements.

378. The House Report quotes a series of exchanges in 2010 and 2011 between Google executives and Yelp, Inc. ("Yelp"), executives, including Yelp's CEO, where Yelp was forced to give up data that Google used to build out its competing product, Google Local, or risk being shut off from Google Search. Google's strategy was deliberate. According to the House Report, quoting from an April 24, 2007, internal discussion at Google, which noted: "[T]here is nothing else 'yelp like' in our current lineup" and noting that Yelp's CEO "just contacted the account manager here and asked that their contract be revised so that they could cancel it immediately if we launch reviews, that doesn't mean that they would do it, but clearly this is a big deal to them." And the House Report also quoted an August 10, 2010 email from Yelp's CEO demanding that

Google immediately remove Yelp's proprietary content from Google Local, its' just launched competing product: "Given that this App directly competes with the Yelp App and offers little value to Yelp we cannot allow Google to continue leveraging our content in this way. We've communicated to Patrick and Carter that your team needs to remove our content within the next week. Since you already communicated to me that it would be un-Googley to not remove our content when requested, I'm confident your team will do the right thing." And when Google Local was not gaining momentum, an August 10, 2011 email between Yelp and Google showed that Google would only remove Yelp's content from its Local search results if it removed Yelp entirely from Google's search results: "I was surprised to find that by opting out of Google's local product, Yelp was automatically opted out of portions of Google's search results. Carter Maslan and John Hanke last year said they couldn't/wouldn't remove Yelp content from Google's local product because local was powered by the same index as web search, sounds like this was never really the case." And a Google executive apparently replied: "To be able to reference Yelp's content in the parts of search results we discussed, our local service needs to be at least aware of the existence of Yelp pages. Since we stopped using any crawled Yelp pages for our local services in response to your request, this currently isn't possible. That said, I think that the approach we discussed, with Google making limited use of Yelp data in the ways you described, is a constructive way to get a comprehensive view for our users." As early as 2007, Google's internal documents, as quoted by the House Report, showed that it knew Yelp relied on Google for its traffic: "78% of their uniques come from google. [I]f they are acquired, I [sic] would assume that they wouldn't turn us off." Thus, Google executives were knowingly leveraging Yelp's dependence on Google to force it to give up valuable content to advantage Google's competition against it.

379. The House Report also detailed other instances of misappropriation, even when the vertical provider refused, of content from third parties by Google, including misappropriation of data from Celebrity Net Worth (which led to a decline in its traffic because people stayed on Google search pages that had its results rather than go to the website), and song lyrics from Genius, while deliberately attempting to hide the source (which Genius caught because it used a digital

watermark). When asked about the misappropriation by Genius, Google and Alphabet CEO Pichai told Congress that this was merely "a dispute between Genius and other companies in terms of where the source of the content is."

380. In sum, Google entrenches and protects its monopoly power by: (i) favoring its own products in specific segments by elevating its own results above those of vertical search providers; (ii) disallowing the display of useful information in the general search text advertisement that Google does allow to vertical search providers (which Google itself displays for its own results on the same page); (iii) displaying additional information in Google's own OneBox with map and unpaid listings made unavailable to vertical search providers for segments in which Google competes; and (iv) requiring vertical search providers to provide proprietary information to Google as a condition of allowing them to advertise in Google's general search.

381. After the District of Columbia District Court found Google to be liable for antitrust violations, Yelp, Inc. ("Yelp") filed a lawsuit alleging that Google engages in anticompetitive conduct in the local search market. Building on the District of Columbia's findings, as well as an extensive public record, Yelp's complaint demonstrates that Google has monopoly power in local search and that it has acted for decades to stifle competition from local search providers.

382. Yelp has alleged that in addition to a general search market, a submarket exists for local search services and local search advertising. "Local searches" are those conducted for specific businesses or services within a specific geographic area. Local search providers include SVPs like Yelp, which provide a platform to respond to user queries on a specific subject, and which make use of proprietary, structured data not available elsewhere, as well as GSEs like Google. Local searches are differentiated from general searches because the "wide breadth" of a general search "leads to lower-quality results for consumers seeking a specific service, like plumbing services near their location coupled with user-generated reviews and verified information about that service (not offered by general search)." Yelp emphasized, "Local search is differentiated by consumer reviews and other user-generated content—as well as verified business information—that enhance consumers' ability to make informed decisions while

incentivizing local businesses to compete on product quality, customer service, and price. Whereas GSEs crawl the internet and index websites of every type, local search providers build their 'engines' by attracting consumer and business engagement, thereby creating a distinct product."

383. Yelp alleged that it formerly had a symbiotic relationship with Google, where Google fed traffic to Yelp, and Yelp licensed user-generated content for Google's use. Google saw the value of SVPs/ local search providers like Yelp, and at one point sought to acquire it. But after Yelp rejected Google's offer, Google turned to seeing Yelp as a competitive threat and, according to Yelp, sought to stifle it as a competitor by appropriating its data and creating copycat features that kept traffic on Google's own page and starved Yelp of traffic. According to Yelp, "Google has engaged in numerous anti-competitive practices, including stealing information from Yelp's website and passing it off as Google's own, preferencing Google's own local search results over Yelp's, implementing a 'OneBox' feature to prioritize Google's own inferior local search services at the top of the search results page; and even going so far as to tweak its algorithm and steer customers away from Yelp." Yelp further contends, "Google has undertaken these practices not to provide a better product to consumers or compete fairly, but instead to enhance its own bottom line and stifle competition. And consumers and competition have been harmed in myriad ways, forced to contend with an inferior product and obscured, objectively superior results (even by Google's own indicators)." And as Yelp pointed out, in 2017, Google was fined €2.42 billion by the European Commission for "abusing its dominance as a search engine and favoring its own, ad-sponsored comparison-shopping service over organic search results for competing comparison-shopping sites." Furthermore, Google engages in monopoly leveraging by using its monopoly power in GSE to then dominant "adjacent markets, including the markets for local search services and for local search advertising." This "undermines competition . . . by, e.g., preventing competing providers from achieving scale, reaching customers, and building content. When competitors cannot achieve scale, this softens the competitive constraints on Google on both the consumer and advertiser side. On the consumer side, this means less need for Google to invest in quality (e.g.,

by improving curation of its online reviews) and greater incentives to show less relevant but nevertheless monetizable results. On the advertiser side, Google is able to extract higher fees from advertisers."

384. Yelp elaborated, "Within the local search services market, Google's self-preferencing and gatekeeping has resulted in stagnant or diminished traffic to Yelp and other local search competitors despite objectively superior offerings [by the latter], as confirmed by Google's own quality indicators. This undermining of competitive pressure allows Google to offer an inferior product to users without consequence. Google's conduct has injured Yelp through lower traffic, reduced advertising revenues, raising Yelp's own costs, and impaired network effects that come from new and returning users." And "[t]he same is true for the local search advertising market. When a customer seeks a local business online, such as a plumber or hairstylist, they typically turn to local search providers to find that business. Local and national businesses purchase local search advertising (delivered in response to particular local search queries) to help ensure that customers are steered toward them. Google, Yelp, and other local search providers compete fiercely for local search advertising dollars, but Google has leveraged its dominant position in general search to ensure that more local search advertisers purchase local search advertising from Google, as Google keeps users within its own inferior local search vertical and away from Yelp and other local competitors. In this way, Google also suppresses competition in the market for local search advertising."

385. Yelp detailed how Google felt threatened by the rise of SVPs, which it saw as a competitor that diverted queries from its GSE, which would hurt its ad revenues: "Given the cost-per-click nature of search advertising, Google only receives advertising revenue if users click on its own search advertising, and not the search advertising of its competitors. Google realized that allowing SVPs to develop scale and entice consumers would be detrimental to its own bottom line. In one internal document, a Google product manager wrote that one threat of SVPs gaining ground would be "loss of traffic from google.com because folks search elsewhere for some queries. . ." Another internal email noted that "Google's core business is monetizing commercial queries. If

users go to competitors … long-term revenue will suffer." Google grew concerned that consumers would start going directly to those SVPs, creating a "risk to our monetizable traffic." As a result, Google began to develop its own verticals, such as traveling and shopping, and were displayed initially as tabs on its SERP, but those generated limited traffic. To generate more traffic on its own page and stem the flow to SVPs, Google then moved its vertical search results to a new feature, the OneBox, which was a box containing search results above all the other results: "If a user queried Google for, say, 'flights to NYC,' Google would send that query to its own travel vertical and return any results in a travel OneBox, at the top of the SERP and above any organic search results." Furthermore, "Google launched 'universal search.' Per a Google blog post at the time, the purpose was to 'blend content from Images, Maps, Books, Video, and News'—in other words, Google's other search verticals that were previously less popular with users—with general results. Google's SERP now included OneBoxes for each of its own relevant search verticals, typically placed above organic search results."

386. "Universal search" had the effect of privileging Google's own products above what would have otherwise been the best organic results: "Through universal search, which operates substantially similarly today, when a user inputs a keyword search into Google's general search browser, and Google detects that either the search relates to one of Google's own vertical search services or that the top organic result is a competitor's vertical search service, Google deploys and prominently features a OneBox with Google's own related vertical search results. For example, if a consumer searches for 'flights to NYC,' and the Google algorithm determines that Expedia is the most relevant search hit, Google's SERP includes Google's own travel vertical at the top, in a OneBox, above even the best result by the user, as determined by Google's own algorithm and without regard for the quality of Google's own product."

387. The OneBox also includes other features designed to keep the user on Google's SERP, such as "images, maps, or product information, unlike traditional text links in organic search results. . . . Thus, the very architecture of Google's SERP is designed to draw users toward its own vertical and away from competitors[.]" Yelp further alleges, "Google's increased use of

features like OneBox, highlighting its own offerings over its competitors, has resulted in an increasing volume of searches, including local searches, where users do not leave Google's SERP at all, called zero-click searches. And even when users do click through, Google has so successfully self-preferenced its own products that 30% of clicks go to a Google property. Rather than getting users out of Google and to the right place as fast as possible, Google now keeps users within its system and prevents them from going anywhere else, irrespective of the quality of its results. This benefits Google, which keeps the cost-per-click revenues from its advertisers, and harms consumers and Google's competitors, who are deprived of the ability to fairly compete for traffic and advertising dollars, including by achieving scale. After all, and as Google knows well, users heavily favor the very first search results."

388. Yelp further detailed how it gained leadership in the local search market, after it was founded in 2004, over the more dominant websites, because "Yelp invested heavily in creative direction, banding, and a focus on community-building, creating a network of passionate reviewers who provided their word-of-mouth opinions to help other members of their communities find great local businesses." Yelp's investment in its reviewer community paid off further because it "drove businesses to join Yelp and maintain their pages. Through this investment and innovation . . . Yelp gained significant market share quickly, fomented competition, and encouraged the proliferation of high-quality online business reviews, all to the benefit of consumers."

389. Yelp further alleged that Google "[r]ecognized the value of Yelp's investment and want[ed] to improve Google Local," so "Google signed a two-year licensing agreement with Yelp in 2005 that allowed Google to feature Yelp's crowd-sourced reviews and business information on Google's search page." Initially, "[t]his was a symbiotic relationship, as Yelp earned revenue from Google and Google was able to populate Google Local with photos, addresses, hours, and reviews for local businesses." However, Google was concerned about its "'unhealthy dependency' on Yelp. . . Google was concerned that if Yelp became successful in its own right and users went directly to it rather than coming to Google, Yelp would compete against Google for users and advertisers." When the licensing agreement was up for renewal, Google informed Yelp that it

would create a competing product, and Yelp, concerned that Google would appropriate its data, declined to renew the licensing agreement.

390. When Google's new product (a review feature within Google Maps) initially failed to take off, "Google attempted to acquire Yelp. . . In December 2009, the proposed deal fell apart." By 2009, though Google had not built up a "critical mass of reviewers it needed for [its new vertical] Google Places to be successful[,] . . . Google simply helped itself to Yelp's content." Google "'scraped' [reviews] from Yelp and other local search sites, into one destination, along with its own slight number of reviews, and claimed all of those reviews as Google's own reviews." When Yelp protested, Google pulled its own trump card: "Google responded by telling Yelp and other rival local search providers that either they could permit Google's use of their proprietary content, or they would not appear in Google search results *at all*. This choice was no choice at all—Google knew, given its dominance in general search, that it was effectively forcing Yelp and others to provide their content to Google so Google could build out its own competing product. In other words, Google used its monopoly power in general search to grow its (then nascent) position in local search."

391. Furthermore, Google preferenced its own vertical above others, and "Google developed several algorithm updates that resulted in demotion of its competitors, while excluding itself from the same metrics that resulted in those demotions." Yelp alleged, "SVPs like Yelp are highly dependent on Google to reach users. Therefore, changes to Google's SERP or algorithm can have outsized effects on the commercial viability of SVPs. For Yelp, the effects were almost immediate. In 2015, Google adjusted its algorithm with the effect of decreasing traffic to its local search competitors, causing Yelp to have its first ever decline in year-over-year traffic. This and other algorithm changes caused a significant drop in traffic, harming Yelp as a competitor and helping Google obtain more market share in the local search and local search advertising markets."

392. Yelp further alleged in summary: "Today, Google self-preferences itself over its competitors across all of its verticals, promoting its own offerings and relegating competitor appearances in the organic search results that trail down the page. Google has degraded quality,

demoted rivals, and grown its monopoly power by (1) inserting Google's own vertical search results at the top of its horizontal search results page to divert user attention away from organic search results and (2) excluding rivals and their vertical content from that prime placement in the vertical search sections that populate the top of the SERP."

393. Yelp also recounted how Google had already been adjudged liable for similar anticompetitive conduct by the European Commission with respect to its comparison shopping. Yelp describes: "As with local search, Google maintained its own shopping vertical, which it self-preferenced over competitors. When a user would query, for example, 'red shoes,' Google would include its own shopping vertical either at the top of the SERP or in reserved space on the right side, displayed in rich format to attract visibility away from organic search links. Google's own shopping vertical was not subject to Google's generic search algorithms, meaning that Google not only gave itself a leg up in placement on the SERP, it also exempted itself from the quality indicators inherent in its organic search algorithm."

394. The European Commission investigated Google from 2010 to 2015; in 2015, it filed antitrust charges; and in 2017 it "concluded that Google ha[d] given itself, and specifically its shopping vertical, an illegal advantage over its competitors in violation of EU antitrust laws. The EC concluded that Google has 'leveraged its market dominance in general internet search into a separate market, comparison shopping.' It concluded that Google abused its own shopping vertical in search results while demoting its rivals, depriving 'consumers of the benefit of competition on the merits, namely genuine choice and innovation.'" Furthermore, "[t]he EC determined that '[e]vidence shows that even the most highly ranked rival comparison shopping service appears on average only on page four of Google's search results, and others appear even further down. In practice, this means consumers 'very rarely see rival comparison shopping services in Google's search results.'. . . Therefore, the EC concluded, Google's practice of self-preferencing distorted competition, allowing it to make 'significant market share gains at the expense of rivals.' Ultimately, the EC fined Google €2.42 billion and required it 'to apply the same processes and

methods to position and display rival comparison shopping services in Google's search results pages as it gives to its own comparison shopping service.'"

395. Yelp further alleges: "Nor has Google changed its behavior. [In 2024], the EC opened a non-compliance investigation against Google's parent company, Alphabet, based on Google's continued self-preferencing in search, in violation of the Digital Markets Act ("DMA"). The EC reported: 'The Commission is concerned that Alphabet's measures implemented to comply with the DMA may not ensure that third-party services featuring on Google's search results page are treated in a fair and non-discriminatory manner in comparison with Alphabet's own services."

396. Yelp alleged that Google engaged in similar self-preferencing in local search and that Google's products were far inferior to Yelp's. Yelp cites "research by Columbia Law Professor Tim Wu and Harvard Business School Professor Michael Luca demonstrated that quality, as measured by user engagement, was higher for organic local research results than from Google's self-preferenced results. These findings confirm similar findings from the EC concerning Google's shopping vertical—Google's self-preferencing harms consumers with a lower-quality experience." Yelp further details, "Google's local search results are on average shorter, more prone to error, less subject to quality control, and less likely to result in user engagement than Yelp's local search results and those of other local search competitors. Yelp's reviews are consistently longer than those found on Google local search throughout the United States, often by 500% or more. . . . [A] third of Google's reviews consist of only star ratings, with no text at all. Google labels full-text reviews and textless star ratings as 'reviews' without distinguishing them, even though textless ratings are inferior and far less useful to consumers." Moreover, "Google's own past behavior confirms this quality delta. Instead of innovating and expending resources to secure high quality reviews, Google misappropriated Yelp's data, including through its larger scraping campaign, and now elevates its own local search results above all else while obscuring those of other local search providers, notwithstanding Google's own algorithmic indications of quality that would dictate a different result." Furthermore, Google

allows for "rating inflation, [which] also shows that Google has consistently inferior local search results as compared to Yelp's local search results. A study published by the FTC's Deputy Director for Consumer Protection considered the business ratings distributions of local search providers when measured against the quality of business. Google's rating distributions of local businesses are heavily skewed toward higher star ratings: on Google, the percentage of businesses with at least four-star ratings was 59%. That average business ratings on Yelp are 'much more uniform across the rating distribution'—about 32% of businesses are above four stars, 58% are between two and four stars, and 10% are below two stars. When measured against business quality, the study concluded that a low quality business on Google has about the same (inflated) average rating as a medium quality business on Yelp."

397. Moreover, Yelp alleges, "Google's conduct also raises costs for its rivals to operate. When a user conducts a local search query, the entire top of the SERP is dominated by results selected and monetized by Google—either sponsored links, for which Google receives a cost-per-click payment, or Google's own local search. To compete, local search competitors like Yelp must pay Google for advertising or else resign themselves to appearing far below Google's own self-preferenced local results, in organic results that a user may never even see. Google thus 'unlevels' the playing field and ultimately excludes competitors by imposing costs on rivals through its exercise of monopoly power and control of the SERP. This in turn insulates Google from competition and enables Google to sustain and increase its market share over time."

398. Yelp further alleges, "Google's self-preferencing of its local vertical search service prevents competitors from achieving or maintaining scale. . . . When Google artificially reduces the number of users visiting Yelp and other local search provider competitors, it does more than limit those sites' advertising revenues—it also frustrates those sites' ability to attract active users who contribute to the site's growth and continued viability. Local search providers improve and become more valuable to consumers through network effects: as more content is created (in the case of Yelp, user-generated reviews and other consumer contributions), more users are attracted to the vertical and the quality improves, and the vertical is better able to monetize its product

through advertising. But if users are diverted away from the local search provider—for example, if they are sent to Google's local vertical to write reviews, instead of to Yelp—that prevents the local search provider from achieving network effects and scaling to compete."

399. Thus, Yelp alleges, "Google's ability to leverage its monopoly position in general search to keep users within its own local vertical, rather than showing them organic results with higher-quality rival SVPs, has the actual and intended consequences of making it more challenging for those rival SVPs to compete on the merits and constrain Google through competition."

400. Yelp also alleges that Google engages in anticompetitive conduct in placing local search ads. Yelp cites a previous FTC staff memo that "Google's dedicated ads do not compete for placement on Google's SERP. 'Instead, they enjoy automatic placement in the most effective advertising places on the SERP, usually above the natural search results. Google also does not compare the quality of its own ads to the quality of competitors' ads that provide the same vertical service.'"

401. Yelp notes that it "sells local search advertising in competition with Google and other local search providers nationwide. Approximately 95% of Yelp's revenue comes from local search advertising, largely cost-per-click text advertising. . . . Yelp also offers paid upgrades for business's Yelp pages. . . . Like other local search providers, Yelp's ability to sell local search advertising is highly dependent on traffic and achieving enough scale to make its advertising attractive. If Yelp's user traffic declines, its ability to sell advertising to local businesses also declines."

402. Yelp is injured by Google regarding local search ads because "Google manipulates traffic away from Yelp and other local SVPs. When Google self-preferences its own local vertical, it increases its share of users at the expense of competitors like Yelp. Given that advertising dollars follow user traffic, this also reroutes advertisers to Google and away from Yelp and other rivals. Over time, this sabotages the ability of local search competitors to continue offering their products, diminishing choice for advertisers and increasing prices. Google, meanwhile, benefits from this

gatekeeping arrangement despite the absence of any innovation, quality improvements, or other welfare-enhancing actions that might drive increased adoption in a competitive market."

403. Furthermore, "This loss of choice harms advertisers. When Google is unconstrained by competition from SVPs for local search advertising dollars, it can increase its local search advertising pricing without the threat of advertisers switching away. This has also happened in general search advertising; a recent study by the United Kingdom's Competition and Markets Authority found that, in the U.K., Google has progressively increased monetization, both in terms of revenue per search and the ad load on its SERP, both of which harm advertisers through higher costs and dilution of the value of their advertising dollars. This, in turn, forces rival SVPs to increase their own ad loads in order to attempt to off-set traffic losses resulting from Google's self-preferencing."

404. Yelp also alleges that "[w]while this narrative begins as early as 2007, Google's conduct has worsened in recent years. . . . And Google's market share in local search services and local search advertising has steadily grown by dint of its exclusionary conduct." Yelp explains, "When Google's algorithm detects a local search intention, based on the user query, Google delivers its OneBox, promotes its own search results, and demotes that of its local search competitors, including Yelp. . . . With each new local search query and response, Google renews its anticompetitive conduct, harming customers, competition, and local search competitors such as Yelp."

405. Google's conduct undermines competition, harms advertisers by placing limitations on general search advertising, and hurts consumers by placing Google's own content in a superior position, making it more difficult for consumers to find relevant results and information provided by vertical search providers. Google's conduct also ultimately increases prices by forcing consumers to assume the higher advertising costs vertical search providers must pay as a result of Google's monopoly.

406. Recent news reports and events provide striking illustrations of how much power Google has over the businesses of SVPs:

407. In February 2025, shares of Reddit (a site known for its community forums where members ask and answer various questions and discuss various topics) dropped by 15% in one day because a change in Google's search algorithm led the company to gain millions fewer daily users than were expected. Reddit co-founder and CEO Steve Huffman acknowledged that the change in Google's search algorithm resulted in "volatility" with Reddit's user growth in the fourth quarter of 2024.

408. In late February 2025, the *Wall Street Journal* ("WSJ") reported that changes in Google's policies threaten an entire swath of product review businesses and the freelance reviewers who write for them. In November 2024, Google stated that some content "created by a separate entity" would no longer appear in search results, even when that content was supervised by a publisher. Many product review sites run by mainstream news media (such as Forbes Vetted or CNN Underscored) rely on freelancers to write reviews, and depend on Google to drive traffic to those sites and reviews, which, in turn, earn money from customers clicking on links and buying products. Google's policy change means that many such reviews are no longer included in Google search results. As a result, traffic has dropped dramatically at several of these sites. For example, at Forbes Advisor, traffic dropped by 83% in January 2025 compared to a year. At CNN Underscored and Buy Side from WSJ, traffic dropped by more than 25% in the same period. Time Magazine's Time Stamped and the Associated Press's AP Buyline, powered by Taboola Turnkey Commerce, shut down completely.

409. At a recent Senate hearing, Garry Tan, CEO of Y Combinator, testified, "The failure of the FTC to bring an enforcement action against Google's egregious forms of self-preferencing in 2012 sent a message to every gatekeeper that it was open season for self-preferencing. As a result, the web became less open; today, most traffic that starts on Google terminates on Google rather than winding up on the open web."

410. At the same Senate hearing, Morgan Harper, Director of Policy and Advocacy at the American Economics Liberties Project, summarized how Google's monopoly power and anticompetitive conduct have harmed consumers, competitors, and partners: "Businesses have

reported not appearing accurately in Google searches, being pushed far down after the Google-owned content, or disappearing entirely from search results and Google Maps [–] where customers can't find them and their sales drop. In fact, only about 36% of all Google searches in the U.S. make it past the Google ecosystem. Just this month, Texas small business owners reported their business disappearing from search results, sending sales plummeting. They could only access a customer service representative to address the problem after agreeing to purchase advertising from Google. And in recent weeks, a report found that when Google had trouble selling its artificial intelligence product as a separate add-on, it simply bundled it with existing products and businesses and upped the price of Google Suite – following Microsoft's lead. . . . Despite a court order finding Google has illegally foreclosed competition through its exclusive control of online distribution channels, the company continues to explore exclusionary default agreements similar to those already found illegal. . . . And though Google had the capabilities, the company delayed releasing a large language model based chat bot because it was difficult to 'properly tie [the LLM chat bot] to their existing search and advertising product markets.'" [Last alteration in original].

B. Private Parties and a Coalition of State AGs Sue Concerning Google's Anticompetitive Practices Regarding the Android Mobile Operating System, App Distribution, and in-Application Payment Processing, and Google Is Found Liable in a Jury Trial

411. Game developer Epic Games, Inc. ("Epic" or "Epic Games") decided to put its popular Fortnite game in the Play Store in April 2020. Epic's relationship with Google started to break down just four months later, in August 2020. The dispute involved, among other things, Google's contractual requirement that Epic (1) use Google's billing system; and (2) pay Google a 30% fee on all in-app purchases made by Fortnite users in the Google Play Store.[6] Epic issued an update which allowed Fortnite users to use Epic's payment system. Google responded to Epic's provocation by removing Fortnite from the Google Play Store.[7]

[6] *In re Google Play Store Antitrust Litig.*, MDL No. 21-md-02981-JD, 2024 WL 3302068, at *1 (N.D. Cal. July 3, 2024).

[7] *Id.*

412. Epic sued Google on August 13, 2020, the day that Fortnite was removed from the Google Play Store. The complaint alleged that Google had engaged in anticompetitive conduct in connection with the Google Play Store, and asserted claims under the Sherman Act, the California Cartwright Act, and the California Unfair Competition Law.[8] Google countersued, alleging, among other things, that Epic breached the Google Play Developer Distribution Agreement (DDA).[9]

413. Epic's lawsuit was consolidated into an existing Google Play Store antitrust MDL on February 5, 2021.[10] In the MDL Epic's case was consolidated with cases filed by state attorneys general (led by the Utah AG), Google Play Store users and Google Play Store developers. Litigation ensued for more than two years. Consumers and all 50 states agreed to settle the case for $700 million while Epic pressed on to trial.[11] Other lawsuits in the MDL also settled. However, Epic Games went forward with a trial.

414. Epic's case was tried before a jury in November and December 2023. There were forty-five witnesses, including nine expert witnesses, and fifteen days of testimony.[12] More than three hundred documents were admitted into evidence.

415. Key testimony and documents from the trial revealed:

a) Google executives recognized that the "size and margins of the market" for apps and app stores "are making it attractive for new entrants." If competition were to develop, Google Play would have to "deliver[] superior user and dev[eloper] outcomes[.]" Mrinalini Loew, Former Head of Product Management for Google Play Commerce, confirmed that "Google Play's profits are mission critical . . . to the entire . . . company"

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[8] *Id.*

[9] *Id.*

[10] *Id.*

[11] *Id.*

[12] *Id.*, at *2.

and that "Google Play standing alone would almost be the size of a Fortune 100 company[.]"

b) Google sought to employ a "combination of tactics" to prevent competition among app stores and payment systems in the Android system because "competing on price" would be "prone to be a race to the bottom."

c) Google deliberately introduces "friction" to make it difficult for consumers to download apps directly from the web or from alternative app stores, through means such as multiple warning screens when a user attempts to make such downloads. At least 14 warning signs would pop up and be individually clicked through by a user who attempts to directly download an app from a developer's website. Though ostensibly the warning screens were a security measure, in reality Google made no assessment of the potential threat of a specific app: Defendant Pichai testified that an app downloaded from Amazon would be treated the same as an app from a website hypothetically called illstealyourinfo.com. This friction led to 35% of Android users abandoning the attempt to download the Epic Games app store; an Amazon executive testified that only 11% of users succeeded in their attempts to install the Amazon app store on their Android phone. Overall, only 3% of Android phones have successfully downloaded an app store from the web. At trial, Pichai confirmed that "[t]he more steps a user needs to take [to download an app store] the more friction there is" and "the more friction there is, the less likely the user completes that flow[.]" Spotify complained to Google that it should not "act as gatekeepers[.]"

d) Contracts with OEMS provided another source of friction. Google entered mobile app distribution agreements (MADAs) with every OEM that sold commercial Android phones that required them to install Google Play on the home screen of every Android-supported device that they made. Google also paid OEMs, other than Samsung, hundreds of millions of dollars, memorialized through revenue share agreements ("RSAs") to be the exclusive app store on these devices. James Kolotouros, Vice

President of Android Platform Partnerships, confirmed at trial that Google was paying larger revenue share percentages "to secure Play exclusivity" – *i.e.*, "that no other app store or app launcher or app installer could be preinstalled by an OEM[.]"

e) Owing to Samsung's size as a device manufacturer, Google had a separate agreement. Dealings with Samsung were codenamed "Project Banyan." Google proposed to pay Samsung to turn its proprietary app store, the Galaxy Store, into instead a way to direct user purchases to Google Play. Google's "Goal" was to "[p]revent unnecessary competition on store[.]" Google had to terminate Project Banyan when Samsung pointed out how it was an illegal agreement to not compete. Instead, Google agreed to pay Samsung $8 billion over four years to make Google Play, Google Search, and Google Assistant the defaults on Samsung smartphones. Samsung, in turn, agreed that "exclusive game launches would not be part of [its] core strategy going forward." Hiroshi Lockheimer, SVP of Android and Platforms, testified that he considers Samsung to be "[p]rimarily [a] partner but there are areas in which we compete," and confirmed that it was fair to characterize Samsung as "both, a partner and a competitor[.]" An email from Samsung to Google shown during trial stated, "We definitely don't want to compete with Play Store."

f) Google also used agreements to pay developers to forestall them from seeking to develop or push their own app stores. For example, Google started a payment program code-named "Project Hug" to forestall "contagion" of Epic Games seeking to have its own app store from spreading to other groups. Google then entered into agreements with 22 top game developers that it thought were big enough to "go it alone" and paid out hundreds of millions of dollars to disincentivize them from doing so: for example, Google paid Activision Blizzard $360 million in cash and other benefits. Lawrence Koh, former head of Google Play Games Business Development, testified that "Project Hug" was one of his "top priorities" because Google "had concerns that once top developers took their gaming content off of Google Play, that other developers would

potentially follow suit." These risks were presented up to the Google Business Council, which included then-CFO Ruth Porat.

g) Google then requires apps distributed through the Google Play Store to use Google Play Billing to process all in-app purchases, which Google most often charges a 30% commission for, which results in Google Play being a very profitable business with an operating profit margin of 71%. In the first half of 2020, Google Play's operating profit was $4.4 billion, a metric that was presented to the Alphabet Board. But Google Play Billing is considered to be an inferior product by many developers, including even YouTube, which is owned by Google, who considered it "damaging for our business." Michael Marchak, Director of Strategy and Operations at Google, testified that Google's internal study showed that transaction costs were only about 3%. Google Play Billing is also a separate product; Android's co-founder Rich Miner testified that it was developed by an entirely different team from Google Play. Furthermore, before 2020, Google allowed some developers to use in-app payment method other than Google Play Billing. Furthermore, only other players with tremendous market power in their own areas were able to cut special deals with Google: Spotify, for example, had a 6% rate because it "is a very important application and experience, essentially you can't sell Android phones without Spotify."

h) Trial testimony and documents also showed that Google's purported need to compete with Apple was a pretext, as Google's attempts to prevent "contagion" were for competition on Android, without considering Apple. For example, Google was concerned about Amazon opening a rival app store – because while Google Play "benefits from network effects" when "Users come to Play because we have by far the most compelling catalog of apps/games[]" and "Developers come to Play because that's where the users are" – if Amazon were to "have their own critical mass of users and developers, they'll also benefit from network effects. At that point, it will become much harder for us to compete."

i) Trial testimony by Donald Harrison, the President of Global Partnerships at Google, confirmed that Apple actually had a financial incentive to not compete with Google because of the tremendous Search ad revenues that Apple got from Google Search being the default placement on key access points, because Apple got a 40% gross or 36% net of Search ad revenues, which amounted to $18 billion in 2022. Harrison testified that the CEOs of Google and Apple met two or three times during the period of Apple's agreement with Google, and he noted that Tim Cook, CEO of Apple, told him that he "imagine[s] us being able to be deep, deep partners; deeply connected where our services end and yours begin[]" and that his takeaway from one such meeting between Pichai and Cook was that "[o]ur vision is that we work as if we are one company." Indeed, Apple's relationship with Google "is not limited to Search" with over a dozen Apple executives corresponding to a Google top executive as a direct point of contact on some relationship between the two companies. Indeed, Google considers its relationship with Apple "holistically" and so when Google "make[s] a decision on the competitive side, [it] need[s] to consider how it will affect all points of connection between Google and Apple, including the partnerships that are worth over $50 billion of revenue each year to Google[.]"

416. The final jury instructions in the Epic Games case were 55 pages long and were the product of extensive discussions with and submissions by the parties.[13] On December 11, 2023, the jury took three hours to find Google liable for antitrust violations. Thus, the following allegations, based on the various constituent suits in the MDL, are bolstered by trial testimony, exhibits, and jury and judicial findings in the Epic Games trial.

417. On December 19, 2023, the Utah AG and consumer antitrust cases sought preliminary approval for a settlement of $700 million and certain business reforms. But at a hearing on February 26, 2024, the Court expressed serious doubts about the value of the settlement – indicating that damages far exceed $700 million, and that the settlement would only amount to

[13] *Id.*

approximately $2 per class member. On November 14, 2024, the Court warned the parties that whatever revised settlement proposal they submit would have to be consistent with the Court's injunction in the *Epic Games* Action, because "[t]he world has changed since the consumers and states filed the proposed settlement." The Court gave the parties sixty days to submit a revised proposal. This proposal is pending before the Court.

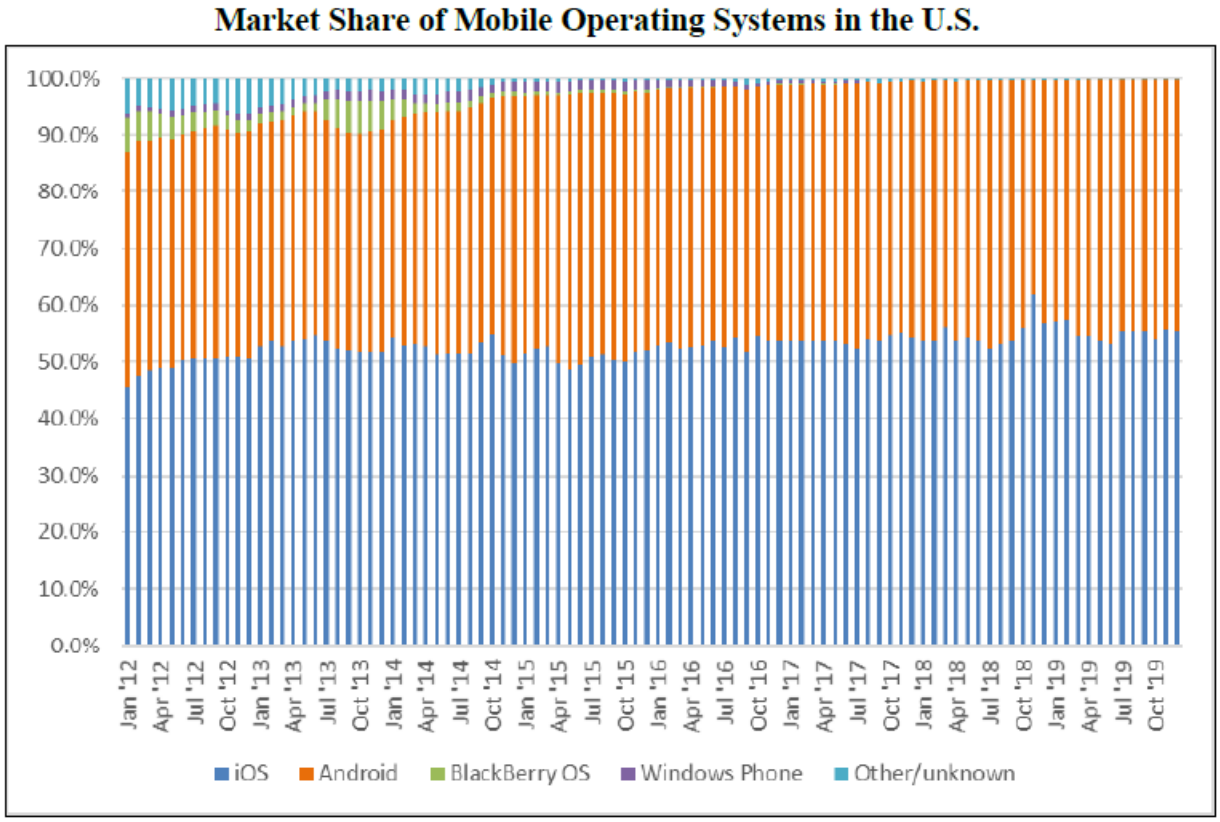
C. Google Dominates the Android OS Market

418. Google owns the Android OS, which is used in 99% of U.S. mobile devices that run a licensable mobile OS. The Google Play Store is the only practical means to obtain apps for the vast majority of Android mobile devices. While Google claims that consumers are able to install additional app stores on Android devices, in reality, Google imposes a series of technological challenges and pretextual warnings designed to prevent users from directly downloading ("sideloading") these app stores and apps.

419. A mobile operating system provides a mobile device with its underlying functionality, including a user interface and control interaction, and facilitates the operation of the device's features, such as the microphone, camera, and GPS. The mobile OS is the interface between mobile device hardware and the applications that run on the device, such as e-mail or video conferencing. A mobile OS is pre-installed on mobile devices; an alternative mobile OS cannot be installed or substituted.

420. Google's Android and Apple's iOS are the two dominant mobile operating systems. Combined, they run on more than 99% of all smartphones in the U.S. Apple's mobile devices run on Apple's proprietary iOS operating system, while other leading handset manufacturers, including Samsung, LG, and Motorola, run on Android. Over the past decade, competitors have exited the mobile OS market and Google and Apple have built dominant positions that are durable and persistent. Historical market share for the U.S. mobile OS market is reflected in the following graph:[14]

[14] From the House Report. Based on data from S. O'Dea, *Market Share of Mobile Operating Systems in the United States from January 2012 to December 2019*, STATISTA (Feb. 27, 2020),



421. Although Google's Android and Apple's iOS both hold dominant positions in the mobile OS market, high switching costs and a lack of on-device competition mean that neither firm's market power is disciplined by the presence of the other. Because iOS is not available on non-Apple devices, it cannot constrain Google's dominance in the mobile OS market. Consumers rarely switch mobile operating systems, with roughly 90% of users with an iOS or Android device choosing to replace their current device with a device operating on the same operating system.

422. Apps on mobile devices are akin to software applications on a personal computer. As on a personal computer, some software may be pre-installed by the original equipment manufacturer ("OEM"), but consumers can obtain additional apps to meet their specific use cases and preferences. On personal computers, app distribution occurs from a variety of competitive sources, including downloads from developer websites, storefront applications installed on an

https://www.statista.com/statistics/272700/market-share-held-by-mobile-operating-systems-in-the-us-since-2009/.

operating system such as the Windows Store or Steam app, or on store websites provided by companies such as Amazon, Apple, Google, or Microsoft. However, on Android devices, Google has foreclosed potential competition by eliminating alternative means to download apps, effectively eliminating the consumers' choice.

423. Mobile application stores are digital stores enabling software developers to distribute software applications to mobile device users. Users can install apps to access digital content or services, share content, play games, or make transactions for physical goods and services. Apps may be pre-installed on a mobile device as a component of the operating system or by the device manufacturer or downloaded and installed from an app store by a mobile device user.

424. Apps have become the dominant way that users access content on their mobile devices. In the U.S., nearly 90% of time users spend online on mobile devices occurs in apps. Software distribution via web apps or through a website accessible on a browser is not a competitively significant alternative to distributing apps through the dominant app store on a mobile device.

425. The mobile operating system on a device determines which app stores are available for users. The Google Play Store is the primary app store installed on all Android devices. Google nominally permits users to "sideload" alternative app stores, but it makes the process cumbersome, so that the Google Play Store is the dominant app store on Android devices. Almost all mobile app downloads (well over 90%) are made through the Google Play Store on Android devices. Google also determines the terms and conditions app developers must agree to in order to distribute software through the Play Store. Alternative app distribution through third-party app stores, or "sideloading," is largely irrelevant to the mobile app market.

426. The core benefit of mobile app stores – centralizing and curating software distribution – also gives Google control over which apps users discover and install. Google thus acts as a gatekeeper to the primary way users access content and services on mobile Android

devices. This dominance allows Google to establish terms and conditions app developers have to comply with, leaving developers with the choice of complying or losing access to consumers.

427. Google also develops and distributes apps that directly compete against third-party developers in its Google Play Store.

428. In 2008, Google launched the Google Play Store's predecessor, Android Market, which at the time offered fewer than 50 apps. Android Market was distributed as part of the open-source Android OS, and it became the *de facto* app store on early Android devices. Google described Android Market as "an open content distribution system," similar to YouTube. In August 2008, Google informed the public through its Android blog: "We chose the term 'market' rather than 'store' because we feel that developers should have an open and unobstructed environment to make their content available."

429. Early in the Android OS and Android Market lifespans, Google entered a suite of partnership agreements with OEMs and mobile carriers. These partners negotiated with Google for different degrees of control over Google's proprietary app pre-loading, app placement, and user experience. OEMs had bargaining power because they chose which OS to install on devices and whether to distribute Google's proprietary apps, including Android Market. Mobile carriers had bargaining power because they could customize devices, preinstall apps and app stores, and offer "direct carrier billing" for Android Market purchases, which allowed purchases to be charged to a user's mobile phone bill through the mobile carrier.

430. Google assured mobile carriers, OEMs, and consumers that it would operate Android Market as an "open system" for the benefit of Google's partners and app developers, a façade which Google maintains today. For example, on Google's own website maintaining the purportedly "Open Source Android Project," Google describes the Android Open Source Project as follows:

> Android is an open source operating system for mobile devices and a corresponding open source project led by Google. This site and Android Open Source Project (AOSP) repository offer the information and source code needed to create custom variants of the Android OS, port devices and accessories to the Android platform,

> and ensure devices meet the compatibility requirements that keep the Android ecosystem a healthy and stable environment for millions of users.[15]

431. Google also pledged to consumers that the Android source code was an "open source platform" that was "available for anyone to view, download, modify, enhance, and redistribute" in or around 2009. Google understood that its promise of Android's "openness" and revenue sharing strategy were key to securing critical mass for Android Market, and that it could later use the dominance of its Android app store to control the Android ecosystem.

432. Google's "openness" commitments to OEMs and mobile carriers were knowingly false when made and were material to Google's obtaining a monopoly in app distribution. Google promised repeatedly that Android would be the basis for an "open" ecosystem in which industry participants could freely compete, and, in Google's words, have "[f]ull control of [their] brands and business." For instance, in August 2008, Google informed the public through its Android blog that developer should have, "an open and unobstructed environment to make their content available."

433. According to the Utah AG Action, in 2009 through at least 2010, internal Google presentations indicated that Google offered "open-source," "free" Android to induce widespread adoption and attain market dominance. For instance, in a 2009 presentation, a Google executive answered the question, "Why don't we license Android?" by stating, "We need the highly-fragmented mobile industry [to] adopt Android. You can't beat free." The executive posed another question, "Why not take a rev-share on Market?" The answer: "We don't have a dominant market position right now."

434. By 2010, internal Google presentations indicated that, "Google was historically seen as a threat to [mobile carriers], [in that] giving up control was a key component of [mobile carriers] adopting Android." But, "[i]f we gave it away, how can we ensure we get to benefit from it?" The answer lay in controlling the app store – Android Market, and, later, the Google Play Store. "We created the first app store for Android and it got critical mass quickly. The store now

[15] *Android Open Source Project*, (ANDROID) SOURCE, https://source.android.com/ (last visited Match 3, 2025).

has value and partners want access to it because of the number of apps available." Google intended to, "[o]wn the ecosystem [it] enabled" by attaining dominance through the Google Play Store.

435. As Google recognized when looking back in 2009, "[t]he novelty of smartphones and apps, combined with a material utility advantage relative to the Web, gave Apple and Android an opportunity to define new closed Internet ecosystems. These new closed ecosystems centralized Content distribution via app stores . . . [and] payments via app store services." To own the ecosystem, Google intended to "[s]et the rules." Having driven adoption of Android by promising an open platform outside its control, Google intended to close the ecosystem once it had the market power to do so.

436. Closing the Android ecosystem allowed Google to claim a larger share of the revenue generated through the distribution of Android apps through its app store. To do this, Google reneged on its repeated assurances that Android Market would operate as an open, revenue-neutral system, which were the key factors driving initial adoption of Google's app store. Google launched the rebranded Google Play Store in 2012, run entirely for Google's own benefit and breaking Google's promises to operate the Play Store in a revenue-neutral manner for the benefit of the Android ecosystem. Google thereby capitalized on the lucrative revenue stream it saw through Android app purchases.

437. Google Play Store earned $11.2 billion in 2019. By 2024, Google Play Store is estimated to have earned that much money in a quarter. And according to the House Report, internal documents show that between 2011-2015, the Play Store contributed 85% of Google's total revenue from the Android ecosystem (operating system, hardware, and Play Store). Thus, Google has every incentive to maintain and further entrench its monopoly on the Play Store, as one of its extremely profitable businesses.

1. Technical Barriers to Prevent Android App Distribution Outside of the Google Play Store

438. Google presents ominous warnings to consumers who try to sideload apps, warning that installation of a competing app store "can harm your device." Google alternately simply blocks the download of competing app stores, with a message stating, "your phone is not allowed

to install unknown apps from this source," and options to either "Cancel" the download or proceed to "Settings," with no indication that installation is possible through the "Settings" option. Google has also responded to the sideloading of app stores by having a message displayed on Android phones warning that the user's "phone and personal data are more vulnerable to attack" and requiring users to actively agree that they are "responsible for any damage" to the phone "or loss of data that may result" from the installation. Internally, Google acknowledges the hurdles it has erected to sideloading, noting that there are "15+ steps to get app vs 2 steps with Play or on iOS," in a 2018 presentation to senior executives.

439. In reality, "sideloading" apps on a mobile device is not materially different from downloading an application on a personal computer – a task millions of computer users perform safely and easily every day. Google's warnings to users grossly exaggerate the risks of sideloading. Google itself claims that it "analyzes every app that it can find on the internet," and categorizes a subset of them as "Potentially Harmful Applications," or PHAs. Yet it provides dire user warnings falsely describing even highly popular apps from well-known developers, including a competitor such as Amazon, as "unknown apps." This gives consumers the false impression that even apps that Google has analyzed and determined not to be PHAs nevertheless present an appreciable risk of "damage" to a user's phone, including loss of data or exposure of sensitive user information. Google touts Android's built-in security measures as scanning "more than 100 billion apps every day," and directs users to take action against PHAs it does find on their devices, or automatically disables them. Yet Google chooses to provide inaccurate information to users regarding the sideloading of such apps on their Android devices.

440. Moreover, even if a user overcomes Google's obstacles to downloading an app directly, the user faces continuous additional difficulties in keeping the sideloaded app store or app up to date. This is because Google prevents such apps from updating in the background, requiring users to manually approve every update via a multistep process, including: (1) opening the app store you used to install the app on your device; (2) searching for the app and opening the details

page for the app; and (3) finding the update option that displays, if available. This multi-step process further discourages consumers from using alternatives to the Google Play Store.

441. Google uses a series of technological barriers and pretextual warnings designed to prevent users from sideloading Android apps and app stores onto their Android devices. Google promotes the misleading and overbroad premise that it is harmful to download apps from "unknown" sources, which includes every other source other than the Play Store. In particular, Google's own website states under the heading, "***Download apps from other sources***: 'Important: If you download apps from unknown sources, your phone and personal information can be at risk. Your phone could get damaged or lose data. Your personal information could be harmed or hacked.'"[16]

442. Google's notice regarding the security risks and dangers of sideloaded apps have the capacity, tendency, or effect of deceiving or misleading consumers and/or app developers. The security settings and warnings associated with sideloading limit even mainstream, non-malicious apps and app stores, such as the Amazon Appstore and *Fortnite*, from reaching Android users. Yet Google makes no effort to differentiate harmful apps and app stores from apps it knows to be safe, instead labeling all non-Play Store apps and app stores as malicious.

443. When a user attempts to sideload an app or an app store to their Android device, Google displays an ominous warning that the installation file "can harm your device." Google's Android further blocks the attempted download and alerts the user that, "your phone is not allowed to install unknown apps from this source," presenting the user with only two options – "Cancel" and "Settings." There is no indication that installation is possible through the "Settings" option. Further, the user is warned that his or her "phone and personal data are more vulnerable to attack" by the "unknown app," and required to select a feature by which he or she agrees that he or she is "responsible for any damage" to the phone "or loss of data that may result" from the installation –

[16] *Download apps from other sources*, (GOOGLE SUPPORT) PIXEL PHONE HELP, https://support.google.com/pixelphone/answer/7391672?hl=en (last visited Jan. 10, 2022).

warnings that are designed to scare the user and convince them to abandon their attempts to install. Google also labels apps that are sideloaded "UNSAFE."

444. On its website, Google also represents to users that it "analyzes every app that it can find on the internet," and categorizes a subset of them as PHAs. If it finds a PHA on a user's device, it directs actions against the PHA or automatically disables the PHA for the user. Additionally, it tells users that Android is "secure to the core," and that "[Google] guard[s] each app at the operating system level, so other apps won't snoop on what you do."[17]

445. Google's representations that appear when a user attempts to sideload an app or app store on an Android device led users to believe that sideloaded apps or app stores are "unknown," harmful, and could damage their devices. Google purposefully deceives users by presenting warnings that falsely describe highly popular apps from well-known developers as "unknown app[s]," giving the user the false or misleading impression that apps and app stores downloaded from any source outside of the Google Play Store are PHAs or that they are otherwise harmful. Google displays these misleading warnings in order to dissuade users from installing apps or app stores outside the Google Play Store, keeping all Android apps within Google's walled garden.

446. Google's statements regarding the dangers of sideloading were knowingly false at the time they were made. The Utah AG Action quotes a 2015 presentation to manufacturers and states that "potentially harmful applications" constitutes only a fraction of a percent of all app installations and that the low security risks mean that "some of the third-party security services that are required on other platforms" such as anti-virus and anti-malware software "are not necessary on Android." Instead, "the single largest threat to Android security" came from manufacturers' not updating users' devices with security patches. The Utah AG Action also quotes a 2018 Google white paper that states that potentially harmful applications are present on "only 0.08% of devices that exclusively used Google Play" and "0.68% of devices that installed apps from outside of Google Play." Thus, Google itself knew that less than 1% of devices that installed apps from outside Google Play Store had potentially harmful applications.

[17] *Mobile Safety*, ANDROID, https://www.android.com/safety/ (last visited Jan. 10, 2022).

447. Google initially allowed sideloading in order to project an image of "openness" while it gained scale and market share. After achieving dominance, however, Google increasingly saw sideloading as a threat to the Google Play Store and erected additional barriers to prevent it from competing on Google's Android operating system. For example, when Epic Games began discussing the possibility of launching its highly touted videogame, *Fortnite*, as a direct download, Google responded in internal communications that the technical difficulties it had implemented to prevent sideloading had created "install friction" that would "drastically limit [*Fortnite*'s] reach." Google internally also predicted that, among other difficulties with sideloading an app like *Fortnite*, "[t]he approach will create significant user confusion, since [Google Play] will attract [billions] of users who will search for Fortnite and run into dead ends that aren't clear how to resolve." (Brackets in original).

448. Google has also acknowledged that the security settings and warnings associated with sideloading limit even mainstream, non-malicious apps and app stores from reaching Android users. Even secure, highly curated Android apps and app stores like *Fortnite* and the Amazon Appstore are subject to such warnings. When *Fortnite* decided to have users install its Android distribution through sideloading, Google noted internally that Epic Games' reach without the Play Store would be significantly lower as only 15% of Android users in the United States had "unknown sources" enabled in their Android operating system. Google also itself internally discussed that the security warnings and barriers affected the viability of Amazon's app store, noting that, "users need[] to understand unknown sources" in order for such an app store to even be installed on an Android device.

2. Google's Contracts Further Prevent OEMs from Circumventing Google's Technical Barriers

449. In addition to the technical friction Google implements in the Android operating system to prevent the sideloading of competing app stores, Google also imposes contractual restraints on OEMs. An OEM that wishes to market an Android device with Google's proprietary apps and services must first sign, *inter alia*, an Anti-Fragmentation Agreement ("AFA") or Android Compatibility Commitment ("ACC"). The AFAs and ACCs have two key provisions

pertinent to Android app distribution: Google requires signatories to: (1) refrain from any actions that may cause or result in the fragmentation of Android; and (2) agree to restrictions on the manufacture and sale of devices running forked versions of Android.

450. The AFA and ACC compatibility standards require OEMs to implement Google's restrictions and warnings about sideloading. As a result, these agreements foreclose OEMs from modifying Android to offer frictionless sideloading of competing app stores, which Google would consider an impermissible "Android fork."

3. Google's Contracts Also Block Competing App Stores from Distribution on the Play Store

451. Google forces app developers, as a condition of having their app listed on the Google Play Store, to sign a non-negotiable Developer Distribution Agreement ("DDA"). The DDA prohibits developers from using Google Play to distribute or make available any product that facilitates the distribution of software applications and games for use on Android devices outside of Google Play. The DDA thereby prevents any app on the Google Play Store from competing in distributing apps on the Android ecosystem. The DDA also grants Google the right to remove and disable any Android app that Google determines has violated the agreement.

452. Google has imposed the DDA and its Google Play Store restrictions since at least 2009, when the section of the agreement was labeled "Non-Compete." Over time, Google has only tightened the anticompetitive restrictions in the DDA in response to specific threats posed by app distribution competitors, such as Amazon. For example, the original language in Google's DDA was limited to apps that had a "primary purpose" of facilitating distribution of apps outside the Google Play Store, which allowed some flexibility for developers to use the Play Store to distribute Android apps that also linked to apps that could be downloaded outside Google's Play Store. In 2012, however, when Amazon attempted to distribute its app store to consumers directly through its Amazon Store app (which was itself distributed on the Play Store), Google took swift action. Google alleged that Amazon had violated the DDA agreement and threatened to remove Amazon from the app store just days before Black Friday.

453. Amazon used a browser within its app to direct users to download Android application files directly, circumventing the Google Play Store and effectively allowing customers to download Amazon apps without going through the Play Store. Google also changed its DDA provisions in response to Amazon's app packaging. In September 2014, Google updated its DDA to "provide additional clarity around the distribution of third-party apps on Google Play to maintain a secure ecosystem." Eventually, Amazon was forced to disable this functionality, and its app store was only available via sideloading, making it significantly harder to reach Android users.

4. Google Unlawfully Ties Advertising Offerings to the Google Play Store

454. Google also prevents app developers from advertising alternative app distribution channels on advertising spaces owned and controlled by Google. Google's requirement that app developers not advertise competing app platforms unreasonably restricts advertising of competing app distribution channels and further secures Google's dominance.

455. Google's App Campaigns program allows developers to promote apps through ad placement on key online advertising channels, including, *inter alia*, Google Search, YouTube, Discover on Google Search, and the Google Display network. These placements are optimized for the advertising of mobile apps. Because Google Search is the overwhelmingly dominant search engine in the United States, it is a vital channel for app developers to reach customers. Google's YouTube is likewise a key means for developers to reach consumers. But none of these channels are open to Android app developers unless they list their apps on the Google Play Store, and Google will not allow any developer to advertise alternative Android app distributions.

5. Google's Exclusionary Contracts Further Prevent the Development of a Competing App Distribution Platform on Android

456. Google imposes contractual restraints on mobile device manufacturers by requiring them to enter into MADAs and revenue share agreements ("RSAs") in order to receive a share of Google's advertising revenues. As described in the sections concerning General Search, *supra*, in exchange for sharing revenue, Google gains exclusivity and therefore maintains control over general search access points. Google's MADAs and RSAs also contain additional restrictions to

prevent the development of competition when it comes to the distribution of apps on the Android operating system.

457. Google, through its MADAs, bundles the Android trademark, the core functionality provided by Google Play Services, the Google Play Store, and its proprietary apps – requiring device manufacturers and consumers to accept all those pieces that they demand, along with those they do not – in a single package, without any legitimate justification.

458. Google's MADAs prevent mobile device manufacturers from promoting competing app stores through pre-installation. First, Google's MADAs and RSAs require mobile device manufacturers to preinstall and place the Google Play Store icon on the home screen of Android devices, and also require that no competing app store be any more prominent. Second, Google's MADAs require mobile device manufacturers to preinstall a suite of Google proprietary apps, to make it impossible to delete or remove many of these Google apps, and to provide all of them preferential placement on device home screens.

459. Google's MADAs prevent mobile device manufacturers from distributing Android devices without the Google Play Store or opting to instead preinstall only third-party app stores (such as the Samsung Galaxy Store or the Amazon Appstore). But because Google Play Services is bundled with the Play Store, most of the top apps in third-party stores would not work because Google would withhold essential APIs, causing the competing app stores to work incorrectly on Android devices. For example, without Google Play Services, any app using location and mapping functionality (such as a ride-share app or real estate app), push notifications (any app that creates a reminder, a personalized notification, or handles e-mails or other messaging), or Google's AdMob (any app that monetizes through in-app advertising) would not properly function. Google Play Services also provides security updates and related services for Android devices, meaning that devices lacking the bundled Play Store would not receive such updates. By bundling Google Play Services with the Google Play Store, Google ensures that the Google Play Store ***must*** be on every Android mobile device for apps to function correctly.

460. Google also prevents the development of competing Android app stores through entering RSAs with OEMs and carriers. The RSAs serve as an inducement to enter into Google's restrictive AFAs, ACCs, and MADAs, offering revenue share in exchange for complete domination by Google. The agreements require Google's counterparties to refrain from competing against Google, and refrain from any act that Google may deem a violation of its deliberately vague and frequently changing web of contractual requirements.

461. In 2009, shortly after the launch of Android, Google began discussing using RSAs to address the "challenge" of mobile device manufacturers and mobile carriers looking to create their own app stores. Google's goal was to discourage device manufacturers and mobile carriers from creating competing app stores and incentivize the use and development of the Google Play Store.

462. Google's RSAs allowed it to secure the Android market by splitting revenue with certain mobile device manufacturers and mobile carriers. Google knew at the time that mobile carriers would not allow Google to corner the market unless it shared its advertising revenue. In 2009, Google entered into RSAs with several mobile carriers, splitting Android revenue share among app developers, mobile carriers, and Google. These agreements allowed Google to penetrate the market, providing an incentive for mobile carriers to give up their own siloed app distribution channels in favor of the Google Play Store. Google ultimately provided revenue share to both device manufacturers and mobile carriers in order to secure its dominant position and ensure widespread adoption of Android and the Google Play Store.

463. Google's revenue share agreements with device manufacturers have prohibited the preloading of competing app stores, apart from the manufacturers' or mobile carriers' own branded stores in some limited cases. Google knew that the incentive of revenue share, combined with the restrictions of its MADAs (including default placement requirements) would ensure that any manufacturer or carrier or app store would pose no real competitive threat to the Play Store, completely foreclose all third-party app stores from the vital distribution channel of coming preloaded on any Android device, and give the Play Store effective exclusivity.

464. By 2019, Google implemented even more restrictive agreements in order to secure its Play Store monopoly. Google (1) offered substantially higher revenue share through a new tier called "Google Forward," which required Google Play Store exclusivity and completely barred manufacturer or carrier stores on Android devices; (2) entered a separate, even more costly and restrictive agreement with Samsung (Google's primary app store competitor), further ensuring Google's app distribution monopoly (called Project "Banyan"); and (3) made additional payments to key app developers that would have otherwise worked with Samsung, or other app distributor competitors, to ensure that they continued to exclusively develop for the Google Play Store (called Project "Hug").

6. Google Bought off Samsung and Used Additional Restrictive Contracts to Further Prevent Development of a Competing App Store

465. Google protects its monopoly profits from app distribution by maintaining the dominance of the Google Play Store and preventing any competitors from attaining any semblance of scale for distribution. Even though Google's exclusionary conduct covers all of the dominant device manufacturers and mobile carriers that build or distribute Android devices, in recent years, Google has recognized that only one mobile device manufacturer, Samsung, had enough market share to plausibly build its own mobile app store to rival the Google Play Store in key markets. Google internally, through a March 2019 presentation on Google Play, identified "incorporat[ing] Play protections into OEM rev share contracts (primarily Samsung)" as a solution to risks posed by alternate stores to the Google Play Store's business.

466. Samsung's Android devices make up approximately 60% of Android devices in the United States. Samsung began to revamp its own app store, the Samsung Galaxy Store, beginning in 2018. The Samsung Galaxy Store had historically performed poorly, so that Samsung had to resort to seeking out deeper integrations with the Google Play Store to distribute Samsung-specific apps. Google itself estimated that users spent only 3% of the time on the Samsung Galaxy Store that they spent on the Google Play Store, and that the Galaxy Store did not cannibalize the Play Store's revenue. However, Google feared Samsung's ability to add certain popular apps on its

Galaxy Store – for example, exclusive popular game titles – which would allow Samsung to break into the app distribution market.

467. In 2018, Samsung partnered directly with *Fortnite* developer Epic Games to launch the mobile version of Epic Games' popular *Fortnite* game, exclusively on the Samsung Galaxy Store. By bypassing the Google Play Store, Epic Games was able to earn an estimated $300 million of revenues that otherwise would have been lost to Google's gatekeeping. The Samsung-Epic Games exclusive agreement threatened Google by: (1) presenting a cheaper, more developer-friendly alternative to the Google Play Store because Samsung allowed more generous terms for app developers on its Galaxy Store; and (2) allowing apps on the Galaxy Store to link to separate app installers outside of any app store, which would directly connect consumers and app developers, allowing consumers to "sideload" content and allowing Epic Games and other app developers to offer content directly to consumers, further bypassing the Google Play Store.

468. Samsung also pursued exclusive rights with other popular game developers such as Riot Games, Inc., Activision Blizzard, Inc., and Blizzard Entertainment, Inc. Samsung further indicated to Google its intent to place the Samsung Galaxy Store on the home screen of its next generation of devices, threatening the Google Play Store's status as exclusive app store with prime placement advantage.

469. Google preemptively squashed Samsung's nascent Galaxy Store app before it had a chance to become a legitimate competitor to the Google Play Store. Google immediately launched multiple coordinated initiatives designed to block the Galaxy Store by interrupting Samsung's relationships with developers and consumers, including: (1) Project "Hug," an initiative focused on tying popular mobile games directly into the Google Play Store ecosystem to discourage developers from dealing with Samsung; and (2) Project "Banyan," a second set of initiatives aimed at convincing Samsung itself to abandon its plans to form independent relationships with app developers. Project Banyan (also subsequently known as Project "Agave") was a direct attempt to pay Samsung to abandon its fledgling relationships with top developers and eliminate the competition represented by the Samsung Galaxy Store. This was an integrated

approach Google took to eliminate the threat of more developers following Epic Games' lead by either partnering with Samsung or distributing directly to consumers through sideloading. Project Hug and Project Banyan/Agave were complementary, self-reinforcing, and calculated to eliminate competition in the most cost-effective manner possible. Google, for instance, assessed which project would provide the "best ROI."

470. Google's concessions to Samsung in order to stave off competition from the Galaxy Store were multiple. While Samsung was initially interested in speaking with Google about how the stores could collaborate, Google, through its Project Banyan initiative, proposed to pay Samsung a large, undisclosed sum to give up its direct commercial relationships with consumers and developers – to essentially give up the development of its Galaxy Store. Google also secured Google Play Store exclusivity on all Samsung devices on the default home screen and the adoption of Google-defined Android game device standards devised by Google.

471. Project Banyan was scheduled to be implemented between 2019 and early 2020, when Samsung's 2017 RSA was due for renewal. However, when Google initially approached Samsung in June 2019, Samsung indicated that Google's money offer was too low and that it would prefer a more favorable revenue sharing arrangement. Google, in turn, knew that it was most important to prevent Samsung from seeing its actual Google Play Store-related revenues, because if Samsung knew Google's revenues it would be much harder to buy their agreement not to compete.

472. Google employees repeatedly emphasized the need to avoid divulging to Samsung (and other device manufacturers) Google's Play Store business economics and year-over-year growth. Google prefers to negotiate a fixed dollar amount with device manufacturers for the same reason – to avoid adverse financial impacts related to small percentage changes in revenue numbers, as well as to avoid disclosure that their revenue share offers are such a small percentage of total revenues from the Play Store. However, Samsung desired a Play Store revenue percentage as opposed to a lump sum. As a counteroffer, Google prepared to combine Samsung's Google Search revenue share with its Play Store revenue share into a single number in order to obfuscate

its Play Store business margins – allowing Google to make a revenue share offer when it presented its offer to Samsung without divulging its Play Store margins. Further underlining Google's dominance and the asymmetry in bargaining positions between Google and Samsung, Samsung has to rely entirely on Google's declaration of its Play Store revenues to calculate the revenue share that it is entitled to pursuant to Google's RSAs.

473. Project Banyan negotiations between Samsung and Google came to a halt by July 2019, when Google's business team terminated Project Banyan and embarked on a new effort, Project Agave. Agave was merely a different implementation of the same anticompetitive goal: a proposal to offer to pay Samsung a percentage of Play Store revenues to prevent Samsung from developing relationships directly with consumers and app developers through its Galaxy Store. Google also offered, through additional undisclosed terms, a proposal that would combine the Galaxy Store and Google Play Store through a co-branding arrangement, which would essentially make the Samsung Galaxy Store a white label for Google's app distribution services, eliminating a nascent app store competitor.

7. Google Bought off Key App Developers to Further Stifle Competition for Android App Distribution

474. In addition to the Project Banyan and Agave efforts to eliminate competition from the Samsung mobile device manufacturer app storefront side, Google also bought off key app developers to prevent them from making their apps available outside of the Google Play Store, either through direct distribution or through competing app stores. Google shared its monopoly profits with these app developers through additional agreements, adding additional distribution restrictions through addenda to its existing agreements with app developers. Google called this strategy Project Hug – derived from "bear hug," aptly named considering its crushing effect on competition.

475. Internally, Google saw its buy-offs of Samsung and certain app developers as two sides of the same overarching scheme, with project documents stating: "Hug reduces the risk of the Samsung scenario, but [without Projects Banyan and Agave] significant risk remains." (Brackets in original.) Google feared that key app developers might have strong enough

relationships with customers, and enough brand recognition, to distribute their apps outside the Google Play Store, either directly through sideloading, or through app stores other than the Google Play Store. If these larger developers were successful, smaller developers might follow suit, and consumer interest and comfort in alternative app stores, or direct downloads, could increase as a result – a potential disaster for Google's maintenance of its app store monopoly.

476. In response to Epic Games' decision to bypass the Google Play Store with its *Fortnite* mobile launch in 2018, Google anticipated as a threat that other developers could follow suit – a process where the Google Play Store was cut out as middleman, internally called "disintermediation." Google quantified Epic Games' decision as a potential $3.6 billion revenue loss if Epic Games' decision were to see "broad contagion to other developers." Google's worst-case scenario was that "Fortnite may legitimize 'Samsung' store & 3rd party stores; fragmenting app distribution on Android."

477. Google also understood that their monopolistic practices were illegal and could draw the ire of regulators, so that Google's only chance was to make sure that regulators never heard complaints about Google's anticompetitive conduct. Google staff wrote: "[r]egulatory wise: the only way to shore up our business is to be CONSISTENT . . . If no one complains (ie [sic] we don't make a change) there's a chance regulators will poke at inconsistencies, but it's made more likely when developers complain, which will be more likely if we make a change(?)" Google viewed its projects Banyan, Agave, and Hug as an extension of its other anticompetitive agreements, as part of a unified strategy to lock key app developers into the Google Play Store while also eliminating the possibility that Google's potential competitors (most prominently, Samsung) would never enter into the market with competing app stores.

478. As Google itself stated, the Hug program successfully prevented another major app developer, Riot Games, Inc., from following Epic Games' decision to launch apps to be distributed outside of the Google Play Store. Google saw Project Hug's overarching purpose as an "insurance policy" to protect Play Store revenues by taking the fangs out of competing app stores while allowing Google to hold its 30% cut of all app store revenues.

479. By the end of 2020, Google had paid off approximately 20 top app developers in order to maintain its monopoly.

8. Android in-App Payment Processing

480. In addition to its anticompetitive conduct concerning Android app distribution, Google coerces developers into using its services exclusively for the separate market of in-app payment processing for Android digital content (the in-app payment processing market, or "IAP Processing Market").

9. Google Unlawfully Ties in-App Billing to the Google Play Store

481. Google requires app developers to exclusively use its Google Play Billing, an in-app payment processor, for all in-app purchases of digital content for apps placed on the Google Play Store. Digital content includes all products and services consumed in a developer's app, as opposed to tangible goods and services outside the digital environment, which must use a payment processor other than Google Play Billing.

482. Google further requires app developers to enter into a standardized DDA, which is a contract of adhesion controlled by Google, as a condition of having the developer's apps distributed through the Google Play Store. The DDA unlawfully ties distribution of apps in the Google Play Store to Google's in-app payment processor. It is further unlawful in that it constitutes an exclusive-dealing arrangement. Under the DDA, developers are required to enter into a separate agreement with Google Payment, a subsidiary that is not part of Google's Play Store business unit, to use Google Play Billing for all digital content sold in apps downloaded through the Play Store. Further, the DDA requires that app developers comply with Google's Developer Program Policies. Those policies require that: "1. Developers charging for apps and downloads from Google Play must use Google [Play Billing] as the method of payment. 2. Play-distributed apps must use Google [Play Billing] as the method of payment if they require or accept payment for access to features or services, including any app functionality, digital content or goods." (Brackets in original). By contrast, Google's policies require that developers not use Google Play Billing to process payments "for the purchase or rental of physical goods (such as

groceries, clothing, housewares, electronics); for the purchase of physical services (such as transportation services, cleaning services, airfare, gym memberships, food delivery, tickets for live events); or a remittance in respect of a credit card bill or utility bill (such as cable and telecommunications services)." "[F]or physical products and services," Google's policies require a payment processor other than Google Play Billing.

483. For payments subject to Google's requirement to use Google Play Billing, developers are further prohibited from "lead[ing] users to a payment method other than Google [Play Billing]." This provision bars developers from linking to a website or other service that would compete with Google Play Billing and process payments more cheaply. The restrictions are comprehensive: "Within an app, developers may not lead users to a payment method other than Google Play's billing system. This includes directly linking to a webpage that could lead to an alternate payment method or using language that encourages a user to purchase the digital item outside of the app."

484. The foregoing provisions, when taken together, constitute an intensive exclusionary system whereby Google Play Billing has become the only payment processor that an Android developer may use for digital content within Android apps.

10. Google's Monopoly over the IAP Processing Market

485. Google's contractual tie of Google Play Billing to the Google Play Store illegally secured and maintains its monopoly in the IAP Processing Market. Google maintains this monopoly over a discrete market for in-app payment processing services for digital content within Android apps.

486. Payment processing services consist of software employed by merchants that performs the necessary steps to verify and accept, or decline, a customer's purchase (or attempted purchase). Payment processing services frequently provide additional customer-facing functionalities, including invoicing, payment history, and refund processing.

487. The IAP Processing Market comprises: (i) Google Play Billing; and (ii) alternative payment processing services that, absent Google's tie, Android developers could employ to

process payments for in-app digital content. Google's competitors or potential competitors include PayPal, Braintree, Adyen, WorldPay, Chase Limited, and software developers who write proprietary payment processing software. These alternatives cannot enter the IAP Processing Market because of Google's anticompetitive tie. Apple, because it is a closed ecosystem, is not a competitor to Google in the IAP Processing Market.

488. The ease and speed of in-app purchases are critical to both the consumer experience and the likelihood of a sale: too much friction ensures that a consumer will not make an in-app purchase. Requiring a consumer to purchase digital content outside of a mobile app to process payments elsewhere could result in the user simply abandoning the purchase or ceasing interaction with the app altogether.

489. In-app purchases represent substantially greater revenue than that received by developers for pay-to-download apps, so in-app purchases are critical to app developers. Accordingly, app developers focus on making their in-app purchases as frictionless as possible. Consumers also seek to have their purchases as seamless as possible, insomuch as any interruptions to their use of the app is likely to cause a consumer to fail to complete the transaction. Developers and consumers alike benefit from a payment processor that supports in-app payment, such that payment processing which relies on a process forcing a consumer to interact outside of an app would not be reasonably interchangeable. Purchasing through a link in an app to a developer's website, for example, is not reasonably interchangeable because it forces a user to exit the app – which, in any event, is also prohibited by Google's policies because Google forces developers to sign contracts prohibiting them from referring or directing users to websites for payment outside the app environment.

490. Google's tie of these two distinct services (app distribution and in-app payment processing) is not technologically necessary. Third-party payment companies operate in other digital and real-world ecosystems, including, for example, desktop computers and in-app purchases of physical goods. Companies like PayPal and Braintree, for instance, offer payment processing at a significantly lower price than Google Play Billing. These companies offer payment

processing at the same fee (to the cent) of 2.9% of the sale plus 30 cents, which is 10 times lower than Google Play Billing's 30% supracompetitive commission. Payment processing providers also compete on dimensions of convenience, speed, security, privacy, and customer service. Google faces no competitive pressure to provide consumers quality customer service or meaningful privacy protections from its own data harvesting, because it has locked all competitors out of the market.

491. In addition, payment and distribution services are routinely sold separately in other digital ecosystems. For instance, Google already allows Android app developers to use a third-party payment processor such as Adyen, PayPal, or Braintree for in-app purchases of physical products and out-of-app services such as those offered by Amazon, Airbnb, or Uber. For in-app purchases of digital content, however, app developers are required to use Google Play Billing as their exclusive payment processor if they wish to distribute their apps through the Google Play Store.

492. Android developers often choose to use a competitor for payment processing services where Google's restrictive enforcement practices permit, such as for in-app purchases of streaming services. Google's competitors typically offer far lower costs, more favorable terms of service, more timely payment to merchants, more payment method options (*e.g.*, Apple Pay, Venmo, bank transfer), and more freedom to set prices than Google offers. These practices could be readily adapted to the IAP Processing Market, but for Google's unlawful restrictions. Google's unlawful contracts and policies prevent competitors from currently having more than a negligible share of the market; its illegal tying arrangements prevent other third-party payment processors from entering the market.

493. Consumers are largely unaware of Google's tie, face high information costs in learning about it, and do not provide informed consent to it when purchasing an Android device. Further, consumers who purchased Android devices prior to Google's September 2020 announcement to developers that streaming services would be forced to use Google Play Billing could not have possibly known that Google's tie would affect their future purchases of streaming

service subscriptions and content from Google Play apps. Moreover, Google never released a forthright disclosure to consumers of Google's monopolistic practices of foreclosing competition and taking supracompetitive commissions.

11. Google Sets IAP Processing Commissions at Will

494. Google's power in the marketplace allows it to set supracompetitive commissions on all Android in-app purchases for digital goods. The commission rate Google charges on IAP processing is not the result of the technical interdependence of Android app distribution and in-app payments, competitive pressure, or any other commercial consideration.

495. Google is able to set the price for its IAP processing services at will, independent from competitive forces. Rather, Google was inspired by Apple's supracompetitive rates that the latter charged in its store. According to internal meeting minutes from the Company subsequently made public, when Google employees contemplated the Company's supracompetitive 30% commission, one employee asked, "[w]here does the 30% rev share number come from," to which another responded, "pretty sure Steve Jobs just made it up for itunes [sic]." Other internal documents reveal Google employees are uncomfortable with the Company's exploitative commission: "We want to feel good about the rev share that we charge – have it make sense to us. And it feels like there's discomfort with what we are charging."

496. By contrast, in the Google Chrome Web Store, Google's app store for the Chrome web browser used on personal computers, Google charges a 5% commission per transaction for consumer purchases of digital content, because Google is subject to market competition in this market. Similarly, for Google's payment processing for subscription streaming services accessed not through Android apps, but through Google Search, Google staff suggested a 5% commission as appropriate, because they noted that payment platforms like Stripe were currently charging commissions between 2%-4%. Google even discussed branding its billing services differently ("GPay" instead of "Google Play") in order to limit "contagion" – *i.e.*, in order to enable Google to continue to charge a supracompetitive 30% fee for Android IAP processing services.

497. In its payment policies, Google offers no rationale for why the payment services it provides for digital content justify its supracompetitive 30% fee, nor any rationale for why sales of physical content are exempt from its supracompetitive fee.

12. Anticompetitive Effects in Android App Distribution

498. Google's anticompetitive efforts with respect to the distribution of apps on its Android platform caused anticompetitive harm and antitrust injury to consumers, app developers, and competing Android app stores. Google's anticompetitive practices have the effect of stifling innovation, raising prices, limiting choices, depressing output, and reducing profits for developers.

499. Google's anticompetitive restrictions are directed toward, and do cause, harm in the market for Android app distribution, a market that consumers directly participate in by buying apps. Google places restraints on device manufacturers and developers specifically to prevent consumers from using alternative app distribution channels, which the restrained parties would otherwise be well-positioned to create. Google, as a result, is able to make supracompetitive profits from consumers.

500. Google's anticompetitive conduct harms consumers by impeding competition among app distributors who would otherwise innovate new models of app distribution and offer alternatives to the Google Play Store. Because of Google's conduct, consumers are limited to the Play Store, whereby Google controls which apps are featured, identified, and prioritized in user searches. Amazon's Amazon Underground app distribution product, for example, allowed Amazon to pay developers directly based on the amount of time that consumers spent interacting with their apps – representing an innovative new model of app distribution. However, Amazon Underground was ultimately unsuccessful because Google's restrictions on the distribution of app stores (including its restrictions on sideloading) crippled its distribution to consumers. Consumers were directly harmed because they lost innovation and choice.

501. Google's anticompetitive conduct also harms consumers by increasing prices and reducing output. Google takes a supracompetitive profit from Play Store purchases, including up to a 30% commission off the purchase price of all apps sold through the Google Play Store, which

is much higher than would exist in a competitive market unimpaired by Google's anticompetitive conduct. By comparison, for example, Google charges only 5% for each download from its Chrome Web Store, because web browser distribution is more diffuse.

502. Developers are also harmed by Google's anticompetitive conduct. If consumers had a choice between Android app stores, Google would not be able to charge a supracompetitive fee, consumers would purchase more apps and other digital content, and developers would earn greater profits. Developers also lose the opportunity to select from multiple viable options for app distribution, which would likely lead to greater sales and better distribution options.

503. Absent Google's anticompetitive conduct, competition for app distribution could allow consumers to discover new apps they would enjoy by employing more innovative ways for developers to advertise or distribute their apps. Competition might also allow for certain app stores to specialize for certain segments or types of apps – including, for example, education, games, fitness, and others. Apps catering to specific populations or niches would thereby be more able to reach their intended audiences. Instead, currently to attract users, an app developer must go through the Google Play Store, purchasing advertisements through Google which further eat into their profits above the 30% commission already employed by Google.

13. Anticompetitive Effects in IAP Processing

504. Google's anticompetitive tie in the IAP Processing Market harms both consumers and developers. Google's restraints also reduce overall output by eliminating alternative avenues for IAP payment processing that consumers and developers would otherwise use. Rather than competing on the merits by creating more efficient, innovative, or less expensive payment processing, Google simply blocks its competitive threats and takes a supracompetitive 30% commission on all IAP sales.

505. Google Play Store has a monopoly over Android app distribution. By requiring that apps purchased through the Google Play Store also use Google Play Billing for the purchase of digital content within apps, Google has illegally engaged in tying and exclusive dealing, extending its monopoly to include the IAP Processing Market. Google's anticompetitive conduct

has demonstrable anticompetitive effects on the IAP Processing Market that harm competition and injure app developers, payment processors, and consumers.

506. Google's supracompetitive commission on in-app purchases raises prices for consumers, reduces profits for app developers, and chills the market for app development and digital content development by making digital content less profitable. Google could not maintain this supracompetitive commission in a competitive market free from Google's illegal tying and other anticompetitive conduct. The fee Google charges is an order of magnitude higher than fees for platforms in which there is competition for electronic payment processing.

507. Developers would have more options for in-app payment processing absent Google's exclusive-dealing requirements. App developers would also have the potential to make higher profits, so that app developers could dedicate more money to innovation, research and development, marketing, and the creation of new apps.

508. The Google Play Store tie with Google Play Billing for the purchase of digital content prevents developers from access to several key features, which are not offered through Google Play Billing but are available through app developers' own proprietary payment systems or processors like Adyen and WorldPay. Those features include: (i) information about failed consumer IAP transactions, such as the specific reason that the transaction failed to complete (Google Play Billing indicates only that a problem exists with the transaction, without further explanation); (ii) features that minimize the inadvertent loss of users through short-term credit card issues such as credit card expiry or being put on hold; (iii) data relating to the successful use of a consumer's credit card with other merchants as a measure of creditworthiness; (iv) free trial services allowing developers to periodically offer free trials (Google Play Billing allows only one free trial service per lifetime per product); and (v) customized cancellation experiences allowing developers to learn more about a user's decision to discontinue a service and potentially offer additional services.

509. Google has prevented a competitive market for in-app payment processing from developing, so that developers cannot create their own payment infrastructure or accept third-party

payment processing. These choices exist for other comparable transactions outside of the Android infrastructure – for instance, with retailers who accept different types of payment including credit, debit, and prepaid cards. Developers could also offer payment systems based on alternative currencies or billing to mobile carriers absent Google's restrictions. These innovations are completely foreclosed by Google's anticompetitive contractual requirements.

510. Absent Google's exclusive-dealing contract requirements, app developers could compete in the IAP Processing Market themselves, or party with third-party payment processors that charge a fraction of Google's 30% fee. This would allow developers to offer not only in pricing models, but also provide a variety of payment options tailored to their users' needs. Alternative payment options outside of the United States and outside of Google's monopolistic grasp include, for example, prepaid cards in convenience stores allowing consumers to purchase in-game content in mobile games without connecting a credit card or bank account to the app. Developers like Netflix and Epic Games have the best information on their own business models and are thus best placed to select their own payment processing solutions, but are prohibited from doing so by Google.

511. Google's anticompetitive conduct also harms potential payment processing competitors who would otherwise innovate by developing alternative payment processing tools to provide better functionality, lower prices, and/or better security. However, these competitors are barred from entering the IAP Processing Market because of Google's exclusionary contracts, cutting them off from access to a large portion of the market and diminishing their sales and profits, which would be greater but for Google's conduct.

512. Google also obscures relevant market information regarding the availability of lower-priced payment options for in-app purchases and app subscriptions, further harming consumers and developers. Google's policies prevent app developers from efficiently informing customers about better deals, causing them to incur greater costs to otherwise communicate with customers. Developers whose only, or primary, relationship with their customers is through the app they offer, are effectively foreclosed from providing this information to customers.

Communication through an app would be low-cost and efficient, but Google prevents any such communication because it would threaten its IAP processing monopoly, distorting the competitive process, harming consumers, and preventing the free exchange of information about better deals.

513. Google has also harmed streaming and other subscription services by enforcing its supracompetitive commissions through contractual provisions requiring counterparties to exclusively use Google-owned Google Play Billing services for payment processing.

514. On September 28, 2020, Google publicly announced that, effective September 30, 2021, it would require content streaming and other subscription services to use Google Play Billing for their subscriptions. Google's policy effective prior to September 2020 expressly exempted from its Google Play Billing requirement cases where "[p]ayment is for digital content that may be consumed outside of the app itself (e.g.[,] songs that can be played on other music players)." Despite this reversal, Google claimed its September 28, 2020, policy change was a mere "clarification" of a "long standing policy" that had always been in place.

515. The September 2020 policy change gives Google an unfair and overwhelming competitive advantage against streaming service developers who offer similar subscription services as those Google does.

516. To conform with Google's new policy, subscription services must either: (1) offer an Android app in which consumers pay Google's 30% commission for subscriptions purchased through that app; or (2) offer only a "streaming only" (non-transactional) version of the app in the Google Play Store, which per Google's terms, cannot even inform consumers of the option to purchase a subscription elsewhere or direct them outside the app for payment.

517. In addition to its competitive advantage by virtue of having a subscription streaming app preloaded on every Android device, Google will also be positioned to gain market information about its streaming competitors and their customers. Offering a "streaming only" app – one of the two options under the September 2020 policy – would have disastrous consequences for many streaming services.

518. A "freemium" music streaming service such as Spotify, for example, offers a "free," ad-supported version of its service. Though the user base of the ad-supported service is typically large, the service earns a small percentage of its revenue from those users. The large majority of its revenue comes from the smaller number of users who purchase a premium monthly subscription which features no ads. Running a profitable service requires converting many users of the "free" version into paid subscribers.

519. The vast majority of streamed music is now consumed on mobile devices. Thus, a music streaming service typically has no effective communication channel with its subscribers apart from the app from which they purchased their subscriptions. By prohibiting a "streaming only" music app from providing potential subscribers with information about, and an opportunity to purchase, premium subscriptions, Google can drastically raise the service's cost of acquiring paid customers and foreclose it from acquiring a substantial number of potential customers altogether. Google thus forces subscription-based app developers to choose between being significantly foreclosed from acquiring customers, or making its customers pay Google's large commission.

520. Spotify, one of the largest streaming music providers, has noted the risk that Google plays in exercising its control over the tied Google Play app store and payment processing systems:

> [W]here the owner of a platform is also our direct competitor, the platform may attempt to use this position to affect our access to users and ability to compete. . . . [O]nline platforms may force us to use the platform's payment processing systems that may be inferior to, and more costly than, other payment processing services available in the market.

521. Google's conduct is especially injurious to competition in music streaming, because music streaming subscription businesses must pay 65% or more of their revenues in royalties to the rights holders of the music they stream. Google's premium music streaming offerings will thus gain a significant, unfair competitive advantage over Spotify and similar services. Google's monopolistic expansion of its IAP processing services thus serves a dual anticompetitive purpose: they allow Google to take a huge portion of its subscription streaming services' profits if they capitulate to the illegal tie, or allow Google to poach many subscribers or

potential subscribers if they do not submit to the illegal tie. Either way, Google's IAP monopoly will grow in scope and strength.

522. Google is well aware that the sudden imposition of its September 2020 policy change will create an anticompetitive IAP tie on major subscription streaming services. Google's recent decision to change its policy and require subscription-based digital content purchased through an app to be paid for using Google Play Billing thus poses a grave threat to streaming and other subscription-based businesses, and will likely lead to reduced consumer choice, less innovation, and higher prices.[18]

523. Google defends its anticompetitive tie for IAP payment processing by citing security concerns. However, security of payments is equally important to payments for both digital and physical content, yet Google ties its Google Play Billing requirements only for the sale of digital content. Further, there are many highly secure and reliable payment processing systems used on desktop computers. If Google were truly concerned about security, it would simply require that payment processors use reasonable security protocols. Instead, Google's internal strategy around pricing and policy for in-app payments reveals that its purported security concerns are merely a means of justifying Google's anticompetitive conduct rather than genuine concerns.

524. Google's tie of app distribution through the Google Play Store with developers' exclusive use of Google Play Billing to process in-app purchases harms consumers who would otherwise have the choice to use payment processors that do not share their information with Google. There are no legitimate consumer-benefitting or security justifications for this tie. Any security or consistency that Google can offer consumers through payment processing can also be offered by any other payment processor in a competitive market at a competitive price. Google's monetization of the Google Play Store in order to maintain its control of the Android ecosystem is similarly anticompetitive and unnecessary. In short, Google has unjustifiably used its

[18] At the Epic Action trial, testimony revealed that Google eventually negotiated a "bespoke" deal that allowed Spotify to pay no commissions for IAP billing. Nevertheless, Google's conduct threatens other premium music streamers who do not have Spotify's scale and leverage to demand better deals.

monopolistic control over the Android app distribution market to force developers to use Google Play Billing as their exclusive in-app payment processor. Google thus deprives consumers of choice among in-app payment options and of the benefits of competitive pricing and innovation in payment services for in-app purchases of digital content.

525. Google's supracompetitive commission, which it extracts as a result of the increased prices it demands for in-app purchases, likely deters some consumers from making purchases and reduces app developers' profitability for purchases that consumers do make, therefore depriving app developers of resources they could use to develop innovation in apps and content. Developers are further harmed by profits lost from Google's imposition of a supracompetitive commission, and because Google has foreclosed their ability to offer efficient, inexpensive in-app purchase options that are integrated into their apps themselves, which would increase demand. Other payment processors are also harmed, because they are foreclosed from offering their payment processing services to compete with Google Play Billing.

526. Consumers are direct purchasers of services from Google in the IAP Processing market. Consumers are direct purchasers of apps and in-app digital content sold through the Google Play Store. When consumers purchase Android apps, they do so directly from the Google Play Store and pay Google directly, using a credit card or other payment method. When consumers purchase in-app digital content, they do so through the Google Play Store, using the pre-established payment streams set up by the Play Store. When consumers purchase in-app digital content, they pay Google directly.

527. Google requires consumers to enter into a contractual agreement with Google to use Google Play Billing. Google does not disclose its IAP commission of up to 30%, nor does it disclose its foreclosure of competition in the IAP Processing Market, in any of the series of consumer contracts and terms Google unilaterally requires consumers to agree to. Instead, Google's fee disclosures state that it charges $0 for nearly all transactions, and fractions of one percentage point for others. This disclosure runs contrary to the fact that consumers, as direct purchasers, and as a matter of law, pay the entirety of Google's IAP commission. Insofar as

Google makes any disclosure whatsoever regarding its IAP processing tie and the concurrent foreclosure of competition, nearly all consumers are unaware of them and have not knowingly consented to them.

528. Google tied its Google Play Billing services to use of the Google Play Store, requiring developers to accept Google Play Billing in order to have access to distribution on Google's Play Store. Google thereby forced all users and developers to use Google Play Billing to process payments for all in-app digital content purchases and thereby pay Google's supracompetitive commissions. Google further gags app developers by prohibiting them from informing their users of other lower-priced options, even when lower-priced alternatives are available from other sources, such as at a developer's website.

529. Google made false and misleading statements regarding its in-app purchase billing policies. Prior to September 2020, Google expressly exempted the requirement that developers use Google Play Billing in cases where, "[p]ayment is for digital content that may be consumed outside of the app itself (e.g.[,] songs that can be played on other music players)." On September 28, 2020, however, Google announced that, effective September 30, 2021, it would require content streaming services such as Netflix and Spotify to use Google Play Billing for their subscription services. Google publicly claimed that this was simply a "clarification" of the intention of a "long standing policy" in response to "feedback that our policy language could be more clear regarding which types of transactions require the use of Google Play's billing system, and that the current language was causing confusion." Google also claimed that "this isn't new" and that it had "always required developers . . . to use Google Play's billing system if they offer in-app purchases of digital goods, and pay a service fee from a percentage of the purchase." Google's statements about its prior billing policies were false and misleading with respect to streaming services, which were expressly exempt under the prior policy.

530. Consumers have been harmed as a result of Google's unfair conduct. Google forces consumers to pay a supracompetitive commission of up to 30% to purchase any app other than those that are free. Google actively gags app developers by prohibiting them from informing their

consumers about the 30% commission and the possibility of obtaining lower prices through alternative channels. It does this by preventing information flows regarding the availability of lower-priced payment options for in-app purchases of digital content and app subscriptions. Google's policies gag app developers from efficiently informing consumers about better deals, meaning developers are forced to incur significant costs to communicate through other means. Developers whose only relationship with their customers is through their apps are effectively foreclosed from providing this information to them. Google stops the most low-cost and efficient means of communication – through the developer's app – thereby harming consumers, many of whom are unlikely to learn about better deals.

531. Google's conduct also harms consumers by depriving them of the benefits of true competition in app distribution, including the potential for better services to develop through competition, like enhanced app discovery features or improved data security. Google's supracompetitive commissions also reduce developer profits and impedes them from researching, developing, and bringing to market innovative new apps, resulting in further lost profits for them and less innovation and choice for consumers.

532. Google also impedes competition among app distributors, who cannot innovate new models of app distribution and provide consumers with alternatives to the Google Play Store as a result of Google's conduct. Consumers are left to search among millions of apps in one monopolized app store, where Google controls which apps are featured, identified, or prioritized in user searches, limiting their ability to discover new apps.

533. Google defends its anticompetitive practices by citing to security concerns, but those assertions are false and misleading. Google claims that Google Play Billing must be tied to the Google Play Store in the name of user security, but Google requires the use of Google Play Billing for digital content only. If security was a genuine concern, Google would simply require that payment processors use reasonable technical security protocols, as in the highly secure and reliable payment processing systems used on personal computers.

14. Market Dominance over IAP Processing

534. Google ties Android app distribution to IAP Processing in the United States market. Because the Google Play Store and Google Play Billing both operate across all states and involve transactions between consumers and developers in different states, this illegal tying substantially affects interstate commerce in the tied market.

535. Google possesses monopoly power in the IAP Processing Market. It enjoys a market share exceeding 90% (consistent with Google's market share for Android app distribution), and it can set prices and exclude competitors at will. Google's monopoly power in the IAP Processing Market is a result of its monopoly power over Android app distribution combined with its unlawful contractual requirement that Android app developers distributing on the Play Store must use Google Play Billing to process payments for digital content. By its nature, this monopoly power is durable, because Google's unlawful tie of Google Play Billing to the Google Play Store, and its monopoly power over Android app distribution, deter any significant entry into the market. The barriers erected by Google together form insurmountable barriers to entry.

536. Android app developers and consumers have no meaningful alternative to the Google Play Store, and Google's unlawful tie of the Google Play Store to Google Play Billing means they have no meaningful alternative to Google Play Billing either. App developers and consumers thus have no choices in the Android App Distribution Market to discipline Google's misconduct and overreach in the IAP Processing Market.

537. App developers cannot feasibly use proprietary payment processing solutions as they have no workarounds to Google's policies. Developers that have attempted to compete with Google Play Billing by offering their own payment services for in-app payment processing have been removed from the Google Play Store (as was Epic Games' app, *Fortnite*). The threat of removal from the Google Play Store prevents other app developers from attempting the same. Any developer that wishes to distribute an app to Android users is therefore forced to use Google's app distribution and in-app payment services, or it will lose efficient access to nearly all the users of approximately 130 million Android devices in the United States.

15. The *Epic Games v. Google* Jury Unanimously Finds that Google Engaged in Anticompetitive Conduct

538. After deliberating for just three hours, the jury returned a unanimous verdict for Epic. For Epic's monopolization claim under Section 2 of the Sherman Act, the jury found that Epic had proved two relevant product markets: a market for the distribution of Android apps, and for Android in-app billing services for digital goods and services transactions. The jury also found that Epic proved the geographic scope for both markets was worldwide excluding China.[19]

539. The jury further found that Epic had proved that Google "willfully acquired or maintained monopoly power by engaging in anticompetitive conduct in each of the product markets, and that Epic proved it was injured as a result of Google's violation of the antitrust laws." *Id.* at 1-4.

540. For the unlawful restraint of trade claim under Section 1 of the Sherman Act and California state law, the jury found that Epic "proved that Google entered into one or more agreements that unreasonably restrained trade in the same two product markets as for the monopolization claim."[20] The jury determined that the illegal agreements were Google's DDA agreements; agreements with alleged competitors or potential competitors under Project Hug and the Games Velocity Program; and agreements with original equipment manufacturers (OEMs) that sell mobile devices, including the MADA and RSA agreements.[21] Epic was found to have proved antitrust injury from these violations.[22] For the tying claim under Section 1 of the Sherman Act and California law, the jury determined that Epic had proved that Google unlawfully tied the use of the Google Play Store to the use of Google Play Billing, and that Epic again had been injured by this conduct.[23]

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[19] *Google Play Store Antitrust Litig.*, 2024 WL 3302068, at *2.

[20] *Id.*

[21] *Id.*

[22] *Id.*

[23] *Id.*

541. Google moved for a judgment as a matter of law, which the Court denied on July 3, 2024. In explaining its denial, and in explaining why the jury's verdict was supported by substantial evidence, the Court criticized Google's attempts to "object[] to just about everything adduced at trial that impugned Google's conduct. . . . The true crux of Google's argument isn't that the verdict was not based on substantial evidence, but rather that the jury didn't see the evidence in the way Google wanted." In particular, the Court highlighted the following evidence:

a) The jury heard extensive evidence concerning Project Hug to find that Google engaged in anticompetitive conduct, including:

   i. Google staved off Activision Blizard from creating its own app store, which Google would have caused it to lose $243 million per year, as well as the "'contagion risk' if [Activision Blizzard] were to launch its own store and 'attract[] more content from other developers[,]'" by offering Activision Blizzard "a Project Hug deal for $360 million."

   ii. The Project Hug agreements prohibited developers from launching an app "'either first or exclusively on any competing Android distribution platform.' Developers who agreed to Project Hug also could not 'launch a materially different version of the game that it had on Google Play on a competing Android app distribution platform.'"

   iii. The Court cited how "Epic's expert, Dr. Bernheim, testified to the anticompetitive effects of these provisions. In his view, these provisions 'prevent[ed] any significant differentiation,' disincentivized developers from creating valuable content, and would also have discouraged Project Hug developers from entering the app store market themselves.'"

b) The Court also highlighted "substantial evidence of the anticompetitive effects of Google's agreements with OEMs, specifically the Mobile Application Distribution Agreement (MADA) and Revenue Share Agreements (RSA)."

i. "Pursuant to the MADA, OEMs must place Google Play on the default home screen of their Android devices. Virtually all OEMs that manufacture Android smartphones have entered into a MADA, and so Google Play is preinstalled on the default home screen of nearly all Android smartphones."

ii. "Google's CEO, Sundar Pichai, acknowledged that '[t]ypically,' placement on the default home screen tends to lead to more usage of an app."

iii. "Preinstallation of Google Play on the default home screen is a precondition for an OEM to have access to other key Google GMS apps and Android APIs without which many Android applications cannot function. Restrictions like these made it difficult for competitors like Amazon to obtain 'premium placement' for apps such as its own app store, and so it was difficult for alternative app stores to get off the ground."

iv. Moreover, the Court found that "[t]he terms of the Google Revenue Share Agreements with OEMs were even more aggressive. The RSA 3.0 agreements are the third iteration of that contract, and they offer OEMs the opportunity to enroll their devices in three different tiers. For the 'premier tier,' which offers the highest revenue share, an OEM 'may not install any app store on their device other than Google Play.'"

v. "Epic's expert, Dr. Bernheim, testified that this kind of profit-sharing with a competitor disincentivizes competition, and so is anticompetitive."

vi. The Court then cited some specific examples of where the loss of RSA payments led at least one OEM, OnePlus, to decline to preinstall the Epic Game Store app. The Court also cited internal discussions by Google employees in how though "'Google cannot stop OEMs from preloading the Amazon App Store due to anticompetitive concerns on the MADA 2.0 only,'" Google was able to achieve the same effect "'through revenue share deals.' The employees agreed that having 'stricter placement restrictions through revenue share' was

something that would 'help stem the tide of emerging app stores.'. . . This and much other evidence supported a verdict against Google on the 'purpose and nature of the challenged restraint,' namely the RSA 3.0 agreements."

c) The Court also cited evidence concerning how "Google worked to suppress competition by actively impeding users from 'sideloading' competing app stores through increased 'friction' and 'scare screens.' 'Sideloading' referred to a direct installation process whereby a user 'find[s] an app via a mechanism that is not billing itself purely as an app store.' 'Friction' meant 'the screens, the dialogues, the warnings that an operating system is going to pit up and show to users and sort of force the user to click through or interact with before the user can actually accomplish the intended task.'"

i. The Court found that "Google's CEO, Sundar Pichai, acknowledged that 'the more friction there is, the less likely the user completes that flow,' and there was evidence that Google viewed friction as a means of impending users from sideloading third-party app stores."

ii. The Court cited "a Google internal document titled, 'Amazon competitor deep dive,' noted that 'Amazon [was] emerging as a major challenge to Play is gaming globally.' Another slide was titled, 'Amazon strongly promoting its 15% discount on IAPs available via Play, but for now switching hurdle too high for most users.' Under the heading, 'Significant hurdle to switching to Amazon apk,' the Google document stated, 'Process is quite complex, involves 14 steps (but motivated users will follow walkthroughs like this on YT).'"

d) The Court also noted "trial evidence about the anticompetitive nature of . . . anti-steering restrictions and the DDA in general. For example, there was testimony that Paddle, a company that offers to developers in-app payment solutions, was prevented from more effectively entering the in-app payment services market because 'Google Play's terms of services for developers [*i.e.*, the DDA] expressly prohibit the usage of

a third-party payment method.'" The Court further held, "This and similar trial evidence demonstrate that the jury's findings on Google's anticompetitive conduct were well supported. There was sufficient evidence for the jury to agree with Mr. Bernheim that Google 'impairs competition without preventing it entirely,' thereby satisfying the requirement that Google's conduct 'frustrat[ed] the efforts of other companies to compete for customers within the relevant market.' Because the evidence discussed above is adequate to support the jury's verdict, the Court declines to address Google's other arguments on the anticompetitive effect element of Epic's antitrust claims." The Court further found, "Substantial evidence supported the jury's findings in favor of Epic on its tying claim, namely that 'Google unlawfully tied the use of the Google Play Store to the use of Google Play Billing.'"

e) The Court found that "[t]here was substantial evidence that Google coerced its customer—here, developers—to buy the tied product (Google Play Billing) in order to obtain the tying product (Google Play Store). Numerous witnesses testified that developers whose apps are on the Google Play Store are required through the DDA to use only Google Play Billing to sell any digital content that is to be used inside of the app."

f) Furthermore, the Court found, "Epic also adduced evidence that the Google Play Store was so profitable that Google did not need to tax developers a 30% fee through Google Play Billing to be fully compensated for its IP and other costs for the Google Play Store. For example, the jury saw an internal Google document showing that some developers paid 'more than a hundred million dollars per year more than the value that they have obtained from Google'; and for the 100 most negative developers (whose payments to Google exceeded the estimated value they received from Google), Google internally estimated that on average, they 'receiv[ed] a value equivalent to 19 percent,' but 'still were required to pay Google a 30 percent revenue share.' Based on Google Play's revenue numbers, this worked out to $1.43 billion per year that the top 100 most

> negative developers were overpaying to Google. There was additional evidence at trial that Google was concerned about public criticism calling out 'Google's 30 percent fee on in-app purchases made on apps distributed through Google Play' as 'highway robbery.'"

542. Remedy proceedings recently concluded on August 14, 2024. Judge James Donato, U.S.D.J., vowed to "tear the barriers down," explaining that "[t]he world that exists today is the product of monopolistic conduct. That world is changing." He told Google: "When you have a mountain that's built out of bad conduct, you have to move that mountain. That's what's going to happen."[24]

543. On October 7, 2024, the Court entered its permanent injunction in the Epic Games case. The Court ordered sweeping remedies concerning the Google Play Store, including:

a) "For a three-year period ending on November 1, 2027, Google:"

i. "[M]ay not share revenue generated by the Google Play Store with any person or entity that distributes Android apps, or has stated that it will launch or is considering launching an Android app distribution platform or store."

ii. "[M]ay not condition a payment, revenue share, or access to any Google product or service, on any agreement by an app developer to launch an app first or exclusively in the Google Play Store."

iii. "[M]ay not condition a payment, revenue share, or access to any Google product or service, on an agreement by an app development not to launch on a third-party Android app distribution platform or store a version of an app that includes features not available in, or otherwise different from, the version of the app offered on the Google Play Store."

[24] Sean Hollister, *Epic judge says he'll 'tear the barriers down' on Google's app store monopoly*, THE VERGE (Aug. 14, 2024, 6:13 PM EDT), https://www.theverge.com/2024/8/14/24220491/epic-google-android-app-store-monopoly-remedies-hearing.

iv. "[M]ay not condition a payment, revenue share, or access to any Google product or service, on an agreement with an original equipment manufacturer (OEM) or carrier to preinstall the Google Play Store on any specific location on an Android device."

v. "[M]ay not condition a payment, revenue share, or access to any Google product or service, on an agreement with an OEM or carrier not to preinstall an Android app distribution platform or store other than the Google Play Store.

vi. "[M]ay not require the use of Google Play Billing in apps distributed on the Google Play Store, or prohibit the use of in-app payment methods other than Google Play Billing. Google may not prohibit a developer from communicating with users about the availability of a payment method other than Google Play Billing. Google may not require a developer to set a price based on whether Google Play Billing is used."

vii. "[M]ay not prohibit a developer from communicating with users about the availability or pricing of an app outside the Google Play Store, and may not prohibit a developer from providing a link to download the app outside the Google Play Store."

b) "For a period of three years, Google":

i. **"**[W]ill permit third-party Android app stores to access the Google Play Store's catalog of apps so that they may offer the Play Store apps to users. For apps available only in the Google Play Store (*i.e.*, that are not independently available through the third-party Android app store), Google will permit users to complete the download of the app through the Google Play Store on the same terms as any other download that is made directly through the Google Play Store. Google may keep all revenues associated with such downloads. Google will provide developers with a mechanism for opting out of inclusion in catalog access for any particular third-party Android app store. Google will have up to

eight months from the date of this order to implement the technology necessary to comply with this provision, and the three-year time period will start once the technology is fully functional."

ii. **"**[M]ay not prohibit the distribution of third-party Android app distribution platforms or stores through the Google Play Store. Google is entitled to take reasonable measures to ensure that the platforms or stores, and the apps they offer, are safe from a computer systems and security standpoint, and do not offer illegal goods or services under federal or state law within the United States, or violate Google's content standards. The review measures must be comparable to the measures Google is currently taking for apps proposed to be listed in the Google Play Store. If challenged, Google will bear the burden of proving that its technical and content requirements and determinations are strictly necessary and narrowly tailored. Google may require app developers and app store owners to pay a reasonable fee for these services, which must be based on Google's actual costs. Google will have up to eight months from the date of this order to implement the technology and procedures necessary to comply with this provision, and the three-year time period will start once the technology and procedures are fully functional. For the duration of this time period, the Technical Committee described in [the] paragraph . . . below will in the first instance decide challenges to Google's review decisions, with the Court serving as the final word when necessary."

c) "Within thirty days of this order, the parties will recommend to the Court a three-person Technical Committee. Epic and Google will each select one member of the Technical Committee, and those two members will select the third member. After appointment by the Court, the Technical Committee will review disputes or issues relating to the technology and processes required by the preceding provisions. If the Technical Committee cannot resolve a dispute or issue, a party may ask the Court for a resolution.

> The Technical Committee may not extend any deadline set in this order, but may recommend that the Court accept or deny a request to extend. Each party will bear the cost of compensating their respective party-designated committee member for their work on the committee. The third member's fees will be paid by the parties in equal share."

544. In an order explaining its decision to issue its injunction, filed concurrently on October 7, 2024, the Court explained that Epic was entitled to an injunction because: "All of the elements were thoroughly established by the jury verdict and the evidence at trial. In pertinent part, Epic established that it suffered an irreparable injury. It was . . . illegally and unfairly foreclosed from using its own in-app billing services while distributing its *Fortnite* app through the Google Play Store because of Google's anticompetitive practices. Epic was also illegally and unfairly foreclosed from competing in the market for Android in-app billing services for digital goods and services transactions, again because of Google's anticompetitive conduct. These harms are ongoing and cannot be made right simply by Google writing Epic a large check. Considering the balance of hardships between Epic and Google, a remedy in equity is warranted, and the public interest, which is perfectly aligned with the restoration of free and unfettered competition, would be well served by a permanent injunction."

545. Furthermore, the Court held, "[I]mportant remedial measures can be imposed that do not demand excessive judicial oversight. The trial made this determination a straightforward task. For example, in light of the jury verdict and supporting evidence, it is perfectly appropriate that Google be enjoined form sharing Play Store revenues with current or potential Android app store rivals, and from imposing contractual terms that condition benefits on promises intended to guarantee Play Store exclusivity. Google itself agreed with these conduct remedies. . . . The prohibitions along these lines are stated in paragraphs 4 through 8 of the injunction, and they closely track the evidence of anticompetitive conduct at trial as summarized in the JMOL Order."

546. The Court also explained, "The revenue share and contractual prohibitions will be in effect for a period of three years. This is because the provisions are designed to level the playing

field for the entry and growth of rivals, without burdening Google excessively." Furthermore, in citing evidence for the network effects that Google benefits from, and how it hampers competition, the Court further notes, "Even a corporate behemoth like Amazon could not compete with the Google Play Store due to network effects. Consequently, the injunction must overcome the effects by providing access to the catalog of Play Store apps for a period of time sufficient to give rival stores a fair opportunity to establish themselves. This will be three years on the terms stated in the injunction."

547. Furthermore, the Court held, "The network effects presented during trial are a feature of any two-sided market such as the Google Play Store. Although Google may legitimately claim some early mover advantage, it was not entitled to maintain and magnify network effects, and thereby entrench its dominant position, through the anticompetitive conduct found by the jury. . . . This is why the injunction must not only prohibit the specific anticompetitive conduct that had Google engaged in, but also undo the consequence of Google's ill-gotten gains." Moreover, the Court observed, "Overall, the injunction breaks the illegal tie by prohibiting Google from requiring that developers use Google Play Billing in apps distributed on the Google Play Store."

548. Google is currently appealing the judgment. On February 3, 2025, a panel of three judges of the United States Court of Appeals of the Ninth Circuit heard oral argument. A decision is pending.

D. State AGs, the United States, and Numerous Private Parties Allege that Google Has Engaged in Anticompetitive Practices in the Third-Party Online Display Advertising Market

549. "Display advertising" refers to the delivery of digital ad content to ad space on websites and mobile apps. Display advertising is generally divided into two separate "ad tech" markets: first-party and third-party. First-party ad platforms refer to companies such as Facebook and Twitter, which sell ad space on their own platforms directly to advertisers. Third-party display ad tech platforms are run by intermediary vendors that facilitate transactions between third-party advertisers (those wanting to place ads, such as a local restaurant) and third-party publishers (those running websites who want to place ads alongside the content on their websites, such as a

newspaper or blog). Third-party ad tech providers include Google, Flashtalking, Sizmek (owned by Amazon), and The Trade Desk, among others.

550. Google's third-party display advertising is "programmatic," meaning that specialized software automates the buying, selling, and placement of digital ads, without the details being disclosed to any party but Google as the middleman. As Google has explained, it "does not disclose to the publishers on the other ends of these trades what their space ultimately sold for and how much Google keeps as its share."

551. Over the last decade, the digital advertising market has experienced double-digit year-over-year growth. At the same time, the market has become increasingly concentrated since the advent of programmatic advertising. In 2017, for instance, *Business Insider* reported that Google and Facebook accounted for 99% of year-over-year growth in U.S. digital advertising revenue.[25] Google and Facebook both have a significant lead in the market due to their significant collection of behavioral data online, which can be used in targeted advertising. In addition, Google and Facebook do not provide access to this data to their advertising partners – advertisers' only access to this information is indirect, through engagement with Google's and Facebook's ad tech.

552. Furthermore, Google has faced so many private lawsuits regarding its anticompetitive conduct in the digital advertising marketplace that the cases have been consolidated into a multi-district litigation ("MDL"). While the lawsuits were originally in the Northern District of California, as well as other courts throughout the country, these lawsuits are organized in the Southern District of New York. *See In re Google Digital Advertising Antitrust Litigation*, No. 1:21-md-03010 (S.D.N.Y.). A similar AdTech case filed in 2020 by the Attorney General of Texas is currently pending in the United States District Court for the Eastern District of Texas ("EDTX"). Trial in that case is set to begin in August 2025. The Texas AG Action survived a motion to dismiss when it was still consolidated with the MDL in the Southern District of New York ("S.D.N.Y.").

[25] Alex Heath, *Facebook and Google Completely Dominate the Digital Ad Industry*, BUSINESS INSIDER (Apr. 26, 2017), https://www.businessinsider.com/facebook-and-google-dominate-ad-industry-with-a-combined-99-of-growth-2017-4.

553. On January 24, 2023, the United States Justice Department, along with the Attorneys General of California, Colorado, Connecticut, New Jersey, New York, Rhode Island, Tennessee, and Virginia, filed a similar civil antitrust suit in the United States District Court of the Eastern District of Virginia ("EDVA") against Google for monopolizing digital AdTech in violation of Sections 1 and 2 of the Sherman Act.

554. The trial concluded on September 27, 2024. In addition to seeking an award of damages, the United States is requesting an "Order of divestiture of, at minimum, the Google Ad Manager suite, including both Googles's publisher ad server, DFP, and Google's ad exchange, AdX, along with any additional structural relief as needed to cure any anticompetitive harm."

555. As the numerous lawsuits and the House Report allege, Google has monopoly power in the publisher ad server market in the United States. More than 90% of large publishers use Google's publisher ad server, Google Ad Manager. Google serves the vast majority of all online display ad impressions in the United States.

556. Google has held a consistent monopoly position in the publisher ad server market for at least a decade. By 2012, four years after Google had acquired DoubleClick, Google was already the dominant ad server for large online publishers in the United States. Since then, Google's closest competitors have either exited the market entirely or been relegated to negligible market shares. Google previously urged the Federal Trade Commission to permit its acquisition of DoubleClick by pointing to competing publisher ad servers – 24/7 Real Media and Atlas/aQuantive – as viable alternatives for customers if Google were to increase DoubleClick for Publishers' ("DFP") prices. Those competitors have since exited the market.

557. Google's monopolistic power is also evidenced by the fact that its publisher ad server is impervious to competitive market constraints. Google has degraded quality and charged supracompetitive fees in the publisher ad server market. It now charges publishers for routing their inventory to exchanges and networks, without regard to the fees that a market would bear. Google also charges a percentage fee of gross transactions for routing publishers' inventory to non-Google ad networks. When publishers route their inventory to exchanges and networks using

a non-Google routing service, publishers pay no fee for routing to exchanges and networks. Google's unilateral ability to extract non-competitive fees for its ad servers demonstrates monopoly power. Several other Google product changes degraded quality, including Google's prohibition on publishers setting different price floors for different ad exchanges and ad buying tools. Despite widespread publisher dissatisfaction over the price and quality of Google's ad server, Google has not suffered any loss to its ad server market share or dominance.

558. Google's market power is also protected by significant barriers to entry and expansion, including high switching costs. For publishers, switching ad servers is both risky and resource intensive. Some publishers have inventory in the hundreds of thousands, or even millions, of webpages, making switching ad servers prohibitively expensive and difficult. Moreover, the prospect of switching to a new ad server presents significant revenue risk, as even minor setbacks during transition can result in significant losses and disruptions in advertising campaigns. Because switching costs are high, making it impractical to switch ad servers, publishers are effectively locked in.

559. Google similarly has a monopoly in the exchange market for web display inventory. Exchanges are markets in which publishers' display inventory is auctioned off to advertisers on an impression-by-impression basis in real time. Exchanges generally interface with publishers through publishers' ad servers on the sell side, and with advertisers through ad-buying tools on the buy side.

560. Despite an early competitive landscape, Google's ad exchange (AdX) has enjoyed dominance in the United States since at least 2013. The closest competitors to Google's exchange include the exchanges provided by Magnite, AT&T's Xandr, and Index Exchange. But those exchanges transact much smaller shares of publishers' exchange impressions. While exact figures are not publicly disclosed, Google's closest exchange competitors transact a mere fraction of publishers' exchange impressions compared to Google. In the exchange market, Google exhibits monopoly power by controlling prices (including charging supracompetitive prices), increasing its

prices and exchange rates and demonstrating that it has insulated its exchange from any competitive market pressures that would otherwise incentivize it to lower its prices.

561. Google's market power in the exchange market is also protected by significant barriers to entry and expansion. A new entrant must achieve significant scale of both publishers and advertisers to become viable. Google also imposes additional barriers, including a variety of anticompetitive tactics allowing it to capture a large volume of the transactions otherwise available to competing exchanges by causing its publisher ad servers to preferentially route transactions to its exchange. Google imposes yet another barrier by exclusively and preferentially routing the bids of advertisers who use DV360 and Google Ads to Google's exchange, despite any competitive concerns that would lead to more efficient results for publishers and advertisers.

562. Networks are another market in which Google maintains monopoly power. Google's GDN reaches more user impressions and websites than any other display network, including over two million small online publishers globally. No other display ad network in the United States reaches as many publishers and advertisers. Google has immense scale amongst small online publishers.

563. Google's monopoly power is further evinced by its commissions: GDN charges high double-digit commissions on advertising transactions, which is supracompetitive compared to the standard rate elsewhere in the industry. Google purportedly has internally acknowledged that its market power allows it to charge supracompetitive rates as early as 2016.

564. Significant barriers to entry and expansion also protect Google's display ad network monopoly power. Google unilaterally captures a large volume of transactions through an array of anticompetitive tactics by causing its publisher ad servers to preferentially route transactions to its display ad network. Google also preferentially routes bids of advertisers who use Google's ad buying tool for small advertisers (Google Ads) to its own GDN ad network. Scale is also an effective barrier to entry, as ad networks require scale on both the supply and demand sides.

565. Google also has monopoly power over the market for web display ad buying tools for small advertisers. Ad buying tools for small advertisers serve startups and local businesses

such as real estate agents, doctors, dentists, restaurants, automotive repair shops, craftsmen, electricians, hair salons, architects, and landscapers. Google charges supracompetitive fees for exclusive access to Google Ads advertisers. The ability to extract such rents, dependent on Google Ads exclusivity, demonstrates Google Ads' monopoly power. Google's conduct is further anticompetitive because it obscures its margins by running sequential auctions, allowing it to avoid disclosure of its margins to advertisers.

566. Google's monopoly over ad buying tools through Google Ads is further protected because the small advertisers that use Google Ads most usually only use one ad buying tool. Using multiple ad buying tools would cost substantial additional time, effort, training, and expense that would be necessary to manage campaigns across different ad buying tools. Google Ads also does not permit small advertisers to export a complete data set that they would need to easily switch to another ad buying tool, further locking them into Google Ads. As a result of these costs and obstacles, while large advertisers may be able to absorb the transition costs associated with switch tools, or up-front cost of using an additional ad buying tool, small advertisers almost always just use one tool at a time.

567. Google Ads' market power is protected by at least three barriers to entry and expansion. First, Google Ads obscures its fees and does not let advertisers readily determine the ad inventory Google purchases on their behalf. This information asymmetry prevents advertisers from comparison shopping and making a determination to switch to a lower-cost or higher-quality rival provider. Second, Google withholds YouTube video inventory from rival ad buying tools, effectively locking small advertisers into Google Ads if they wish to advertise on YouTube. As a result, small advertisers often do not even try to compete with Google Ads for small advertisers, because they cannot achieve sufficient scale with small advertisers who want to buy display, YouTube, and search ads through just one tool. Third, Google Ads limits advertisers from accessing and taking data with them to another tool. Advertisers use ad buying tools to keep track of the users they have targeted with ads, users who have made purchases, and users they would like to continue targeting with ads. As a result of Google Ads preventing access to this

information, advertisers are locked into the Google ecosystem and have high costs for switching to a different ad buying tool – including abandoning valuable data about their own transactions gathered in Google Ads.

568. Google also has market dominance over instream online video advertising. Google's YouTube has market power in the instream online video advertising market in the United States. YouTube's share of the overall video advertising market is at least 43% in the United States, and potentially much higher for instream online video advertising. Further, YouTube reaches approximately 190 million consumers in the United States, including 77% of U.S. Internet users aged 15-25, as measured in Q3 2020. Even amongst older age groups, YouTube reached roughly two-thirds of the population. YouTube's vast reach makes it an essential source of online instream video inventory for advertisers, and Google incorporates ad spend for YouTube through its dominant ad buying tool, DV360. Accordingly, Google wields significant market power in the instream online video ads market, as demand for YouTube content is unique compared to other online video publishers that sell instream online video advertising adjacent to short-form user created video content.

569. At a Congressional hearing, Pichai sought to downplay the conflicts of interest that were pointed out to him by claiming that the advertising intermediary work was a "low-margin business" that Google undertakes "because we want to help support publishers." But as the House Report pointed out, Google's margins in this business have averaged 20% for nine out of the last 10 years.

1. Ad Servers Market

570. Online publishers, including newspapers, media outlets, and other sources, depend on a sophisticated system to manage their inventory of advertisements, called an ad server. Ad servers keep track of publishers' ad inventory (which is not interchangeable because it must be served in specific contexts), and help publishers sell that inventory through exchanges, with the goal of maximizing advertising revenue. Publishers typically use a single ad server to manage all

of their web display inventory – using multiple ad servers would undermine holistic management of inventory and frustrate effective optimization of advertising inventory.

571. Online publishers relinquish control over inventory management and revenue maximization when they resort to the use of an ad server. While there are some variables which an online publisher may adjust with respect to the management and sale of ad inventory, an ad server ultimately limits the publisher's control. Ad servers in turn provide specialized knowledge to help the online publisher navigate the complexities of electronic trading, including ad server account analysts who individually advise online publishers on how to adjust the ad server's settings to increase revenue.

572. Ad servers perform three critical tasks related to selling ad space. First, the ad server identifies the users visiting the publisher's webpage in order to manage ad inventory and maximize yield. The ad server utilizes information provided by a web browser or mobile application to help identify the user, and "tags" users with a unique user ID in order to identify the characteristics of the users associated with each ad space available. By uniquely identifying an individual, the ad server can find additional information about the user, which in turn allows an advertiser to better target advertising and place a value on the ad space each individual user will see. Unique user IDs are also used for "frequency capping," which limits the number of times a specific user will see any single advertisement. User IDs also allow advertisers to track the effectiveness of their advertisements, by allowing them to track whether any individual user responded to an advertisement with specific actions (*e.g.*, clicking on an ad or following through and purchasing a product based on an ad).

573. Second, ad servers manage how publishers sell ad space indirectly through advertising marketplaces, such as ad exchanges. Publisher ad servers connect with marketplaces and let publishers automatically route their inventory for sale as the users load the publishers' webpages. Ad servers effectively act as a middleman between a publisher and the marketplaces where advertisements are bought and sold. As such, the ad server controls how the different marketplaces can access and compete for a publisher's inventory.

574. Third, ad servers act as a mediator routing inventory correctly between a publisher's direct and indirect sales channels. Because publishers make almost all of their revenue from just a small portion of their impressions, it is exceedingly important to them to direct their most valuable inventory to high-value users – those identified as having a deep interest in a topic or a propensity to buy merchandise for a related topic, based on tracking information gained about the user. The ad server must allocate ad sales between indirect purchases on an exchange and direct sales to large advertisers.

575. An ad server is able to obstruct competition for a publisher's indirect sales due to its intermediary position between the publisher and the various exchanges competing for publishers' impressions. The ad server may, for example, interfere with the publisher's ability to share full information about its impressions with the exchanges. Or the ad server might prevent publishers from understanding how their inventory performs comparatively across exchanges. Without transparent information, a publisher cannot reward better-performing exchanges with more business, and the market cannot be truly competitive, as marketplaces have no incentive to maximize value for publishers in the absence of such information.

576. Despite the informational issues, prior to Google's entry into the publisher ad server market, ad servers neutrally routed publishers' inventory to exchanges, helping publishers maximize their inventory yield while charging a simple, low per-impression rate or monthly subscription fee. Google substantially changed this market by monopolizing the publisher ad server market for display inventory with Google Ad Manager ("GAM"). Google originally acquired its publisher ad server in 2008 from DoubleClick. In 2011, Google acquired and integrated AdMeld, a yield optimization technology that further helped publishers efficiently route inventory to exchanges and networks. Today, GAM controls over 90% of the product market in the United States, with essentially every major website using GAM. GAM has thereby become a monopoly middleman between publishers and exchanges, having the power to foreclose competition in the exchange market.

577. The DoubleClick acquisition was significant enough for Google's Board to discuss it on April 12, 2007. Six of the current directors, which constitutes a majority of the current Board – Brin, Page, Hennessy, Mather, Shriram, and Doerr – were on the Board then. Schmidt "called the meeting to order and discussed the general background of the potential acquisition[.]" GOOG-BC-SHD-00001197. Susan Wojcicki (later the CEO of YouTube) and Tim Armstrong (now at Verizon) "discussed with the Board the strategic rationale for, and the risks associated with the proposed acquisition and addressed among other thing: (i) DoubleClick's business and ad serving products; (ii) Google's efforts to enter into digital advertising and what it would take to grow Google's display advertising business; (iii) a discussion of the competitive landscape for ad-serving as well as display advertising; and (iv) a review of the status of Google's internal ad-serving products. Management also discussed the potential impact the acquisition may have on Google's brand and public perception of Google given DoubleClick's history and reputation." *Id*. at 1198. Schmidt "provided the Board with final thoughts and management's recommendation that the Board approve the DoubleClick acquisition." *Id*. at 1200. Thus, the Board minutes show that management and the Board pushed for an acquisition of DoubleClick to gain market power in the digital display advertising business despite known antitrust concerns.

578. A few years later, the AdMeld acquisition was presented to the Board as a fait accompli, thus showing how little concern the Board had regarding well-known antitrust risks. Rather than call a Board meeting to approve the acquisition, directors were merely asked to submit their written consent for approving the acquisition. GOOG-BC-SHD-00001327 (June 11, 2011, written consents for approving acquisition of AdMeld, including the redacted acquisition price); GOOG-BC-SHD-00001445 (December 11, 2011, written consent to approve amended AdMeld merger agreement).

2. Exchange Markets for Display Advertising Market

579. Almost all online publishers in the United States today sell at least some inventory to advertisers through marketplaces (advertising exchanges and networks). Larger publishers tend to use ad exchanges, whereas smaller publishers typically use ad networks.

580. Ad exchanges for display ads are marketplaces conducting auctions in real-time. They match multiple buyers and sellers on an individual impression basis. An ad server routes the publisher's inventory to exchanges in real time as users load webpages, and the exchange then connects with advertisers through ad buying tools to "bid" on ad space by impression. Exchanges do not bear inventory risk; they are merely an intermediary, connecting publishers' inventory with willing buyers in real time.

581. Ad exchanges are primarily aimed toward large online publishers, and institute minimum impression and spend requirements.

582. Google owns and operates the largest display ad exchange in the United States, called the Google Ad Exchange, or "AdX." Google's AdX exchange, for example, is only open to publishers that have 5 million page views or over 10 million impressions per month. For many small online publishers, such as local newspapers and blogs, ad exchanges are completely out of reach. Google compares its ad exchange to financial exchanges like the NYSE and the Nasdaq. However, AdX is not an open exchange and is different from the financial exchanges in several important respects.

583. Ad exchanges charge publishers a share of transaction value (usually between 5% and 20%) of the inventory's clearing price. Google's exchange, by contrast, charges publishers double to quadruple the prices of some of its nearest exchange competitors. Google thereby takes a dramatically higher share of total sales on its exchange, reflecting Google's substantial market power. Google's exchange fees are also exponentially higher than exchange fees on a stock exchange, where fees are low and set by volume instead of as a percentage of transaction value. An analogous transaction on a stock exchange would have the exchange charge a double-digit percentage of the value of an overall stock transaction – an unsustainable fee in a competitive market. Google is able to charge these fees for one reason alone: because it uses its monopoly power over publishers' ad servers to unlawfully foreclose competition in the exchange market.

584. Google is inherently conflicted in controlling publishers' inventory through its ad server while simultaneously operating the largest exchange. Google charges a low cost for acting

as publishers' sell-side intermediary, but makes substantially higher fees when selling those publishers' inventory in its exchange. Google accordingly incentivizes itself to steer publishers' inventory toward its exchange, where it can extract twice to four times the rate of some of its nearest exchange competitors.

585. Google also operates an ad display network (which small publishers use instead of exchanges). Unlike exchanges, networks do not require publishers to meet high monthly minimum impression or spend requirements. Rather, networks obscure prices within auctions, which enables them to capture undisclosed margins. Neither the buyer nor the seller knows the percentage that the network takes from matches trades. Networks are also different from exchanges in that they carry inventory risk: they purchase (and then sell) impressions on their own behalf, as opposed to purchasing on behalf of an advertiser or ad buyer.

586. Google's display advertising network is known as the Google Display Network ("GDN"). GDN operates as a closed marketplace accessible only by advertisers who use one of Google's products to buy publisher ad inventory. Google again charges a percentage fee on its GDN, charging even higher fees to small publishers and advertisers through GDN than it does to larger publishers on AdX.

587. Google also owns AdMob, the largest ad network for selling mobile app ad inventory on behalf of mobile app developers. Google's closest competitor in the mobile app advertising network market is Facebook's Audience Network ("FAN"). In the discrete market for mobile app networks competing to sell third-party publishers' impressions to advertisers, Google and Facebook compete head-to-head.

588. The AdMob acquisition was also important enough to warrant a special Board meeting on November 5, 2009. Google code named it "Project Brando" and Schmidt told the Board that it was a "private company whose primary business is mobile advertising." GOOG-BC-SHD-00001226. Another executive then "reviewed the background of the deal and walked the Board through AdMob's current business model, products, revenues, income, and advertising base. He discussed the long term and short term goals of the transaction and how the integration

would be managed. [He] also highlighted other players in the market possibly interested in acquiring AdMob or competitors of AdMob." *Id.* at 1226-27. Other executives provided the Board "the strategic rationale of the transaction. They highlighted the potential growth the transaction could provide to Google's mobile advertising efforts and the leadership AdMob's CEO and management team could provide to Google's efforts. They also reviewed Google's strategy in this area and generally discussed challenges and opportunities associated with this industry." *Id.* at 1227. In-house counsel "reviewed legal and antitrust issues for the Board." *Id.* Finally, Schmidt provided the Board with management's recommendation to approve the acquisition. Five of the current directors (Page, Brin, Doerr, Hennessy, and Mather) were at this meeting, where the Board learned in-depth of the strategic importance of AdMob to Google's business, and even though Shriram was absent from the meeting, it is reasonable to infer that he would have been informed because of his key role as a Google investor and early Board member.

589. Google's Board also found out that the Company was willing to use pressure tactics to secure regulatory approval. Apparently, Google's attempts to acquire AdMob were questioned by the Federal Trade Commission ("FTC"), which was concerned about competitive harm. In a July 14, 2020 "Confidential Memo" from "Google Management" to the "Google Board of Directors," the Board was informed: "In the US, our work with AdMob to push blog posts from supportive app developers culminated in a Wall Street Journal story on the eve of the vote echoing questions around the FTC's theory of harm. Just a few days later, the FTC approved our deal." GOOG-BC-SHD-00001206, 1222-23. Thus, the Board knew that there were serious antitrust concerns with the AdMob acquisition, and Google's method for addressing those concerns was to pressure the regulatory to back off. A majority of the current directors were on the Board in 2010: Page, Brin, Hennessy, Doerr, Shriram, and Mather.

590. Because of its dominant position as a middleman that serves display ads on exchanges, Google is the primary bottleneck between publishers and advertisers for third-party display advertising.

3. Market for Ad Purchase Tools

591. As publishers rely on tools to sell their ad space inventory in exchanges, advertisers also use specialized middlemen, ad buying tools, to assist them and help them navigate the display ad market. Large advertisers use ad buying tools called demand-side platforms ("DSPs"), while small businesses use pared-down versions of the same tools. Just as publishers typically use only a single ad server, small advertisers tend to use just one intermediary at a time to optimize buying across multiple exchanges or networks. Ad buying tools let advertisers set parameters essential to their purchasing decisions, including the types of users to target and the maximum bids they are willing to submit for different types of display ad inventory. The ad buying tool uses the parameters set by the advertiser to automatically bid on ad space in exchanges and networks in an effort to minimize costs.

592. DSPs, ad buying tools for large advertisers, offer robust and complex bidding options often too complex for smaller and less sophisticated advertisers. DSPs are often so complex that large advertisers resort to a specialized ad buying team to manage them. Some DSPs also have monthly spend commitments, which can range into the tens of thousands of dollars.

593. Ads are served when a user visits a publisher's website, through the ad server which routes the publisher's available impressions to exchanges, along with information about the impression, including information about the user, the ad slot's parameters, and any rules about pricing. The exchanges then send a "bid request" to the ad buying tools who have a "seat" to bid in the exchange and act on behalf of advertisers. The bid requests also contain information about the impression and have a "timeout" period within which time a bid must be submitted, usually fractions of a second. Ad buying tools must therefore parse the information sent in the bid request, including personal information about the user, determine the appropriate price to bid on behalf of the advertiser, and return a bid response to the exchange within that time. When time expires, the auction is closed, and the highest bidder is selected. The publisher's ad server then selects the advertisement for the highest bid on the exchange and serves it on the user's page. This process

occurs before the user's page has finished loading, and the user only sees a display ad located near the content they are reading or viewing.

594. To compete effectively in exchange auctions, ad buying tools must return bids to exchanges before the timeout expires. Perhaps more importantly, they must also be able to leverage user information associated with each impression to serve relevant advertising. A large exchange such as Google's can exclude and harm competition between bidders in an auction by giving a subset of bidders an advantage over information (providing more information about a user for more targeted ads) or speed (allowing for a longer timeout period, which gives more time to calculate and return a bid).

595. Google operates the largest ad buying tools for both large and small advertisers. Google's DSP is called DV360 and arose from Google's acquisition of DSP Invite Media. Google's ad buying tool for small advertisers is called "Google Ads." While the exact percentages Google charges for DV360 and Google Ads are undisclosed, Google apparently charges a much higher commission on small advertisers purchasing inventory through Google Ads than it does large advertisers through DV360.

596. Google, through its DV360 exchange, gives Google Ads and DV360 information and speed advantages when bidding on behalf of advertisers. This preferred access helps explain why Google's ad buying tools win the overwhelming majority of the auctions hosted on Google's own dominant ad exchange, AdX.

597. Google's ad buying intermediaries are also predatory and do not act in the best interests of their clients. Google often manipulates or adjusts bids, especially with smaller or less sophisticated advertisers who do not understand the complicated auction process. Google also processes their bids through two auctions, keeps a spread between the two for itself, and does not disclose to advertisers that the ad space actually cleared at a different price on Google's exchange.

4. Google Forces Publishers into Its Ad Server and Ad Exchange

598. When Google entered the ad exchange market in 2009, exchanges had already existed for publishers and advertisers to trade on for some time. Google was late to the market

and faced significant competition from large and well-funded companies like Microsoft and Yahoo!. At the time, Google also faced significant competition in the publisher ad server market. While Google acquired DoubleClick in 2008, companies such as 24/7 Real Media (owned by WPP PLC), aQuantive (owned by Microsoft), and ValueClick (publicly traded) provided competition to Google.

599. Google then pursued an unlawful strategy to foreclose competition in the ad exchange and ad server markets. Immediately after acquiring a publisher ad server and launching its exchange in 2009, Google began to require that the small advertisers bidding through Google Ads transact in both Google's ad network and Google's ad exchange. Google also required any large publisher wishing to receive bids from the small advertisers in Google's networks and exchanges to license Google's ad server. Google essentially demanded that it represent the sell-side and the buy-side simultaneously, where it extracted fees from both sides, and forced transactions to clear in its own exchange, where it received yet another third fee.

600. Google forced publishers and advertisers to accept this triple-dipping by leveraging its ad buying tool for small advertisers, over which it already had substantial market power in the United States for at least a decade. Google operated an ad buying tool for small advertisers and already had significant power there – with a large majority of small advertisers, including restaurants, clothing stores, doctors, and electricians – using Google's ad buying tool to bid on display ad space. Google originally called this product for small advertisers AdWords, but later changed the branding to Google Ads. In 2009, some 250,000 small and medium advertisers in the United States used this ad buying tool to purchase search and display ads. Since then, the number of advertisers using this tool to purchase display inventory on exchanges has rapidly increased: by 2013, the number of advertisers using Google Ads was two million, while today millions of small-to medium-sized advertisers use Google Ads to bid on display ad space in Google's AdX exchange, with no alternative tools to use. Other ad buying tools reach far fewer advertisers, and many have exited the market, with few alternatives to Google's dominance.

601. Google's monopoly over ad buying tools for small advertisers sprang in part from its monopoly in the display ad network market and its concurrent scale in search advertising. By 2009, Google's ad network, GDN, was the leader in "reach" (unique visitors on publishers' sites). Google leveraged its reach by requiring advertisers to use Google Ads if they wished to purchase ad space through GDN. Google's large search advertising scale also allowed it to lock down relationships with small advertisers seeking to purchase display advertising. The relationship with small advertisers based on the sale of search advertising allowed Google to sell display advertising to those same small advertisers with a negligible additional cost. Google's competitors do not have that same advantage, as reaching a similar number of small advertisers would be cost-prohibitive long before they could reach the scale to offer buying tools to compete with Google Ads.

602. Google's monopoly over ad buying tools was also secured because small advertisers almost always used just one ad buying tool at a time. Most chose Google's because Google tied its ad buying tool to Google Search ads and display ads on Google's leading display network, GDN – no competitor could offer ads on these platforms that have unparalleled reach.

603. Google further monopolized the exchange and ad server markets by forcing publishers to license Google's ad server and trade in Google's exchange in order to receive bids on Google's buying tool, Google Ads, representing millions of advertisers. Google automatically routed small advertisers' ad network bids to Google's exchange, and refused to route advertisers' bids to non-Google exchanges, thus engaging in anticompetitive tying. Then, Google programmed its exchange to return real-time bids only to publishers using Google's new publisher ad server, a critical favoritism in a market where the bidding process is typically measured in fractions of a second. Google thereby favored the interests of small advertisers over the small businesses selling ads in its Google Ads platform. Instead of routing buy bids to exchanges which offered the lowest prices for identical inventory, Google routed to its own properties instead. Ad tools competing with Google at that time had no such preferential treatment, but Google abused its interlocking market power. In a competitive market, advertisers prefer to buy across multiple exchanges in

order to reach the largest possible pool of supply at the best prices, fostering competition between exchanges.

604. Google's choice to supply only real-time bids for its own exchange effectively forced publishers to use its ad server in order to work with its exchange. Many publishers only use a single ad server at a time to manage inventory, so Google's choice to limit real-time bids effectively meant that publishers would either have to forego the use of any competing ad server, or be cut off from access to the enormous pool of advertisers using Google Ads and bidding into Google's exchange.

605. Google also ties its ad server to its exchanges on the publisher side. Google requires large advertisers' bids to trade in Google's exchange (paying Google's exchange fees) and to license Google's ad server (and pay Google's ad server license fees). Its anticompetitive conduct in this area includes mandatory price floors; auction manipulation to force publishers to transact with DV360 advertisers in Google's exchange; and forced incompatibility with features of DV360 to make Google-involved offerings unattractive or otherwise incompatible to advertisers who participate in Google's ad servers and exchange ecosystems. As a result, many advertisers use Google's exchange even though they would not do so in a competitive market without these barriers erected.

5. Google Uses Its Control over Inventory to Block Competition on Exchanges

606. Google also took advantage of its control over publishers' inventory, combined with its status as publishers' agent, to eliminate competition on exchanges through a host of additional anticompetitive conduct. Google restricted publishers from selling inventory in more than one exchange at a time, blocked competition from non-Google exchanges, and blocked publishers from accessing and sharing information about their inventory with non-Google exchanges. Google's anticompetitive activity allowed it to charge exorbitantly high fees that could not be supported in a competitive market.

607. In about 2009-2010, advertising exchanges began moving to real-time bidding in order to compete for bids for publishers' inventory. Google used its control over publishers'

inventory through its ad server to thwart competition between marketplaces by forcing publishers to route their ad space to a single exchange serially, rather than all at once. This conduct foreclosed competition on exchanges from 2009-2016, by a practice referred to by the industry as "waterfalling."

608. Waterfalling effectively blocked competition between exchanges by preventing the listing of any ad space on multiple exchanges at the same time. Absent the serial listing Google required, publishers could have listed their ad spaces on multiple exchanges and had the opportunity to accept higher bids.

609. Waterfalling also interfered with competition between exchanges to reduce publishers' yields. Because simultaneous offerings on different exchanges would increase the pool of advertisers available, thus increasing demand and prices, Google's requirement that listings not be entered simultaneously among exchanges deprives publishers of the opportunity to reach a wider pool of advertisers and receive higher bids.

610. Google, through its ad servers, also preferentially routed publishers' inventory to Google's new exchange through a process it called "Dynamic Allocation." Google essentially granted itself a right of first refusal on all impressions a publisher made available to exchanges. It accomplished this by having its ad server pass live bid information to Google's exchange, while feeding only static, non-live bids to the competitions' exchanges. Static bids were usually set to the historical overall price yielded by similar impressions, allowing Google to outbid competitors' purchase prices by just one penny. Google thereby used its position via ownership of its ad server to allow its exchange to preview prices and outbid rival static settings by a single cent.

611. The adoption of Dynamic Allocation in 2010 ended DoubleClick's neutrality as a seller's agent. DoubleClick, under Google's control, ceased to route impressions to exchanges in a neutral manner and instead favored Google's own exchanges. Taken together alongside Google's waterfalling practice, Google's ad server destroyed competition in the exchange market. After waterfalling and Dynamic Allocation were implemented, competitors could not

simultaneously compete for the inventory of ad impressions, and were left only with low-value impressions passed over by Google's exchange.

612. Google's adoption of Dynamic Allocation was contrary to the representations it made to Congress and the FTC to obtain approval of the acquisition of DoubleClick. Google assured Congress that DoubleClick's "data is owned by the customers, publishers and advertisers, and DoubleClick or Google cannot do anything with it." Google also represented to the FTC that "customer and competitor information that DoubleClick collects currently belongs to publishers, not DoubleClick" and that "DoubleClick's contracts with its customers, which those customers insisted on, protect that information from disclosure." Google stated it was "committed to the sanctity of those contracts." But Google's internal documents, quoted by the House Report, showed that this acquisition was meant to build market share in the display advertising market and reinforce Google's dominance throughout. A July 26, 2006, presentation quoted by the House Report calculated the value of the display advertising market to be $4.3 billion and that Google understood that it "has no meaningful presence." Furthermore, another July 2006 presentation, titled "Build a Self-Reinforcing Online Ads Ecosystem," noted that acquiring DoubleClick or Atlas could create "self-reinforcing benefits" for Google's ecosystem, asking "[I]s there some framework we have to demonstrate the synergies/inter-relationships from owning all these pieces?"

613. And despite its representations to Congress and the FTC (which had to approve Google's acquisition), Google started restricting publishers' ability to access and share their ad server user IDs by hashing and encrypting user IDs differently for each publisher using Google's ad server and for each advertiser bidding through Google's ad buying tools. Thus, the same user would have different IDs on the server versus the buying tool. This prevented publishers, advertisers, exchanges, and networks (other than Google's own) from knowing which different user IDs actually belonged to the same user. But Google shared these IDs with its own network, exchange, and ad buying tools (DV360 and Google Ads) by homogenizing the ID for a unique user.

614. Furthermore, in 2016, Google reversed its earlier commitment and combined DoubleClick data with personal information collected through other Google servers. This decision was reached at the highest levels of the Company. In 2019, Congress asked Pichai about his direct involvement in this decision, asking "Did you sign off on this decision to combine the sets of data with—that Google had told Congress would be kept separate?" In response, Pichai confirmed that he "reviewed at a high level all the important decisions we made."

615. Google also harmed and misled publishers through Dynamic Allocation, representing that DV360 would maximize their revenues. In truth, according to Google's own study, actual competition between exchanges increased publishers' clearing prices by an average of 40% – meaning that Google's use of Dynamic Allocation had permitted Google's exchange to clear publishers' inventory for depressed prices.

616. Google later foreclosed exchange competition through a program called Enhanced Dynamic Allocation ("EDA"). Publishers historically sold their best impressions to advertisers directly for premium prices. But with EDA, Google's ad server let Google's exchange compete for and purchase valuable impressions that the ad server would previously allocate to publishers' premium direct deals. Google blocked non-Google exchanges from competing for those same impressions.

617. Before EDA, Google's ad server prioritized allocating impressions to direct deals between publishers and advertisers, which allowed for publishers to collect premium prices. But with EDA, Google instead evaluated each impression's value and then, based on that value, decided whether to allocate the impression toward meeting a direct deal's reservation goal, or whether to instead re-direct it to an exchange auction. EDA, in effect, made it so only Google's exchange could trade publishers' most valuable inventory. By blocking non-Google exchanges from competing against Google's exchange, Google foreclosed competition in the exchange market and shielded Google's exchange from competition.

618. Google's EDA practices also caused Google's exchange to purchase publishers' impressions for depressed prices. Google's ad server permitted its exchange to purchase

impressions for one penny more than the reserve price floor it instituted – allowing Google's exchange to acquire publishers' impression at depressed and non-competitive prices.

619. EDA also excluded competition from publishers' direct sales channel. Google's ad server let its exchange cherry-pick the valuable impressions and then funnel lower-value impressions to publishers' direct deals. Advertisers who paid high prices for premium inventory through direct deals unknowingly received publishers' lower quality inventory in return. Over time, the value of direct-sold inventory declined, and advertisers reallocated spending toward Google's exchange (where Google could extract its supracompetitive exchange fees).

620. Similar to Google's strategy with Dynamic Allocation, Google started EDA by misrepresenting to publishers that the practice was in their own best interests. Google falsely told publishers that EDA maximized yield, but internally understood that the EDA program allowed Google to instead monopolize the best advertising impressions for its own markets and exchanges.

621. Google further has foreclosed competition in the exchange and ad buying tool markets by blocking publishers' ability to access information about their own inventory. Google's ad server assigns individual IDs when it identifies a site visitor associated with its publishers' inventory. Google withheld those server user IDs from publishers, prohibiting them from sharing the IDs with non-Google exchanges and ad buying tools. Google thereby strategically created an additional barrier to entry, preventing publishers from moving to other exchanges and ad buying tools.

622. Specifically, in 2009, Google started restricting publishers' ability to access and share their ad server user IDs. Google accomplished this by encrypting (or "hashing") user IDs separately for each publisher using Google's ad server, as well as for each advertiser bidding through Google's ad buying tools. This change interfered with publishers' ability to share consistent user IDs with non-Google exchanges and networks. As a result, publishers were deprived of the ability to easily identify user IDs to complete transactions in exchanges other than Google's.

623. While Google blocked publishers from accessing raw user IDs to share them with non-Google exchanges and networks, Google internally kept and shared those raw IDs amongst its own network and exchange, as well as its own ad buying tools, Google Ads and DV360. Google thereby made it impossible for publishers to know whether two different user IDs actually related to the same individual unless they used Google's ad buying tools and traded in Google's exchange.

6. Header Bidding Evolves to Promote Exchange Competition

624. In 2014, publishers adopted a technological innovation called "header bidding" that permitted them to route inventory to multiple exchanges simultaneously. Publishers, advertisers, and exchanges quickly adopted the method to facilitate exchange competition. Header bidding involved the insertion of specific code into the header sections of webpages in order to facilitate competition between exchanges. When a user visited a page, the code enabled publishers to direct a user's browser to solicit real-time bids from multiple exchanges, before Google's ad server could prevent them from doing so.

625. Header bidding shifted routing through an ad server to the web browser, creating a technical workaround for publishers to circumvent Google's efforts to foreclose competition in the exchange market. Header bidding became quite popular, and by 2016, approximately 70% of major publishers in the United States had adopted header bidding to route their inventory through multiple exchanges.

626. Publishers adopted header bidding because they realized that Google's waterfalling, dynamic allocation, and enhanced dynamic allocation did not maximize their revenues, but instead padded Google's own bottom line. The switch to header bidding was incredibly advantageous to publishers: they saw their ad revenue jump overnight as competition between exchanges allowed market forces to take over. Some publishers' revenue purportedly jumped by anywhere from 40% to 100%.

627. Consumers and advertisers also benefitted from header bidding. Advertisers used header bidding to transact through an exchange of their choosing, including exchanges which did not charge Google's monopolistic fees. Consumers benefited by virtue of the increased revenues

realized by publishers and fees saved by advertisers. Because Google was not taking a supracompetitive share of fees, publishers had more ad revenue to produce more and better content. Lower exchange fees also allowed for lower costs to advertisers, which ultimately are passed on to consumers.

7. Google Re-Routes Trading to Defeat Header Bidding

628. Google wanted to destroy header bidding for three basic reasons: to (i) avoid competition on price; (ii) find a way to continue to use information gathered from its ad servers and other products to unfairly advantage itself; and (iii) prevent competition for its publisher ad server monopoly.

629. First and foremost, Google wanted to eliminate header bidding in order to protect its high exchange fees from competition. Header bidding represented a growing risk to Google's monopoly power as bidders started routing around exchanges to use information from website headers themselves to form new bidding markets. Second, Google wanted to protect the monopoly on information from ad servers that header bidding threatened. Google's ad servers shared competing bids on publishers' inventory with Google's ad buying tools (DV360 and Google Ads), leveraging Google's control over information in ad servers to eliminate competition in ad buying tools. Header bidding threatened this informational advantage by circumventing ad servers. Third, Google wanted to eliminate header bidding to foreclose competition within its publisher ad server monopoly. Google previously held a monopoly position through its ad server, routing publishers' inventory to exchanges. Without control over publishers' inventory, Google could not unfairly favor its own exchanges and block competition in the exchange market.

630. In order to eliminate the competitive threat represented by header bidding, Google created an alternative to allow it to continue routing inventory in a way that maintained its monopolies. Google's ad server began routing publisher inventory to more than one exchange at a time with a program Google called "Exchange Bidding," and later, "Open Bidding." However, Google intentionally engineered the program in a way to continue to foreclose competition on exchanges.

631. Google's Exchange Bidding was designed to exclude competition from rival exchanges in at least four ways. First, Google diminished the ability of non-Google exchanges to return competitive bids by further decreasing their ability to identify users associated with publishers' ad space in auctions. Header bidding allowed each exchange to access a user's cookies related to the websites the user visited, which permitted those exchanges to capture enough information about the user to give them a unique identity. Google's Exchange Bidding prohibited exchanges from directly accessing the user's page, causing them to identify users in auctions less often, resulting in less bidding and less winning bids.

632. Second, Exchange Bidding foreclosed exchange competition by charging publishers an additional 5% to 10% penalty fee for selling inventory in a non-Google exchange. As a result, advertisers' bids made on rival exchanges were less competitive than advertisers' bids on Google's exchange, because Google's exchange did not require the additional fee. Google knew that publishers and advertisers measure an exchange's performance in part based on its fees, giving Google an advantage when competing against other exchanges.

633. Third, Google forced its publisher ad server customers to use Exchange Bidding instead of header bidding. A publisher that chose to route its ad space from Google's ad server directly to multiple exchanges at the same time would have to route inventory through Google's exchange, even if it did not want to do so.

634. Fourth, Google eliminated competition through its Exchange Bidding program by simply rigging the bidding process to let Google win. Google made it so its own AdX exchange won publishers' inventory even over another exchange's higher bid.

635. Google also excluded competition from header bidding by trading ahead of bid orders submitted by header bidding exchanges. When a publisher would route their inventory through header bidding, the winning exchange bid would be then routed through Google's ad server. Google programmed its ad server to let its exchange displace the winning header bidding exchange bid by paying one penny more. In other words, Google's ad server allowed Google's exchange to review the winning header bidding exchange bid, then displace that trade – a practice

that industry insiders called Google's "Last Look." But this was really just a euphemism for "insider trading" or "front running."

636. Google's opportunity to outbid the competition through Last Look, combined with the fact that it has absolute monopoly power in the ad server market, allowed Google to successfully foreclose competition in the exchange market. Google reserved the best impressions for its exchange, always prevailing on bids and leaving rival exchanges the low-value impressions Google regarded as offal.

637. Google's Last Look ensured that header bidding exchanges lost to Google's exchange. The only exception was when a publisher set a higher floor for Google's exchange, which Google made technologically impossible in an update that removed this setting from publishers' control.

638. Google also induced non-Google exchanges to switch over from header bidding to Exchange Bidding by falsely representing that it would stop its "Last Look" auction advantage. But Google never actually stopped trading ahead of exchanges. Instead, Google replaced one version of Last Look for another, adopting a new technique whereby Google would continue to short-circuit the bidding process through a bid optimization scheme based on predictive modeling. With its new bid optimization techniques, Google abandoned its more traditional Last Look practices while maintaining the same (or greater) anticompetitive advantages it previously enjoyed. Non-Google exchanges were unable to compete with similar bid optimization schemes because Google's ad server restricts publishers from accessing and sharing their user IDs.

639. Starting in 2018, Google also started redacting various data fields from the consolidated auction records it shared with publishers. The redactions make it nearly impossible for publishers to compare relative performance of exchanges for header bidding versus going through Google's ad server. Google thereby has destroyed the benefit that caused the adoption of header bidding in the first place – the ability to measure and compare yields on exchanges and choose the more competitive offering.

640. Google further interfered with the use of header bidding by capping the number of permissible "line items" in header bidding – effectively limiting the number of bids publishers could receive from exchanges in header bidding. Google consistently rejected publishers' requests that it increase the number of line items available for header bidding. In a competitive market, an ad server would do the exact opposite: facilitate bidding to allow publishers to better optimize yield. Google's ad server instead undermines its own clients' revenue streams.

641. Google employed further technological limitations to strongarm publishers and advertisers to stop using header bidding and re-route traffic into Google's ad server. Google created something called "Accelerated Mobile Pages," or "AMP," a framework for developing mobile web pages, and made AMP essentially incompatible with header bidding by not supporting the programming language required for header bidding to run (JavaScript).

642. AMP is a Google-controlled initiative. While Google nominally transferred control of AMP to a foundation, Google controls the foundation's board and maintains effective control of its development and implementation. Google ad server employees met with AMP employees to strategize about developing AMP in a manner to impede header bidding. Google restricted AMP code to prohibit publishers from routing bids to, or sharing data with, more than a few exchanges, severely limiting AMP's compatibility with header bidding. AMP was, however, fully compatible with routing to exchanges through Google's ad server. Google also designed AMP to allow it to continue to get a look at their bids and trade on that inside information. Finally, Google designed AMP so that users loading AMP web pages would directly communicate with Google's cache servers rather than publishers', granting Google access to more publisher data.

643. AMP is further anticompetitive because it limits the number of ads on a page, the types of ads publishers can sell, and the variety of enriched content that publishers can have on their pages. Google marketed its AMP restrictions as justified by faster page load times, but faster load times for Google-cached AMP versions of webpages were not guaranteed. Moreover, the speed benefits from AMP were at least partly the result of Google's own throttling, giving non-

AMP ads an artificial one-second delay in order to give Google's AMP a comparatively faster load time.

644. Google's ad server also excludes competition in the exchange market by withholding additional, critical server ad data, called "minimum bid to win," from exchanges in header bidding. Google's ad server shares this data with exchanges in Google's Open Bidding program at the conclusion of each auction, allowing these exchanges to use this data to adjust their bidding strategy in order to beat exchanges returning bids through header bidding. With this information asymmetry, exchanges in header bidding are disadvantaged and will lose more than those bidding in Open Bidding.

645. Google further excludes competition by purposefully keeping auction mechanics, terms, and pricing opaque and non-transparent. This lack of transparency in turns allow Google to obfuscate the percentage fees that publishers and advertisers pay Google. For instance, Google tells the small advertisers who use Google Ads to bid the price they pay Google for ad space, but not the price the inventory actually cleared for in Google's exchange, the revenue the publisher received, or the markup Google kept. Google also obfuscates price transparency for publishers, with overall evidence suggesting that publishers selling inventory through Google receive only approximately 70% of advertising revenue paid by advertisers, with in some cases the amount being as low as 58%. Google's take rate for publishers is therefore approximately 30%, and in some cases as high as 42%.

646. Google's lack of transparency opens opportunities for rent-seeking. It also forecloses competition because it impedes competitors from assessing possible returns on investment in order to invest and compete.

8. Anticompetitive Agreement with Facebook to Destroy Header Bidding

647. Google's largest competitor in the mobile ad space is Facebook's Audience Network ("FAN"). However, Google's market share is eight times larger than FAN's. Nevertheless, Google further destroyed header bidding as an alternative by entering an agreement

with Facebook executives to give Facebook certain advantages in return for the latter entering Google's Exchange or Open Bidding program and withdrawing its support for header bidding.

648. In a presentation to senior Google executives on October 5, 2016, which is cited in the Texas AG Action, a Google employee stated that Google had to "stop" Amazon, Criterio, and Facebook "from doing [header bidding]" and "consider something more aggressive" as a countermeasure. The presentation stated that Google's "goal/mandate" was to "[f]orestall major industry investment in HB & HB wrapper infrastructure."

649. Google executives' concerns crystalized when, in March 2017, Facebook publicly announced that it would support header bidding, which would enable web and mobile app publishers to bypass the fees associated with bidding through Google's ad server, since Google's Open or Exchange Bidding program through its ad servers bid into Google's exchanges. Google's exchange fees were high, about 19%-22% of the value of a transaction, while header bidding could cost nothing.

650. Google met Facebook's header bidding support with trepidation. According to the Texas AG Action, a Google executive listed, among the "top priorities" for 2017, "Need to fight off the existential threat posed by Header Bidding and FAN. This is my personal #1 priority. If we do nothing else, this need[s] to [be] an all hand[s] on deck approach." (Brackets in Texas AG's complaint). The wider industry also understood that Facebook's announcement was meant to challenge Google's monopoly.

651. As a result, Google began to monitor Facebook's initiative in header bidding. Google executives circulated a Facebook blog post where the latter stated that it was helping publishers and advertisers match two to three times more users in auctions and increase publishers' revenue by 10%-30%.

652. Early on, Google executives thought the best way to stifle header bidding would be to reach an agreement with Facebook. The Company used a code phrase, "Jedi Blue," to refer to the attempts to reach an agreement, and kept that code phrase secret and non-public. By contrast, Google does not use code words to refer to other Open Bidding or Network Bidding agreements.

653. Google's internal documents, cited by the Texas AG Action, showed that its executives were well aware that the purpose of an agreement was to prevent competition. A November 2017 Google presentation discussed having Facebook in Google's "Top Partner Council" and to "collaborate when necessary to maintain [the] status quo." Facebook executives understood that Google wanted to do a "deal to kill header bidding." Thus, Google and Facebook executives began to negotiate a deal from 2017 to 2018. An August 9, 2018, presentation in Google stated that if Google could not "avoid competing with FAN," it would instead seek to work with Facebook to "build a moat."

654. In September 2018, Philipp Schindler, the head of Google's advertising sales and operations, signed an agreement with a Facebook executive. According to news reporting, that executive was Sheryl Sandberg, the second most senior executive at Facebook and a member of its Board of Directors. An internal Google memo noted that "FAN requires special deal terms, but it is worth it to cement our value."

655. One of the major "special deal terms" was that Google allowed Facebook to circumvent Google's exchanges and bid directly into Google's ad server. This cut Facebook's fee to 5%-10%. But Google also prohibited Facebook from speaking publicly about its special lower pricing terms, and thus was able to continue charging higher fees against other publishers and advertisers.

656. Another major "special" provision was that Google gave Facebook a speed advantage in auctions. Google generally subjects other marketplaces competing for publishers' inventory in Open Bidding to a 160-millisecond timeout. But Google gave Facebook a 300-millisecond timeout; this extra time allowed FAN to win more auctions.

657. Furthermore, Google allowed Facebook to have direct billing and contractual relationships with publishers, while prohibiting other exchanges and networks in Open Bidding from having such direct relationships or even from discussing pricing.

658. Furthermore, Google gave Facebook an informational advantage, by informing it of what impressions were likely to be targeted to bots rather than humans, and waived Facebook's

requirement to pay for those impressions. And Google promised to use "commercially reasonable efforts" to help Facebook recognize the identity of users in publishers' auctions, including promising Facebook an 80% "match rate" (*i.e.*, users that could be identified in auctions versus the percent of bid requests received) for mobile inventory and 60% for non-Safari web inventory. This gave FAN an advantage in bidding because bidders generally only bid when they recognize the identity of the user.

659. Furthermore, Google committed to stop using Facebook's own information to beat Facebook at auctions. This was an important concession that Dan Rose, Facebook's Vice President of Partnerships, acknowledged in an e-mail to Facebook CEO Mark Zuckerberg. By contrast, Google continues to use inside information against other auction participants.

660. Moreover, Google limited its "head-to-head" competition against FAN in bidding for publishers' inventory, thus colluding with the second largest market player to divide the market. In fact, Google gave Facebook a "Win Rate" (the number of auctions Facebook wins divided by the number of auctions in which Facebook bids) of at least 10%. In return, Google extracted a specific amount of business from Facebook: "commercially reasonable efforts" to bid on at least 90% of auctions where Facebook recognizes the end user, and in the fourth year of the agreement, at least $500 million of spending in Google's auctions per year.

661. Google keeps its arrangement with Facebook secret. Publicly, Google states: "All participants in the unified auction, including Authorized Buyers and third-party yield partners, compete equally for each impression on a net basis."

662. Google was keenly aware that its agreement with Facebook violated antitrust laws. Thus, Google and Facebook executives had the agreement provide that the parties could terminate it if there are regulatory inquiries, material document requests, a formal antitrust investigation, or an antitrust action. The agreement also requires the parties to coordinate on antitrust defenses. In fact, the Agreement specifically provides that each party will inform the other "of any Government Communication relating to the Agreement[,]" "allow the other Party a reasonable time to review and consider in good faith the views of the other with respect to any Government

Communication[,]" and "not advance any arguments over the objection of the other Party that would reasonably be likely to have a substantial adverse effect on that other Party[]" and "consult with the other Party in advance, and give the other Party and its counsel reasonable notice and . . . an opportunity to attend and participate in any meeting or discussion with any Governmental Authority relating to any Antitrust Action[.]" "Antitrust" is a term that recurs no fewer than 20 times in the agreement.

9. Google Uses Privacy as a Fig Leaf to Entrench Its Monopoly

663. Going further than controlling the ad stack, Google has also sought to create a "walled garden" or closed ecosystem for digital advertisements. Its plans have involved its control of Chrome, the largest Internet browser on desktops. Google's internal documents, according to the Texas AG Action, showed that Google sought to extract higher fees by controlling the design of publishers' ad space and then forcing publishers to sell their ad space exclusively through Google's products. Google did this through inducing or automatically logging Google users into Chrome, causing users to log into Chrome even when they expressly logged into only another Google service, such as Gmail or YouTube, and forcing the login to remain because if a user logged out of Chrome, Google would automatically log the user out of every other Google service they were using. By logging in users, Google was able to track how users browsed, which increased Google's ability to sell its own ad space, and circumvent cookie-blocking technologies. Google then offered to give publishers the ability to access Google's deeper trove of user data in exchange for publishers' agreement to give Google exclusive control over their ad space. If publishers did not agree to exclusivity, Google would use Chrome to continue to collect data to sell more ads through Google at the expense of the publishers' ad space.

664. Google only transitioned away from the previous effort when regulatory scrutiny into its practices increased. Instead, Google turned to a "Privacy Sandbox" project. This has involved an announcement of a plan to block third-party cookies off Google Chrome, even though it would continue to allow its own cookies in the browser. This, in turn, would cause advertisers to spend more directly with Google and less on smaller media publishers because Google would

have the only effective personal tracking information left, which advertisers find to be most valuable. Non-Google ad buying tools would be starved because they would no longer be able to use cookies to gather consumer information. But Google's ad buying tools would not have this handicap because Google grants them exclusive access to user data from Chrome and Android. The Texas AG Action states that some publishers have already begun to shift their spending from non-Google to Google's ad buying tools. While Google again uses privacy as a pretext, the flimsiness of this rationale is apparent to most observers since Chrome can still use Google cookies or otherwise has access to Google users' data by virtue of automatically signing them in. Because Google's ad buying tools favor its exchange, Google also is entrenching its exchange monopoly through the so-called "Privacy Sandbox."

10. Unified Pricing Rules

665. Google also began an additional anticompetitive practice in June 2019, when Google manipulated its core search algorithm to punish publishers utilizing higher price floors on AdX compared to other exchanges. Publishers sought to apply higher price floors to Google's AdX exchange in order to make up for the informational and other disadvantages Google creates through its anticompetitive conduct. In response, Google manipulated its core search algorithm to punish publishers utilizing higher price floors, causing their search traffic to plummet. Google originally misrepresented to publishers that it was not manipulating search traffic, but then directly imposed "Unified Pricing" rules, eliminating differential price floors altogether. Instead, Google used its ad server monopoly to exclude competition in the exchange market.

666. In 2019, Google's ad server started prohibiting publishers from setting different price floors for different exchanges and ad buying tools. As a result, publishers using Google's ad server can no longer choose differing price floors when they route ad space to competing exchanges and/or Google's exchange, a server restriction Google calls "Unified Pricing."

667. Unified Pricing prevents publishers from setting different price floors for Google in order to generate competition from non-Google exchanges and ad buying tools. Because Google began restricting user ID information outside of its own ad server and exchange, non-Google

intermediaries' information disadvantage caused them to bid comparatively lower for impressions – causing them to, at times, make a "blind" bid, unable to adequately valuate the impression. To create competition in bidding in auctions for non-Google ad buying tools, publishers responded by setting price floors higher for Google. But the Unified Pricing rules Google set blocked, and now block, publishers from charging Google a rational information risk premium, and preclude publishers from setting their own price floors to engender competition from bidders who have been deprived of Google's User ID information.

668. Google's Unified Price rules have resulted in Google's exchange and buy-side winning an increasing portion of publishers' impressions, even though publishers are paid lower prices. Unified Price rules have been extremely effective at blocking and reducing competition when combined with Google's user ID restrictions. Not only does Unified Pricing prohibit publishers from choosing between exchanges and bidders based on price and yield, but also on non-price criteria like ad quality, because publishers cannot favor exchanges and ad buying tools that return higher quality ads. In removing publishers' ability to set price floors, Google has, in effect, removed competition between exchanges.

669. Unified Pricing has also had the effect of coercing publishers to transact with Google ad buying tools ***within*** Google's exchange. Google requires publishers to use Google's exchange to do business with Google's ad buying tools. Previously, publishers could choose to transact with DV360 only in non-Google exchanges by increasing DV360's price floors in Google's exchange. Unified Pricing ended this practice, so that publishers are now forced to transact with DV360 and Google Ads within Google's exchange. This tying arrangement was one of Google's main aims with Unified Pricing.

11. Google Forces Advertisers to Use Google's Ad Buying Tools

670. Google also leveraged the artificial information disadvantages it had created to foreclose competition in the ad buying tool markets. Google's Unified Pricing, Last Look, and other misconduct distorting and destroying competition through its ad server and exchange

products foreclose competition in the ad buying tool markets for the same reasons that they foreclose competition for publishers attempting to sell those ads.

671. Google unlawfully maintains monopoly power in the ad buying tool markets additionally by disallowing competing ad buying tools from accessing YouTube inventory. As a result, advertisers may only buy ads shown on YouTube through Google's ad buying tools. YouTube, as the leading provider of video inventory in the United States, is a requisite source of online instream video inventory for advertisers. Thus, the threat of cutting off access to YouTube forces advertisers to use Google's ad buying tools because an advertiser cannot afford to give up the reach that YouTube provides.

672. Advertisers previously were able to purchase YouTube inventory through many non-Google ad buying tools. But, in 2013, Google noticed that its ad buying tool for large advertisers, DV360, was falling behind the competition. Google responded by considering whether to withhold YouTube inventory from non-Google ad buying tools for the purpose of pressuring advertisers to use DV360 and Google Ads, a course that Google internally debated through 2014.

673. Google also recognized that withholding YouTube from competing ad buying tools would give DV360 and Google Ads power as buyers' agents to steer advertisers' spending back to Google's properties (including Google Search). Google thereby created self-reinforcing monopolies, realizing that if YouTube inventory were available exclusively through Google's ad buying tools, advertisers would have to use those tools, which Google could then use to steer budgets back to Google properties, including Google Search and YouTube.

674. Instead of competing on the merits, Google decided instead to completely withhold all YouTube inventory from non-Google ad buying tools, so that advertisers were forced into using Google's tools. While restricting non-Google ad buying tools from selling YouTube inventory was not in YouTube's best interest (it lowered demand and revenue for YouTube content creators), it allowed Google to capture the ad buying market.

675. The harm to competing ad buying tools is great because advertisers prefer to minimize the number of ad buying tools they use in order to streamline ad buying and minimize costs and inefficiencies. Using multiple tools would, for example, increase the rate at which advertisers could inadvertently bid against themselves on exchanges, and require the maintenance of more than one ad buying tool.

12. Anticompetitive Effects in Ad Markets

a. Third-Party Advertising

676. Google's exclusionary conduct for third-party advertising has caused a wide range of anticompetitive effects, including the exit of rival firms, and limited (and declining) entry rates in the relevant antitrust markets. Google's activity harms competition by causing lower quality, lower transparency, less innovation, lower output, and higher prices.

677. Google unlawfully maintains monopolies by using its market power to disadvantage competition via tying, exclusionary conduct, and other misconduct, including:

a) foreclosing competition in the exchange market by cutting off access to inventory and advertiser demand;

b) foreclosing competition in the publisher ad server market by tying its ad server with its market-dominant exchange;

c) foreclosing competition in the publisher ad server market and using its market power in the publisher ad server market to harm competition in the exchange market, the market for display ad buying tools for small advertisers, and the market for display ad buying tools for large advertisers;

d) foreclosing competition in the markets for display ad buying tools for small advertisers and display ad buying tools for large advertisers;

e) increasing barriers to entry in the markets for publisher ad servers, exchanges, display ad buying tools for small advertisers, and display ad buying tools for large advertisers;

f) harming innovation which would otherwise benefit publishers, advertisers, and consumers;

g) harming publishers' ability to effectively monetize their content, reducing publishers' revenues and thereby reducing output;

h) obscuring margins and selling processes, harming competition in the exchange and display ad buying tool markets;

i) increasing advertisers' costs to advertise and reducing the effectiveness of their advertising, harming businesses' ability to deliver products and services and reducing output; and

j) protecting Google's products from competitive pressures, thereby allowing it to extract supracompetitive fees and avoid innovation pressure.

b. Anticompetitive Effects in the Publisher Ad Server Market

678. Google's exclusionary conduct in the publisher ad server market includes tying its ad server to its exchange, as well as its network and ad buying tools. Competing publisher ad servers have either exited the market or significantly scaled back offerings, leaving publishers with little to no choice but to license Google's ad server. Several large firms previously competed in this market, including Microsoft, Yahoo!, WPP PLC, and OpenX – but all four firms have since exited the market. Entry of new competition has been remarkably weak for a decade, as new entrants have been thwarted by the barriers to entry and expansion that Google has erected.

679. Google has harmed customers in this market (online publishers). Google's exclusionary conduct and barriers to entry have permitted its ad server to charge supracompetitive fees (5% to 10% fees on gross transactions executed in non-Google exchanges and networks) and have resulted in lower quality than what would be available at competitive levels by blocking and interfering with competition from non-Google exchanges.

680. Google has also harmed the customers of publishers – individual consumers – through their interference with the competitive process. Publishers use revenue generated from selling ad space to improve content quality, offer more content, and offer less expensive subscriptions or free access to content. Because Google's ad server charges supracompetitive

prices, depressing publishers' inventory yield, publishers are able to offer consumers less content, of lower quality, and with less innovation with content delivery and higher fees.

c. Anticompetitive Effects in the Exchange Market

681. Google has foreclosed competition in the exchange market through its exclusionary conduct and artificial barriers to entry and expansion. Google's exclusionary conduct includes deceptively blocking, interfering with, and obstructing exchange competition, cutting off non-Google exchange access to publishers' user IDs, manipulating advertiser bids and exchange price floors, manipulating its auctions, tying its ad server to its exchange, ad network, and ad buying tools, requiring publishers and advertisers to trade in Google's exchange, and a wide set of practices pursued for the purpose of destroying header bidding.

682. As a result, Google's competition has exited the market and new entrants are unable to effectively compete. While Microsoft, Yahoo!, and other companies all competed in the exchange market over 10 years ago with exchanges such as AdECN, AdBrite, and ADSDAQ, all three of these exchanges have since exited the market. Competition from new entrants has been weak due to Google's barriers to entry and other obstructions: competing exchanges have, for instance, tried to obtain market share by lowering their fees to half and even a quarter of Google's exchange rate fees. However, Google's interference has effectively eliminated market competition, so that lowering prices has no effect on market share.

683. Google's anticompetitive conduct has also harmed the customers in this market – online publishers and advertisers. In a competitive market, publishers and advertisers would benefit from competitive rates and quality. Publishers would be able to retain a greater share of their advertising revenue, permitting them to make more content, of higher quality, and to subsidize more content. Advertisers would have to pay less to purchase ad space, permitting them to reinvest those cost savings into the production of higher-quality, lower-priced goods and services. Instead, Google takes supracompetitive fees and provides service quality below competitive levels. Google's high fees do not reflect the magnitude of anticompetitive harm

Google has caused, because the inefficiencies Google creates in the allocation of its impressions has also caused reduced output in the exchange market.

d. Anticompetitive Effects in the Network Market

684. Google's exclusionary conduct has foreclosed competition in the display ad network market and the in-app mobile ad network market, creating artificial barriers to entry and expansion. Google's exclusionary conduct includes Google routing advertisers' bids on Google Ads through only Google's network, then deceptively re-routing those advertisers' bids to Google's exchange. As a result, competing displays and in-app networks have exited the market and new entrants are unable to effectively compete. Competition between exchanges used to be vigorous.

685. Google's elimination of competition has harmed customers in this market – small publishers and advertisers. In a competitive market, small publishers and advertisers would benefit from networks competing with each other on fees and quality. Competition would result to lower fees, benefitting publishers and advertisers. Small publishers could retain a greater share of their advertising revenue, permitting them to create more content, of higher quality, and with subsidized access for consumers. Advertisers would pay less to purchase ad space, re-investing those cost savings into providing consumers with higher-quality and lower-priced goods and services. Google's foreclosure of competition in the network market has allowed its display network, GDN, to charge double-digit fees.

e. Anticompetitive Effects in the Markets for Ad Buying Tools for Small Advertisers and Display Ad Buying Tools for Large Advertisers

686. Google's exclusionary conduct has foreclosed competition in the ad buying tool markets for both large and small advertisers and has created artificial barriers to entry and expansion. Google's exclusionary conduct in these separate markets includes the tying of its ad server to its exchange, ad network, and ad buying tools (requiring publishers and advertisers to trade in Google's exchange), cutting off non-Google ad buying tools' access to publishers' ad

server user IDs, manipulating advertiser bids and exchange price floors on the auction, and tying YouTube to its ad buying tools.

687. Competing ad buying tools have exited the market and new entrants are unable to effectively compete as a result. Competition in the ad buying tool markets for small and large advertisers were once robust, but today Google Ads is effectively the only remaining choice for small advertisers wishing to purchase display ad space from exchanges. Many large advertisers have no choice but to use DV360, because they choose to use only one ad buying tool, and because DV360 has exclusive access to YouTube ad inventory, which large advertisers must have to compete.

688. Google harmed customers – both small and large advertisers – in these markets. Ad buying tools, whether for small or large advertisers, should advance advertisers' best interests by finding the lowest price possible to place advertisement for any given impression. In a competitive market, advertisers would benefit from ad buying tools competing on price and quality. Google's exclusionary conduct has permitted its ad buying tool for small advertisers to charge supracompetitive fees and lower quality below competitive levels, including charging non-transparent fees, manipulating advertisers' bids to purchase ad space for higher prices trading on Google's exchange and network, and arbitraging small advertisers' bids to extract higher fees. Similarly, Google's exclusionary conduct has permitted Google's ad buying tool for large advertisers to charge supracompetitive fees and lower quality below competitive levels, including failing to adequately audit Google conflicts of interest and fraudulent impressions. Google's conduct has consequently also lowered output in these markets.

689. Google harms the competitive process in the ad buying tool markets and has also harmed advertisers' customers – consumers. The fees advertisers would save on ad buying tools and ad purchases in the absence of Google's anticompetitive conduct would result in reduced deadweight costs that advertisers would ultimately pass on to consumers. Consumers would benefit through better quality and lower-priced goods and services. Advertising also allows consumers to learn of the range of competitors in a market, their prices, and the nature of the

products and services offered. When advertising effectiveness is reduced, competition between products and services is reduced, and consumers are harmed.

f. Harm to Innovation

690. In each of the relevant product markets, Google's exclusionary conduct has resulted in harm to innovation. A critical example of this is how, for many years, Google's publisher ad server depressed publishers' inventory yields by blocking real-time competition from non-Google exchanges. When publishers found a way to work around the restrictions imposed by Google's ad server using header bidding, publishers' yields jumped by over 30%, sometimes even over 100%. It was not until 2018, about eight years after the invention of real-time bidding, that Google's ad server finally permitted publishers to route their inventory to multiple exchanges in real time. In other words, the lack of competition caused by Google's foreclosure of competition and entry permitted Google's ad server to get away with significantly depressing publishers' inventory yields for almost 10 years.

691. Google's response to header bidding has further harmed innovation in the exchange and publisher ad server markets. Google has used its market power in the publisher ad server market and exchange markets to destroy header bidding, rather than competing on the merits. Header bidding helped publishers make more money by enhancing exchange access to, and competition for, publishers' impressions. By crippling interoperability with this new and beneficial invention, Google stifles rather than promotes beneficial innovation in the market.

13. Trial Evidence Indicate and the Eastern District of Virginia Has Found Google to Be Liable for Antitrust Violations in the AdTech Market

692. Earlier, when the case had been transferred to the United States District Court of the Southern District of New York (S.D.N.Y.) (before getting transferred back to the Eastern District of Texas), the Court had largely denied a motion to dismiss. The Court in particular held that the following claims were properly pled:

- "The States have plausibly alleged that Google has used its market power in the ad-exchange market to coerce publishers to license its publisher ad server and this stated

a claim for an unlawful tying arrangement in violation of section 2 [of the Sherman Act]."

- "The States have plausibly alleged a monopolization claim under section 2 in the nationwide markets for (1) publisher ad servers, (2) ad exchanges and (3) ad-buying tools for small advertisers[.]"
- "The States have plausibly alleged an attempt-to-monopolize claim under section 2 in the nationwide market for ad buying tools for large advertisers and an alternative claim for attempt to monopolize the markets for ad exchanges and ad-buying tools for small advertisers[.]"

693. In particular, the Court held the following:

- In support of its holding that there was illegal tying, the Court found: "First, the States have alleged that ad servers and ad exchanges are separate markets. . . . Second, there is an adequate and plausible allegation that the ad servers and exchanges were sold separately before he alleged unlawful tying. Google entered the ad server market in 2008 with the acquisition of Double Click. At the time of the acquisition, Double Click's market share was between 48% and 57%, with the balance of the market in the hands of 'well-funded' competitors[.]"
- Furthermore, "the States plausibly allege actual coercion by Google" where, "[b]eginning in 2010, Google restricted the ability of publishers using a non-Google ad server to trade through AdX, only allowing publishers that license Google's ad server to receive live, competitive bids from AdX. This became coercive because publishers depend on AdX to access hundreds of thousands of small advertisers that purchase ad space through Google's ad-buying tool for small advertisers and transact exclusively on AdX."
- Moreover, "[t]he States allege that publishers' revenue would decline by between 20% and 40% if they used an ad server other than Google's. Google's restriction on the

receipt of live, competitive bids only to those publishers using its DFP ad server was successful, and Google's share of the ad-server market grew to 78%."

- Moreover, "[i]n early 2018, Google began renegotiating agreements with publishers, 'requiring publishers to sign a combined contract that included both Google's DFP ad server and Google's AdX exchange.' By 2019, Google's share of the ad server market had grown to 90%. The States allege that all agreements with publishers have been negotiated or renegotiated to require publishers seeking access to Google's AdX exchange also license Google's ad server for publishers."
- Moreover, "[t]he Court concludes that the States also have plausibly alleged that Google had monopoly power in both the markets for ad servers and for ad exchanges, and that its actions have had anticompetitive effects in both markets."
- Furthermore, "the Court ultimately concludes that Google has monopoly power in and willfully engaged in anticompetitive conduct, i.e., conduct that harms competition in the markets for ad exchanges, ad-buying tools for small advertisers and publisher ad servers. Thus, the States plausibly allege facts that state a claim for monopolization in these markets."
- The Court also held that the States plausibly alleged a claim for attempt to monopolize because they "plausibly alleged anticompetitive conduct, a specific intent to monopolize and a dangerous probability of achieving monopoly power in the markets for ad exchanges, ad-buying tools for small advertisers and ad-buying tools for large advertisers." In reaching these holdings, the Court held the following types of conduct to be anticompetitive:
    - "The Complaint describes a practice called **Dynamic Allocation**, through which Google used its market power in the ad server market to give AdX the right to win an impression if it offered a bid that was higher than the historical average bid on rival exchanges. The States assert that without Dynamic Allocation, these ad impressions would have transacted on rival exchanges,

with terms that were more favorable to Google's publisher clients. . . . [T]he Court concludes that the Complaint plausibly alleges that Google's implementation of Dynamic Allocation was anticompetitive conduct in the market for ad exchanges."

- The Court observed, "[t]he adoption of Dynamic Allocation followed certain changes in how publisher ad servers placed bids on ad exchanges. Prior to 2009, a publisher using Google's DFP ad server would rank in order which ad exchanges would be permitted to bid on an available impression. Google's DFP ad server would then offer impressions on exchanges in the order selected by the publisher, meaning that if a higher-ranked exchange did not sell the impression, the ad server would move sequentially to the next exchange on the publisher's list. This process was called 'waterfalling.' According to the Complaint, waterfalling gave publishers the freedom to prioritize ad exchanges that had historically yielded better results. As described in the Complaint, waterfalling worked to the relative disadvantage of AdX, as publishers gave AdX a lower ranking because other exchanges obtained higher prices."
- The Court further described, "beginning in 2009, the industry evolved away from waterfalling, and exchanges began to compete by submitting real-time bids for publisher inventory. The Complaint asserts that as real-time Exchange Bidding gained popularity, Google adopted Dynamic Allocation as a new 'decisioning logic' that gave its own AdX exchange a right of first refusal on publisher bids."
- Thus, the Court explained, "[w]ith Dynamic Allocation, DFP would 'permit AdX to peek at the average historical bids from rival exchanges,' and then transact the publishers' impression if AdX 'return[ed] a live bid for just a penny more' than the highest of those historical bids. The Complaint asserts that AdX

was the only exchange with a right of first refusal on publishers' DFP inventory."

- Furthermore, "[t]he Complaint asserts that Google implemented Dynamic Allocation in order to give AdX an unfair competitive advantage over other exchanges. Dynamic Allocation calculated the winning AdX bid based on the 'historical average prices' on a rival exchange, and did not distinguish a publisher's more valuable impressions from standard, less-valuable impressions. This had the effect of reducing publishers' yield by shielding AdX from real-time competition. The Complaint does not assert that publishers were ***required*** to use Dynamic Allocation or ***automatically*** enrolled in it: Rather, it states that Google 'induced' publishers to use DFP by claiming that it would maximize publishers' inventory yield. The Complaint asserts that internally, Google knew that the optimal arrangement for publishers was to allow real-time bidding across multiple exchanges. The States assert that Dynamic Allocation was exclusionary and anticompetitive in the markets for exchanges and ad-buying tools."
- The Court found, "[a]t the pleading stage, the Court concludes that the Complaint plausibly alleges that Dynamic Allocation was an anticompetitive strategy that could support a section 2 claim in the market for ad exchanges. Google, according to the Complaint, used information obtained through its DFP ad server to determine the average historical value of bids placed on rival exchanges, then used that information to calculate a bid that the publisher would be required to accept and the transaction would occur through AdX, with AdX earning the fee. A rival exchange might have entered a higher bid than the winning bid on AdX, but, as described in the Complaint, rivals of AdX never had the opportunity to receive bids. In essence, Google used information accessible to it through its ad server to wall off exchange competition and

guarantee that transactions were made on AdX. For the ad exchange market, Dynamic Allocation therefore had the effect of controlling prices and excluding competition in the ad-exchange market. The Complaint therefore plausibly alleges that Dynamic Allocation was anticompetitive in the ad exchange market."

- The Court also notes, "[t]he Complaint describes a 'decisioning logic' called **Enhanced Dynamic Allocation ('EDA')** that Google implemented through the DFP ad server. The States assert that EDA exploited Google's monopoly in the ad-server market to harm competition in the markets for ad exchanges, publisher ad servers and advertisers' buying tools." [Emphasis in original]. The Court recounted the Complaint alleges that "EDA channeled the most high-value inventory of Google's publisher clients exclusively to AdX, which had the effect of 'starving' rival exchanges of scale and liquidity. The DFP ad server would then allow AdX to transact the impression if an advertiser submitted a bid that was higher than both 1.) a floor price unilaterally set by Google and 2.) the average historical bids of rival exchanges. The Complaint asserts Google automatically enrolled its publisher clients into EDA, and 'coaxed' them to continue using EDA by falsely telling them that it maximized their yields. Internally, however, Google stated that EDA allowed AdX to 'cherry pick' for itself publishers' high-value impressions." The Court held, "[t]he Complaint plausibly alleges that EDA caused injury to competition in the ad-exchange market. It asserts that Google used its presence in the ad-server market to channel publishers' most valuable impressions exclusively to AdX. As described in the Complaint, Google automatically enrolled publisher clients into EDA and attempted to mislead publishers to continue using EDA as a way for publishers to maximize yield, when, in truth, Google internally viewed EDA as a way for AdX to 'cherry-pick' high-revenue impressions. As a result, rival

ad exchanges were excluded from publishers' high-value inventory. The Complaint plausibly alleges that AdX did not transact this inventory due to a superior product or innovation, but because its role in the market for publisher ad servers allowed it to 'g[i]ve itself access to particularly valuable inventory,' which it facilitated by automatically opting publisher clients into EDA."

- The Court also describes the anticompetitive conduct from Project Bernanke.
  - The Court recounts the Complaint's allegations concerning "a Google program called **Project Bernanke** that [the complaint] asserts misled display-ad auction participants about how Google organized auctions and distributed the proceeds of winning bids. . . . Project Bernanke would underpay a publisher after a transaction cleared on AdX, with Google secretly retaining a portion of the winning bidder's payment. Google then added this secretly retained payment into a pool that was used to increase the bids of Google's advertiser clients using AdX. As described in the Complaint, the end result was to boost advertisers' bids on AdX, ensuring that the transaction cleared on AdX and not a rival exchange."
  - In more detail, Project Bernanke was a way for Google to manipulate its second-price auctions, where "the winning advertiser-bidder is the bidder who bid the highest price, but, instead of paying the amount of its bid, it pays the amount of the second-highest bid. . . . In a second-price auction, publishers also are permitted to set a price floor, reflecting the minimum amount that they will accept for a transaction." While "from 2010 to 2019, Google publicly stated that AdX was organized as a second-price auction[,]" in actuality, as alleged by the Complaint, "Google had a secret program called 'Project Bernanke,' which was structured as a third-price auction rather than a second-price auction. . .

. [P]ublishers were unwittingly paid in amounts that reflected third-place bids rather than second-place ones, and, consequently, suffered revenue declines of as much as 40 percent."

- Yet, "Google Ads, its ad-buying tool for small advertisers, continued to charge the winning advertiser as if it had won a second-price auction. Google retained the difference between the second and third-place bids." Google would then "pool" this extra revenue to be "used to increase the bids of client advertisers using Google Ads in order to help those advertisers win impressions on AdX that might have gone to advertisers that used non-Google ad-buying tools." This was motivated by how Google employees had thought "that prior to Bernanke's implementation, non-Google ad-buying tools 'were winning too often' on AdX. The extra money pooled through Bernanke increased the number of impressions transacted in AdX, and also caused a 20% increase in the win rate of Google ad-buying tools."

- Moreover, "Google later implemented two other iterations of Bernanke. In a version called **Bell**, Google pre-determined whether a publisher provided AdX with an opportunity to bid on inventory prior to other exchanges, such as permitting Google to sell impressions using Dynamic Allocation or EDA. If the publisher did not give preferential access, the Bell version of Project Bernanke structured the auction from a second- to third-price auction, thereby decreasing the publisher's AdX revenue. Bell then used the differential to inflate the bids returned to publishers who gave preferential access to AdX. In other words, Bell penalized publishers who did not grant AdX preferential access by paying them based upon the third-place bid rather than a second-place bid, while using the difference to increase the bids made to publishers who allowed preferential access."

- Furthermore, "[a] version of Project Bernanke called **Global Bernanke** used pool money to inflate the bids of 'Google Ads advertisers who would likely have otherwise lost for being too close to a publisher-set price floor on AdX.' 'Global Bernanke' was different because it did not just apply to publisher-set price floors, but to floors that Google itself had set." The state plaintiffs alleged that Project Bernanke, in its various iterations, "increased AdX revenue by $230 million, with Bell alone generating an additional $140 million."
- The Court found that the various iterations of Bernanke had anticompetitive effects:
  - "The Complaint's allegations about the Bell iteration of Project Bernanke plausibly alleges harm to competition in the ad-server market. As described in the Complaint, if a publisher did not grant AdX the chance to bid on inventory prior to other exchanges, Google dropped the publisher's auction from a second-price auction to a third-price auction. Bell then used the payment difference between the second- and third-place bids to inflate the bids to publishers who allowed preferential access. Thus, a publisher who granted special priority to AdX would receive higher revenues from AdX and a publisher who refused to do so received lower revenues." Thus, "Google coercively used its power in the ad-server market to reward publishers that granted it a special priority and punish publishers that did not. The Court concludes that Complaint plausibly alleges that the Bell initiative was anticompetitive conduct causing harm to competition in the ad-server market."
  - Furthermore, "[t]he Complaint plausibly alleges that Project Bernanke, including Global Bernanke, was anticompetitive as to the market for ad-buying tools used by small advertisers. As alleged in the Complaint, Google implemented Bernanke after it observed that non-Google tools

were outbidding Google Ads on AdX. Through Bernanke, Google pooled funds to increase advertiser bids made on AdX, thus clearing the transaction on AdX through Google Ads. Google Ads won these auctions because Google could access bid information through the publisher ad server, and then inflate an advertiser's bid by drawing from funds that Google had pooled. These allegations describe an anticompetitive effort by Google to manipulate ad auctions in order to give an unfair advantage to Google Ads and thereby injure competition among ad-buying tools for small advertisers. Rival ad-buying tools had no effective way of competing with Bernanke, and apparently did not even know that Bernanke was occurring."

- Moreover, "[r]egarding the ad-exchange market, the Complaint asserts by pooling money to inflate advertisers' bids on AdX, Google permitted 'AdX to cream-skim, i.e., transact publishers' most valuable impressions while leaving mainly low-value impressions for rival exchanges.' The Bell variation also allegedly inflated bids returned to publishers who gave AdX preferential access. Rival exchanges were allegedly left with fewer, lower-value impressions. As described in the Complaint, auction manipulation that channeled high-value impressions to AdX and thereby deprived other exchanges of the ability to successfully offer these impressions to their users." The Court held, "[t]he Complaint plausibly alleges that Project Bernanke, including Global Bernanke, and the Bell variation were anticompetitive measures that harmed competition in the ad-exchange market by using AdX to selectively transact publishers' higher-value impressions and leaving lower-value impressions for competing exchanges."

- The Court also recounted how Google's program, Dynamic Revenue Sharing (or "DRS"), "manipulated the fee that AdX charged publishers in ways that were tailored to the bid floors set by publishers. The Complaint explains that in 'a true second-price auction,' AdX could transact an impression only if a bid cleared the publisher's pre-set floor after accounting for Google's exchange fee."
- The Complaint alleges that Dynamic Revenue Sharing manipulated Google's exchange fee after soliciting auction bids and 'peeking' at bids on rival exchanges. AdX would then make a downward adjustment to its own exchange fee in order to clear the publisher's bid floor. . . . At the same time, DRS would secretly increase AdX's publisher fees on impressions where an advertiser bid significantly above the publisher's floor."
- Moreover, "because of Google's monopoly power in the market for publisher ad servers, it had a unique ability to know the bids placed on rival exchanges." And "DRS harmed competition in the ad-exchange market by manipulating floors after bids were received and after 'peeking' at the bids of rival exchanges. In the ad-exchange market, only AdX had the ability to determine its fee with knowledge of the bids placed on rival exchanges, allowing it to win impressions that it may have lost to other exchanges. The Complaint asserts that DRS earned AdX an additional $250 million per year in transactions."
- The Court found, "[t]he Complaint plausibly alleges that by adjusting its fees only after receiving bids and reviewing the bids placed on rival exchanges, Google harmed competition in the market for ad exchanges, including competition on exchanges' take rates. Based on information uniquely available to it through its ad-server monopoly, Google had the ability to alter bids in order to transact impressions it would have lost to rival exchanges. Accepting the Complaint's allegations as true, they allege anticompetitive conduct that

permitted AdX to win bids based on price manipulations by Google, as opposed to a superior product or some other legitimate business factor. This had the effect of advancing or maintaining Google's monopoly in the ad-exchange market. The Complaint plausibly alleges that Google's Dynamic Revenue Sharing harmed competition in the ad-exchange market."

- Furthermore, the Court found that Google used its ability to limit items or redact data anticompetitively. The Court stated, "[t]he States assert that Google used its monopoly power in the publisher ad-server market to withhold bid information from publishers and render header bidding less effective than bids submitted through Exchange Bidding [Google's alternative to header bidding]." The complaint alleges how "[i]n 2018, the DFP ad server began to redact auction records that showed the relative success of header bidding compared to the performance of Exchange Bidding. The Complaint asserts that publishers relied on data fields called **KeyPart** and **TimeUsec2** in order to compare the relative performance of exchanges in header bidding and Exchange Bidding, and to adjust their use according. By redacting the two data fields, Google allegedly prevented publishers from measuring the performance of different exchanges and foreclosed the competition brought by header bidding."
- Furthermore, "Google 'splits' data in a way that makes it impossible for publishers to track auction results and limits information about the bids submitted for an impression. This allegedly left publishers unable to track the source of winning impressions, and even to see whether the highest bidder won at auction. These actions appear not to have any legitimate business purpose or benefit to Google other than harming competition from header bidding." Furthermore, "the DFP ad server limits publishers' ability to receive bids through header bidding. Through line items, publishers are able to set a to-the-penny price for bids that they will accept through header bidding. . . . The

Complaint asserts that Google purposely limits the number of line items available to publishers in order to foreclose competition from header bidding. By contrast, a rival ad server named OpenX allowed publishers to capture bids on header bidding through a single line item. The Complaint asserts that OpenX was unable to compete with Google's monopoly power and exited the ad server market in 2019. Google has internally described its caps on the number of line items as a 'tool' to fight header bidding and 'push[]' publishers toward Exchange Bidding. The Complaint asserts that the limit on publishers' line items has driven down publishers' yields and made bids from header-bidding exchanges less competitive than those made through AdX."

- The Court held, "the Complaint plausibly alleges that Google used its monopoly power in the ad-server market for the purpose of impairing publisher participation in header bidding. Google's redaction of auction data prevented publishers from assessing the relative performance of header bidding versus Exchange Bidding. Google began to restrict this data in 2018, only after facing competition from header bidding. Accepting these allegations as true, the Complaint does not describe activity in the nature of a product innovation or a mere refusal to share information with a competitor, but a measure that thwarts the ability of publisher clients to assess the relative performance of auction results on Exchange Bidding and header bidding. The Complaint plausibly alleges that this was anticompetitive conduct that harmed competition in the exchange market. It also describes anticompetitive conduct in the ad-server market because Google's data redaction plausibly resulted in depressed prices to publisher clients who were restrained from tailoring bids specifically to header bidding."
- The Court also held, "[s]imilar reasoning applies to Google's limitation on the number of line items available to publishers for use on header bidding. . . .

Google internally viewed these caps as a 'tool' against header bidding and a way to direct more transactions toward Exchange Bidding. The Complaint plausibly alleges that the limitation on line items was an anticompetitive measure that constrained publishers' participation in header bidding, while also constraining competition on the exchange market."

- The Court also found anticompetitive effects resulting from Google's Projects Poirot and Elmo: "The Complaint alleges that Google used its ad-buying tool for large advertisers, DV360 – also known as a 'DSP' or demand side platform – to identify which rival exchanges were likely participating in header bidding, and then punish those exchanges by directing ad buys away from those exchanges to Google's own AdX exchange. Google dubbed these initiatives 'Poirot' and 'Elmo.'
  - The Court described how "DV360 is one of several viable competitors in the market for ad-buying tools for large advertisers, though the Complaint describes DV360 as the 'largest' DSP. DSPs offer more complex options for sophisticated clients that are supervised by specialized ad-buying teams assembled by advertisers. . . . Google has attempted to use DV360 to undermine header bidding and retain its inventory advantage in the ad-exchange market. The Complaint asserts that header bidding disrupted AdX's 'captive supply' of publisher inventory, and that because of header bidding's popularity, DV360 was 'forced' to participate in rival exchanges, or else it would lose ad spend and market share to rival ad-buying tools. Google allegedly perceived the need for DV360 to transact on multiple exchanges as a threat to Google's control over online ad inventory and advertiser spending."
  - In reaction to this perceived threat, "DV360 implemented a program called 'Poirot,' which used an algorithm to detect whether other

exchanges were deviating from running a true second-price auction and were instead running a 'dirty' auction. DV360 adjusted its bids on those exchanges, with the effect of directing transactions to AdX – which, itself, was not running a true second-price auction. According to the Complaint, DV360 suffered a -1.9% revenue drop as a result of the Poirot algorithm. Google then expanded Poirot to 'optimize' its bidding in first-price auctions, such as those used in header-bidding exchanges. Internal Google documents stated that, following this expansion of Poirot, large ad buyers utilizing DV360 were spending 7% more on AdX and had reduced their spending on most other exchanges."

- Furthermore, "Google launched a separate project called 'Elmo,' under which DV360 could discern whether a bid request had been made across multiple exchanges, thereby indicating that the bid had been placed through header bidding. Under Elmo, DV360 decreased ad spending on exchanges that it suspected of engaging in header bidding. By March 2018, Elmo decreased DV360 ad spending through header bidding by 25%, while adding approximately $220 million in spending to AdX."
- The end result was, according to the Texas AG complaint, "Poirot and Elmo successfully reduced spending on rival exchanges and 'starve[d]' them of the primary source of demand. It asserts that a Google employee concluded that the combined effect of Poirot and Elmo caused an average 21% revenue decrease on affected exchanges and a $300 million increase on AdX."
- The Court held that the Texas AG Action "plausibly alleges that Poirot and Elmo harmed competition in the ad-exchange market. It describes how Google used DV360 to obtain information about rival exchanges and direct spending away from rival exchanges and toward AdX. On

the closer question of the harm to competition in the market for ad tools for large advertisers, the Complaint plausibly alleges that Google 'locked advertisers into using DV360' and directed ad spend to AdX instead of rival exchanges. That DV360 saw an initial negative revenue impact of -1.9% under Poirot supports the conclusion that Google's conduct was anticompetitive activity undertaken for the purpose of harming rivals."

- The Court also held that Google's "unified pricing policy" was anticompetitive as to the ad exchange market and to ad buying tools for small and large publishers.
  - The Court observed how the Texas AG Action "asserts that beginning in 2019, Google began to implement a requirement that publishers use its DFP ad server set uniform price floors across multiple ad exchanges. Historically, a publisher would set hundreds of different price floors, with variations tailored to specific ad exchanges and purchasers. These variable price floors helped publishers increase revenue and improved the quality of ads run on their sites. The Complaint states that publishers' ability to set variable price floors on AdX and for Google's ad-buying tools helped diversify returns and counter the adverse-selection problems caused by, for example, Google's use of encrypted IDs."
    - But "Google perceived publishers' higher price floors for AdX and Google's buying tools as an impediment to growing those products' market share. Results of a Google survey indicated that publishers were setting higher price floors on Google products in order to improve ad quality and increase yield." Thus, "Google began to adopt and enforce unified pricing floors

in order to foreclose competition and channel transactions to AdX. An internal memo stated that a unified pricing rule would cause more DV360 transactions on AdX at a higher margin. The Complaint asserts that instead of trying to attract publishers by offering an improved product, Google began to 'punish' publishers that set higher floors on Google, and eventually eliminated publishers' ability to set variable floors."

- Moreover, "Google's unified price floors blocked publishers from setting price floors that varied between exchanges and ad purchasers. The Complaint states that instead of leveling the playing field, unified rates give a price advantage to Google due to the fees that it charges for transactions made on a non-Google exchange. Because the pricing rules are enforced through the DFP ad server, they also affect competition even where AdX and Google's buying tools are not participants. The inability to set a variable pricing floor for Google products allegedly enhanced the anticompetitive effects of Google's other auction-related activities." These "uniform pricing rules . . . have successfully foreclosed competition in the exchange market and the market for ad-buying tools. AdX's share of impressions allegedly grew 'drastically' after the rules were implemented, winning nearly twice as many impressions 'but paying roughly half as much.' One publisher allegedly observed that Google's ad-buying tools began to win three or four times as many impressions as before the rule change. According to the Complaint, unified pricing also 'coerce[d]' publishers to transact with Google's ad-buying tools on AdX. Previously, publishers could set a higher price

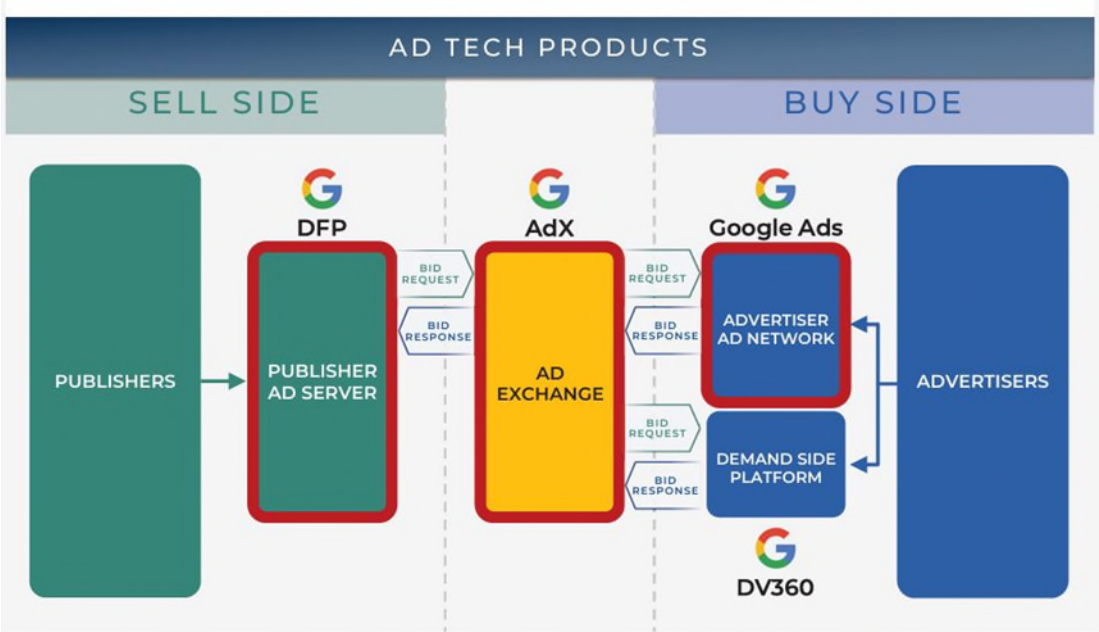
floor for DV360 transactions on AdX relative to the floors on other exchanges. Unified pricing ended this practice and 'forced' publishers to transact with DV360 on AdX."

- The Court held: "The Complaint plausibly alleges that Google used its monopoly power in the market for publisher ad servers to coerce publishers to transact on AdX, advancing Google's monopolistic goals in the ad-exchange market. The Complaint asserts that unified pricing required publishers to 'set the same price floor for different exchanges and the same price floor for different buyers.' Through its monopoly power in the ad-server market, Google had the ability to effectively require publishers to set uniform prices that advantaged Google's own products and harmed its competitors." And based on the same reasoning, "the Complaint plausibly describes anticompetitive market in the ad-buying tools used for small advertisers and large advertisers. Prior to the establishment of uniform price floors, publishers would set higher price floors for Google's buying tools in an effort to improve ad quality. Uniform price floors prevented publishers from setting different floors for different ad buyers, which suppressed competition between ad-buying tools and coerced publishers into transacting with Google ad-buying tools. One large publisher has concluded that uniform price floors resulted in Google's ad-buying tools winning three to four times as many ad impressions."

- The Court also found that "[f]or the reasons discussed in connection with the States' tying claims brought under section 1 [of the Sherman Act], the Complaint also plausibly alleges under section 2 that Google unlawfully tied publishers' access to AdX to the requirement that they enter into contracts to license the DFP ad server."

694. On November 25, 2024, Judge Leonie M. Brinkema, U.S.D.J., held closing arguments in the DOJ AdTech case. She right away struck down any attempt by Google to win the case through market definition, by emphasizing, "This is not Amex." Judge Brinkema is expected to issue her decision on liability by early 2025.

695. During the November 25, 2024 closing arguments and its accompanying presentation, the United States argued that "Google is once, twice, three times a monopolist in the markets for publisher ad servers, ad exchanges and advertiser ad networks for open-web display advertising, and as a result, Google's customers have no realistic alternatives to doing business with Google and doing it on terms that benefit Google rather than its publisher or advertiser customers." To illustrate Google's control of the entire AdTech stack, the United States used the following demonstrative:



The United States emphasized the following evidence:

a) A September 2016 email from Jonathan Bellack raised the question, "[I]s there a deeper issue with us owning the platform, the exchange, and a huge network? The analogy would be if Goldman or Citibank owned the NYSE. . . . [T]he strategy of Google

owning DoubleClick was always to protect fair access to inventory against hostile third parties."

b) In a January 2009 email from Google executive Brad Bender concerning Google's early acquisitions in AdTech, headlined, "David Rosenblatt's Overview of Google's Display Strategy," Bender states: "Those two exchanges will end up controlling or managing probably 90% of display inventory on the web. Once that happens, one way to think about this is the financial context. We'll have created what's comparable to the NYSE or the London stock exchange; in other words, we'll do to display what Google did to search[.]"

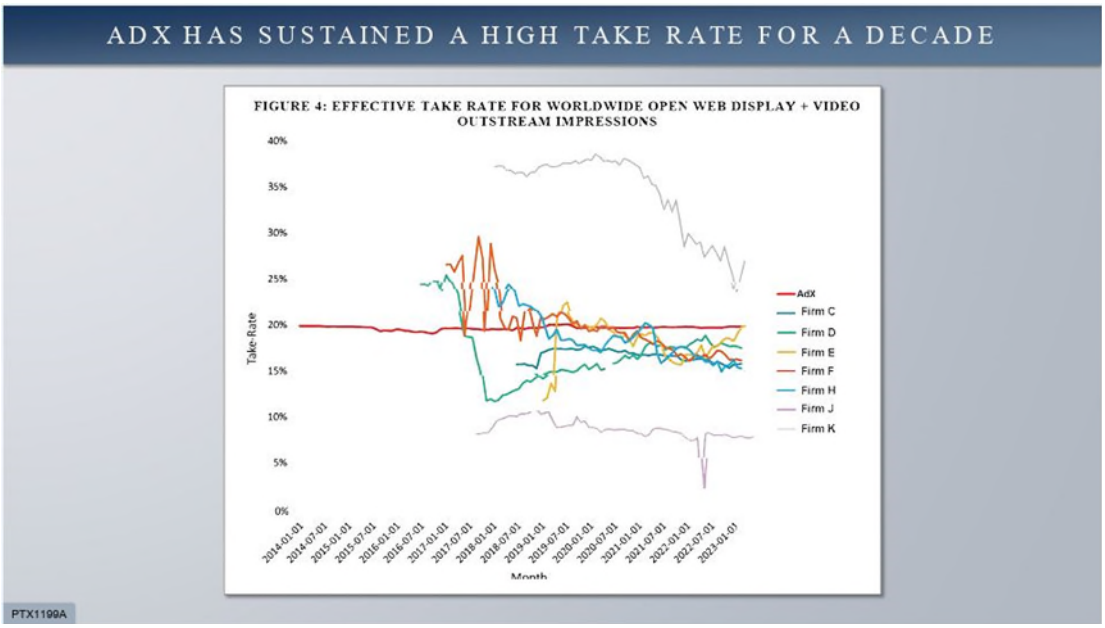
c) A September 2, 2008 email from Google executive Neal Mohan outlines a "three pillars" strategy for Google to dominate AdTech: use DFP as the "Platform to ACCESS the desired inventory"; use AdX as the "Ad exchange to AGGREGATE the inventory that the platform piece gives us access to[]" and use Google Ads as the "Google Content Network to MONETIZE the inventory we aggregate via Ad Exchange and all our AdSense deals. . . . It is my highest priority across all the elements of the display strategy[.]" Continuing on this theme in a March 23, 2009 email, Mohan further stated, "Our competitors have essentially the same three-pillared strategy (platform, AdX, network) strategy as we do and have realized that the most strategic battle is about the publisher platform and so are focusing on it pretty aggressively. . . . If we lose platform share, we can build the best GCN in the world but will still be at a severe risk of being disintermediated if [Yahoo or Microsoft] own the ad tag on the publisher page." And in an October 11, 2010 email, Mohan commented on acquiring AdMeld to "park" it as a competitor, "What do you think about acquiring one of them? Is that like giving up before trying? I am concerned that it will take a long time to sort out the org stuff internally. One way to make sure we don[']t get further behind in the market is picking up the one with the most traction and parking it somewhere."

d) An August 31, 2017 email from Google executive Michelle Dauwalter explains, "It is likely that the question to spin off the platform comes from pressure to increase profitability. The value of Google's ad tech stack is less in each individual product, but in **the connections across all of them.** Google-scale data is Google's competitive advantage, and that's where we should focus efforts to increase profitability via media transactions that originate via DFP. Based on my experience, the path toward increasing profitability is very clear: the most streamlined way to increase margin across DFP & AdX is to ingest more data from Google's non-ad products to create automated optimizations." [Emphasis in original].

e) Google executives commented on how once Google had the dominant ad server, it could maintain that dominance because of the difficulty of changing to another: Marc Theermann mentioned, "Ad servers are sticky, and hard to replace. The next 12 months are a very good time to switch publishers over. That opportunity will pass." David Rosenblatt mentioned, "[n]othing has such high switching costs" and that "Switching" ad servers "is a nightmare. Takes an act of God to do it."

f) A former Facebook executive acknowledged that barriers to entry prevented it from competing in the ad server space with Google. Brian Boland, a former vice president at Facebook, stated in response to a question in a deposition, "why were you unsuccessful in building and deploying that publisher ad server?" – "We determined that it would be unfeasible to build the market-comparable set if features for what Google had established with their portion of the technology stack as well as the aspects where they were able to bring their own demand through AdX into their ad server and that we were – that we feared we would not be able to get access to."

g) A slide in the closing argument showed how AdX's take rate had stayed consistently at around 20% for a ten-year period even though other firms' take rates fluctuated and were mostly lower than AdX's.



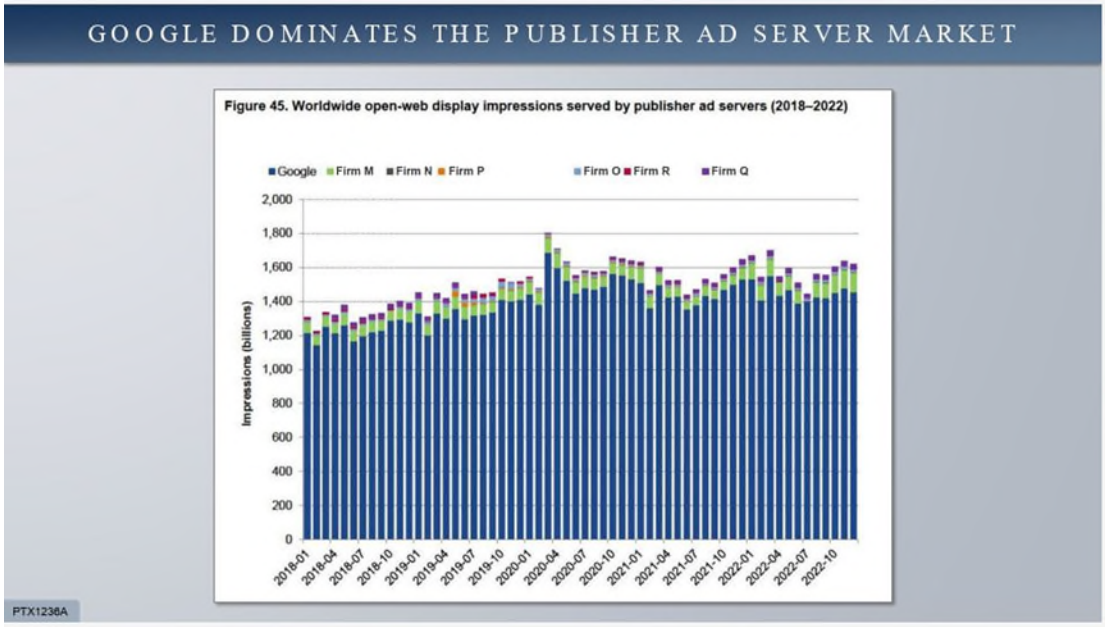
h) Another slide contains testimony and emails regarding how "Google Ads' exclusivity allowed Google to charge [a] 20% AdX take rate[.]" A former Google executive, Bryan Rowley, testified how the exclusivity from Google Ads "compels publishers to work with" other Google ad tech products. An email stated, "The AdX sell-side fee of 20% holds today not because there is 20% of value in comparing 2 bids to one another, but because it comes with unique demand via AdWords that is not available any other way." Another email stated that for publishers, it was "all or nothing – use AdX as your SSP or you don't get access to our demand."

i) Further testimony articulated the unique demand controlled by Google Ads. Former OpenX executive Tim Cadogan testified, "DFP was so powerful because DFP was also linked to AdX . . . which was then linked to Google Ads, which is the biggest pool of advertising on the planet." An email quoted in the closing argument presentation stated that one of the "strengths" of DFP was "[a]ccess to unique demand . . . GDN [Google Ads] demand is 'relatively unique.'" Former Rubicon executive Tom Kershaw

testified, "Search buyers was a unique asset that . . . no other exchange could have . . . that allowed [Google] to harness that mid-tier small business-type demand that no one else had the scale to get to." Former Google executive Eisar Lipkovitz testified that Google Ads demand is "differentiated." [Ellipses and second alteration in original].

j) Another slide included emails about how Google Ads' exclusivity helps subsidize other parts of the ad stack: "Speaking only from the perspective of [Google Ads], we want to buy into all auctions regardless of what the AdX margin is"; "[W]e appear to be running a buyside-subsidizes-sellside model; we are artificially handicapping our buyside [Google Ads] to boost the attractiveness of our sellside (AdX)." [Alterations in original].

k) Slides showed that Google had approximately a 90% market share in ad servers, almost a 90% market share in ad networks, and a 56% market share in ad exchanges.


GOOGLE DOMINATES THE PUBLISHER AD SERVER MARKET
Figure 45. Worldwide open-web display impressions served by publisher ad servers (2018–2022)
Google
Firm M
Firm N
Firm P
Firm O
Firm R
Firm Q
Impressions (billions)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2018-01
2018-04
2018-07
2018-10
2019-01
2019-04
2019-07
2019-10
2020-01
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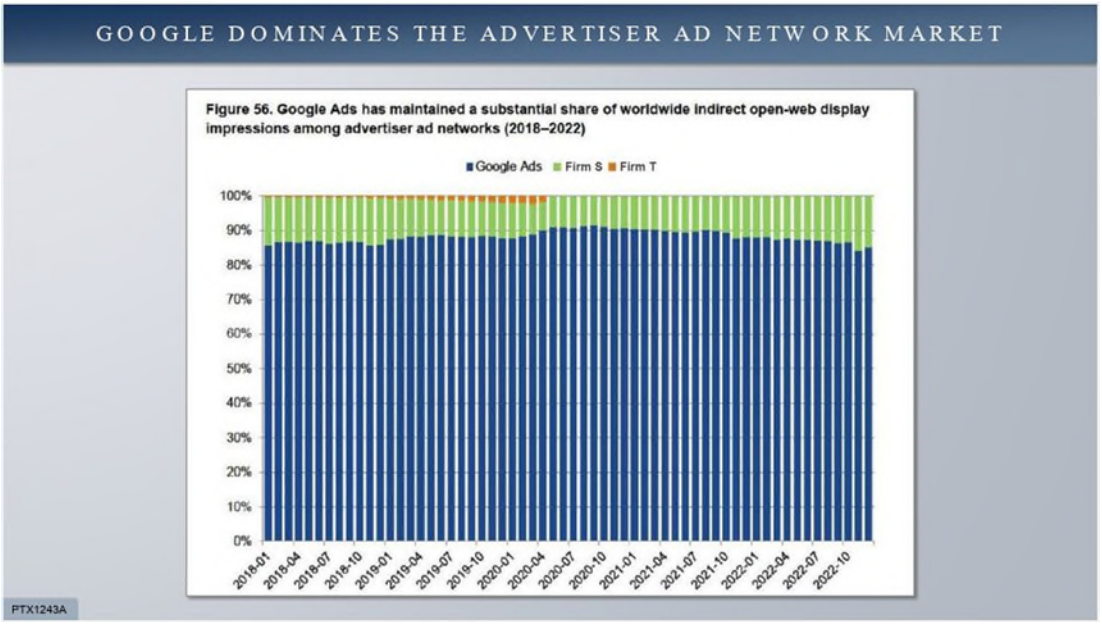
GOOGLE DOMINATES THE ADVERTISER AD NETWORK MARKET
Figure 56. Google Ads has maintained a substantial share of worldwide indirect open-web display impressions among advertiser ad networks (2018–2022)
Google Ads
Firm S
Firm T
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2018-01
2018-04
2018-07
2018-10
2019-01
2019-04
2019-07
2019-10
2020-01
2020-04
2020-07
2020-10
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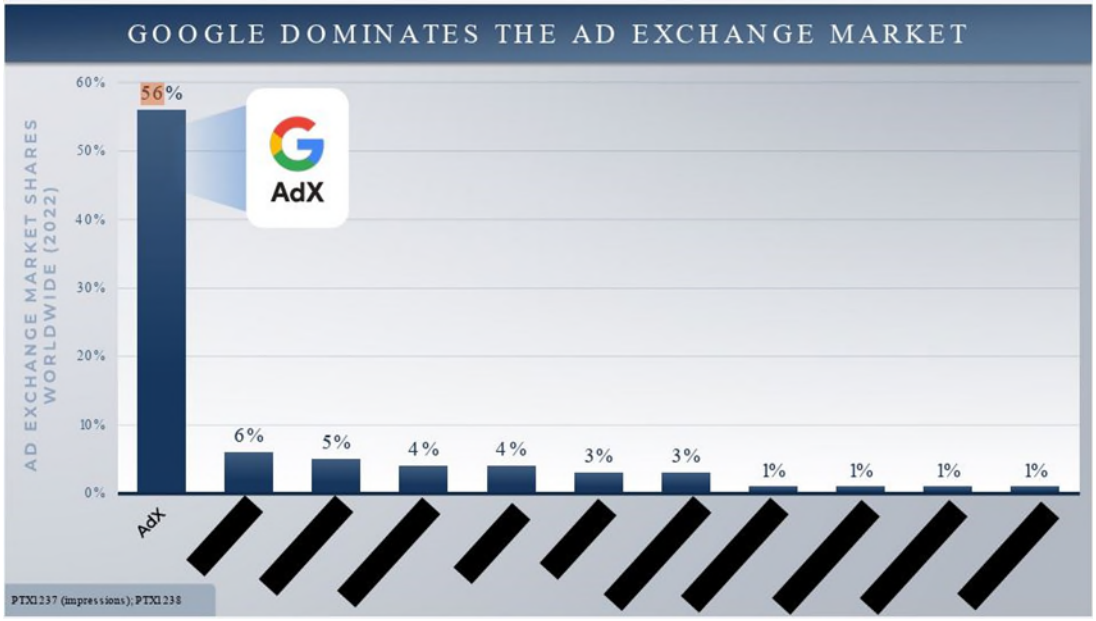
2022-07
2022-10
PTX1243A



l) Several publishers testified as to how DFP was the only effective means to access Google Ads and AdX: Arnaud Creput of Equativ testified as to why publishers would not switch over from DFP was "the fear of losing revenues, the fear not to have access to Google demand"; Stephanie Layser from News Corp. testified how publishers were "stuck" with Google's ad server because of the "significant amount of unique demand" in AdX tied to DFP, and that the revenue "risk in switching" away from DFP was too high to justify an attempt; Tim Wolfe of USA Today testified how even if the ad server fee "were to be cut in half for us, it was not going to offset the revenue loss of not having direct access to the Google ad exchange as a demand source for our inventory" which "has been as high as 60, currently around 50 percent of Gannett's total programmatic monetization"; Brian O'Kelley of AppNexus testified how even though DFP "wasn't the best ad server[,]" Google "just destroyed all competition for that ad server" – "every other ad server company either went out of business or was sold for scrap … Within a couple years of [the DFP] acquisition, there were no viable competitors in the publisher ad server space." [Ellipsis in original].

m) An email from Google executive Nitish Korula from 2020 mused, "[i]f the only change for AdX direct was retagging, but . . . AdX . . . still existed as a concept for antitrust, would you both still be concerned?"

n) Facebook recognized that Google's "First Look" gave it an unfair advantage by allowing it to "cherry pick" the ad impressions: A Facebook employee in an email stated that First Look created a "bias [in] their system against us" by "giv[ing] Google the opportunity to cherry pick the best supply"; another Facebook employee in an email stated that First look was an "unfair advantage which granted only AdX full viewability of publishers' entire inventory and the opportunity to cherry pick the impressions it wanted"; and Brian Boland, a Facebook executive, testified that Google's ability to "cherry-pick the best supply" came from its "opportunity to take the very first look at all the supply and then choose to remove an impression by buying that impression." [Alterations in original].

o) Google and customers recognized the advantage Last Look gave: Nitish Korula in a chat stated that Last Look gave AdX a "significant informational advantage"; Rajeev Goel of PubMatic testified, "Last Look is" AdX's "ability to look at all of the other bids that are coming in for publisher's inventory"; and Martin Pál of Google stated that "dynamic revshare" is "just another way for AdX to exploit the last look advantage."

p) Google's own expert testified that header bidding "brings in more real-time bids" and is therefore "a good idea."

q) Emails showed how Project Poirot used DV360's market share to hamper AdX's competitors: Google initially proposed to "[o]nly buy on AdX impressions that are exposed through AdX and multiple SSP (ie, dry out HB SSP)"; another email within Google stated, "Poirot has actually been quite effective, resulting in DBM spending 7% more on AdX and reducing spend on most other exchanges." [Emphasis in original].

r) Furthermore, emails showed that Google's real motivation for implementing UPR was to take away customers' choices: one email questioned the "motivation behind

removing publisher controls" and observed "the primary objective is to help the buyside"; a Google employee stated that publishers sometimes set higher price floors for AdX because of "some perceived benefit from wanting revenue diversity" and that publishers were "willing to tolerate some revenue loss in exchange for reduced dependence on both" Google Ads and DV360 "and Google . . . as a whole"; a Google engineer, Nitish Korula, stated that UPR would be "taking away some functionality that publishers have today. We could likely sell it to them as part of this broader change . . ., but if we offer it [the ability to set different floors for different exchanges] in a first-price world, I think it would be very hard for us to take it away later: It would be viewed as a pure loss of functionality that we're doing for our own (perceived 'nefarious/self-serving' reasons)[.]" [Ellipsis and alteration in original].

s) Emails also showed that Google's conduct was not, as it says, merely a lawful refusal to deal, because Google had predatory intent, including emails stating: Google will "do to display what Google did to search"; Google Ad's exclusivity on AdX was "purely a decision to hold back a set of advertisers ([Google Ads] customers) in order to promote adx"; Google "need[s] tight [DFP] – ADX / [Google Ads] bundles"; doing UPR "by itself makes it look extremely self-serving"; publishers' use of Google should be "all or nothing – use AdX as your SSP or you don't get access to our demand"; Google proposed to "dry out HB [header bidding] SSP"; AdX is the "glue that seals DFP to" Google Ads; "Parking" Admeld would "let [Google] solve the problems from a position of strength (market share, knowledgeable team members)"; "This is an amazing time to 'lock in' impressions by offering [DFP] to publishers with full AdX dynamic allocation. AdX can serve as a tool to pull publishers onto" DFP; Google "appear[s] to be running a buyside-subsidizes-sellside model; we are artificially handicapping our buyside (GDN) to boost our sellside (ADX). Specifically, we have chosen to limit GDN buying only on AdX, an exclusivity that only makes AdX more

attractive to sellers"; and "Somebody will become the OS [operating system] for Display – we want it to be us[.]" [Alterations in original].

t) Google's claim that its restrictions were to increase security were pretextual because an internal presentation with its internal research showed that the click spam rates of third-party exchanges were at "acceptable levels" and "comparable to AdX[.]"

696. Indeed, in the opening statement, the DOJ had stated: "just to underscore visually the relative size of Google to the overall ad exchange market, you can see here that Google's worldwide market share is roughly nine times the size of the next closest competitor, so it's no wonder that Google's own employees referred to Google's ad exchange as an 'authoritarian intermediary.'"

697. Trial Testimony in EDVA further bolstered the above points:

a) Tim Wolfe, SVP of Ad Revenue Operations at Gannett testified that the process for switching to an alternative ad server "is a very heavy lift" that would take "approximately a year" because it is "akin to . . . changing the tires on the race car mid race."

b) Andrew Casale, CEO and President of Index Exchange, testified: "We don't really know in any given opportunity who we're competing with" in Google AdX for bids because "that's a mystery bucket." And even though "[w]e have lowered our fee to zero[,]" it has only seen "[n]ominal, at best, improvements in win rate." Casale testified that building an exchange from scratch would be "near impossible" because of "significant network effects and costs. . . . [Y]ou have to attract both demand and supply simultaneously to be interesting to either" and it also requires "a significant infrastructure . . . to assume the scale of the exchange, which is a significant investment, not just in compute in the servers, but also software and the engineering required to facilitate the platform."

c) Stephanie Layser, an Amazon executive who formerly worked for News Corp, testified that across "75 to 80 publishers that" she has "consulted for," "[a]ll . . . but one" used

Google DFP as its ad server. Furthermore, changing ad exchanges away from Google was not plausible because even if demand were through another ad server, "Google would still retain their last look advantage" which would mean that it "would have all of [the] other exchanges compete" and Google would "pay one penny above if they wanted that particular impression."

d) Jay Friedman, CEO of Goodway Group, testified that Google's "take rate" was not only "higher than the negotiated rates we had from the other exchanges[]" but was also "higher than the original quoted rate as well[]" but Goodway Group was still required to use AdX because it "is so large and has so much inventory" that turning it off "would limit the amount of supply that was available to them[.]"

e) In explaining why header bidding was adopted, Eisar Lipkovitz, Former Director of Engineering of Google, testified: "I think the concept of having multiple parties compete in the impression is actually pretty good. And I think publishers were sort of desperate forever. They'll try it."

f) Regarding why Google had an advantage in the display ad market because it had more data, John Dederick, Chief Revenue Officer of Trade Desk, testified: "But, significantly, if there are other aspects of a connected stack that associate more data with those same users, same publishers, or same opportunities, you begin to create an incredible data advantage. So, you know, data is currency in many aspects of our industry." He also testified, as to Google's alternative to header bidding: "And we started seeing that impressions were coming through open bidding. And it appeared that they were coming through at costs that were lower than we were willing to pay through AdX directly. And it just made no sense, honestly, because we are -- we were then and we're now a pretty big source of demand. So it would be the equivalent of, like, Coca-Cola selling their product to the corner bodega for 70 cents and to Walmart for a dollar. It didn't make any sense that this was happening." Google's tactics were successful because they "decimated header bidding." Furthermore, Dederick described

Google's "Last Look" practice: "Last look would be the equivalent of a silent auction where everybody puts in their bid, no one is allowed to see it, except the last person gets to look at everybody else's bid and then decide what to bid." As for why advertisers use AdX, it is because AdX gives access to Google's ad server demand: "When a publisher thinks about integrating an ad server, when they integrate Google's ad server, they gain the benefit of millions of advertisers obtained by Google search[]" and without access to Google's ad server, an advertiser loses "access to the greatest source of demand in the history of advertising, which is Google search advertisers." He emphasizes, "[t]hat's what DFP comes with, out of the box, millions of advertisers excited to buy your ads, free checks in the mail."

g) Tom Kershaw, former CTO of Rubicon, a rival exchange, testified that there was no real choice to forego using AdX: "I have the option to starve to death. I don't choose to take that option. I think this is the equivalent. I think that in this case you could bypass the largest demand pool in the industry and just go at it alone on principle, but that's not advisable for a publisher because they -- you want to have as much demand as possible."

h) Christopher LaSala, Managing Director for Google – Global Commercialization, in his testimony, illustrated Google's monopoly power by confirming that AdX had a high rate and rarely discounted . In a document shown along with his testimony, LaSala admitted: "Said more precisely, I don't think there is 20 percent [which is AdX's take rate] of value in comparing two bids. AdX is not providing additional liquidity to the market; it is simply running the auction. The value of our platform is not in AdX; it is in other parts."

i) Michael Shaughnessy, Chief Operating Officer at Kargo, testified as to why publishers were dependent on Google: "Because publishers are dependent on Google for every facet of their business. So zooming out, Google use -- sorry, publishers use Google analytics when it comes to analyzing their site traffic. They build their businesses to

surface their content within Google search. Publishers are seeing decreased traffic from this platform because of things like the answer box within search. Or snippets of their content are surfacing there where they have less ad opportunities. So based on macro trends that are happening within the industry, other components of the Google infrastructure that influences their business, it would be very, very difficult for fact-based publishers and journalists to have their commercial teams move away from this demand source."

j) Expert Gabriel Weintraub testified as to how Google's scale perpetuates its advantages: "So the larger transaction volume a firm has, the better able[.] A firm has, it's better able to collect the data necessary to obtain statistically rigorous results when running such experiments, and it may be helpful to illustrate this with an example. Thank you. So this is -- let's think of something concrete. So Google wants to test a new feature. Let's say it's tweaking the algorithm that decides which amount of sources to call. It is tweaking the algorithm. It wants to run an experiment to determine whether this new feature will increase the win rate by some amount. So a typical amount would be something like .05 percent, .05 percent increase in win rate. So based on Google's scale, on Google's -- I'm using their own data -- it will take Google to run this experiment a single day to obtain statistically valid results for this experiment to test this feature. Now, if we look to a smaller exchange, which I think you also have in the figure -- we have redacted the name, but this is also based on actual data of a smaller exchange. It will take that exchange 15 days to run the same experiment. And yet, if we consider an even smaller exchange -- also, the name has been redacted, but I'm also using real data here. Their -- it would take this exchange 30 days to run the same experiment and obtain statistically valid results." He further testified, "transaction volume increases product quality because of experiments, algorithms, cost efficiencies. Now, as product quality increases, one, it's likely that transaction volume will in turn increase. There will be a -- it's likely that as product quality increases, transaction

volume will also increase. It's likely that there will be more impressions, more ad spend. So there's also a feedback loop between transaction volume and product quality."

k) Nirmal Jayaram, Engineering Director at Google, stated in an internal email: "In the auction ecosystem, we appear to be running a buy-side subsidizes sell-side model: We are artificially handicapping our buy-side, Google Ads, to boost the attractiveness of our sell-side, AdX[.]" Furthermore, "[a]uction simulations were performed to understand the impact of Google Ads, GDN, not participating in AdX auctions. The impact is a 70 percent reduction in Google revenue and a 65 percent reduction in publisher payout[.]"

l) Expert Rosa Abrantes-Metz testified as to the acquisition of AdMeld: "That is what many economists commonly call killer acquisitions where a firm acquires a main competitor, in this case what it saw being its main competitor, and deprecates the features or sometimes shuts completely down the competitor, but at least deprecates the features that are a threat to the company's main products."

698. On April 17, 2024, EDVA found that "Google has violated Section 2 of the Sherman Act by willfully acquiring and maintaining monopoly power in the open-web display publisher ad server market and the open-web display ad exchange market, and has unlawfully tied its publisher ad server (DFP) and ad exchange (AdX) in violation of Sections 1 and 2 of the Sherman Act."[26]

699. More specifically, the Court found:

a) Google's scale has given it an advantage in improving advertising tools: "Over the past two decades, Google has established increasingly detailed knowledge about the billions of people who have used its products, including by collecting data pertaining to their

[26] *See* Mem. Op. at 1, *U.S.A. v. Google LLC*, No. 1:23-cv-00108 (E.D. Va. Apr. 17, 2025), ECF No. 1410. While EDVA found that "Plaintiffs have failed to prove that there is a relevant market for open-web display advertiser ad networks," a decision by EDTX is still pending, so potential liability for Google on the buy-side remains. *Id.*

web browsing, search activity, physical location, demographic characteristics, app usage, communications, shopping activity, and device and network information. . . . Google uses this data to improve the matching of advertisements to users, thereby increasing its advertiser customers' return on ad expenditures."

b) Google's advantages in advertising technology are driven by its dominance in search: "Google's evolution into the data-driven digital advertising enterprise it is today has been powered by its flagship product, Google Search. . . . Since its introduction in 1998, Search has rapidly become the world's most popular tool for retrieving information. . . . With that rise came significant advertiser demand, because Search offered a unique opportunity for advertisers to place digital ads that matched precisely what an Internet user was looking for at that moment. . . . In 2000, to meet this demand, Google launched AdWords, which originated as a self-service advertising platform for buying search ads."

c) AdWords grew rapidly and became an important offering in its own right: "AdWords grew rapidly, gaining over 100,000 advertiser customers by 2003. . . . Although the platform first offered only text-based keyword advertising that appeared alongside Search results, it quickly expanded to offer ads across both Google's owned-and-operated websites and third-party websites."

d) Google also launched a complementary product, AdSense, "a self-service platform on which publishers could serve ads tailored to the content of their webpages."

e) AdSense and AdWords together became a dominant platform: "By 2007, Google's advertising-facing AdWords and publisher-facing AdSense, which together comprised the Google Content Network, constituted the largest digital ad network in the world. . . . That year, over one million advertisers used AdWords, with many placing display advertisements on a vast multitude of AdSense publishers' websites."

f) Google also made a key acquisition in the publisher-facing ad tech business, DoubleClick, and thwarted Microsoft from becoming a key rival: "In 2008, Google

purchased a company called DoubleClick for $3.1 billion to improve Google's ad serving capabilities and to prevent Microsoft from acquiring 'the leading ad serving company' and thus becoming 'a major competitive threat' to Google's publisher-facing ad tech business.'" Moreover, "[w]ith DoubleClick, Google significantly expanded the third-party publisher base on which it could run its advertisers' ads. . . . DoubleClick's flagship product was the market's leading publisher ad server, DoubleClick for Publishers ('DFP'). . . . DFP had a 60% share of the publisher ad serving market, and counted nine of the top ten U.S. websites among its customers. . . . By acquiring DFP, Google was able to keep the sell-side control that DFP offered out of the hands of Microsoft, Yahoo, and other digital advertising rivals."

g) Furthermore, "Google understood that DFP was the 'must-call' publisher ad server, . . . and that owning it was critical to winning the 'most strategic battle' in the emerging open-web ad tech ecosystem."

h) Google's acquisition of DoubleClick helped it achieve dominance across the ad tech stack: "Google's bolstering of its publisher-facing business through the DoubleClick acquisition helped it establish a dominant position on both sides of the ad tech stack. Google's ad tech business thus benefited from network effects, as the more advertiser customers Google had, the more publishers wanted to use DFP, and the more publisher customers Google had, the more advertisers wanted to use Google's buy-side services, thereby creating a self-reinforcing positive feedback loop. . . . In the DoubleClick acquisition, Google also obtained a nascent ad exchange, AdX, that connected the two sides of the ad tech stack by matching advertising bids with publisher inventory."

i) The acquisition of DoubleClick was a linchpin in Google's tying together different products to achieve and maintain dominance across the ad tech stack: "After acquiring DoubleClick, Google implemented two policies that incentivized both advertisers and publishers to use AdX. First, with limited exceptions, Google made AdX the only ad exchange into which AdWords advertising demand was permitted to bid. . . . Second,

> Google required publishers to use DFP as their ad server if they wanted to access real-time bids from AdX. . . . Through these two policies, AdX became the 'glue that seal[ed] DFP' inventory into AdWords demand. . . . AdWords was a singularly powerful source of digital advertising demand. . . . Its ease of use, association with a preeminent Internet company, and ability to place targeted advertisements alongside Search results attracted millions of unique advertisers, including countless small and medium-sized businesses. . . . Although publishers could offer their impressions on non-Google ad exchanges, large publishers were greatly attracted to the unique advertising demand offered by AdWords, and as a result viewed using DFP as essential because it was the only publisher ad server that could effectively access AdX and, consequently, AdWords demand. . . . Google recognized the unique attractiveness of its extensive advertiser demand, and its employees understood that limiting access to AdWords demand in this way 'compel[led] publishers' to use AdX and DFP."

j) Google implemented a "First Look" policy to further advantage its own exchange: "Google used its control of DFP, the world's most popular ad server for large publishers, to implement additional policies that benefited its ad tech products. With a feature called 'First Look,' Google required publishers using DFP to offer AdX a first right of refusal for each impression. . . . In other words, a publisher using DFP had to give AdX the opportunity to buy the publisher's impression before any rival exchanges were permitted to bid for that impression. . . . In addition to giving AdX the opportunity to bid before other exchanges, DFP permitted AdX to bid in real-time, whereas other exchanges were required to make static bids that were set in advance and could not account for contemporaneous information about the value of the specific impression. . . . AdX received a First Look at DFP impressions even if the publisher preferred other exchanges and wanted to rank them first." This allowed AdX advertisers to "win the auction even when advertisers using rival ad exchanges were willing to pay a higher price for the impression. . . . Thus, under First Look, advertisers using AdX could win

the auction even if they did not offer the highest revenue for the impression. . . . This inherent inefficiency limited the ability and incentive for advertisers using other ad exchanges to compete on price, and resulted in publishers not obtaining the maximum value for their impressions. . . . The 'unfair advantage' that First Look offered Google was built into the software that controlled the auction logic within DFP, and publishers could not toggle it off." Furthermore, "First Look also gave Google a data advantage that helped the AdX team train its auction bidding models more effectively."

k) Google was able to implement First Look despite how "large publishers expressed frustration with Google policies that benefited Google and its advertiser customers at its publisher customers' expense" because they "continued using DFP as their sole publisher ad server." This was because "DFP remained the 'defacto, [sic] preferred ad server of choice for 90% of publishers,' . . . because of its guaranteed access to the unique AdWords demand sourced through AdX, the high switching costs associated with changing to another publisher ad server, and the lack of competitive alternatives."

l) Google strengthened its market power in the ad tech stack when, in 2011, it "acquired Admeld, a yield manager that helped publishers decide which ad networks and other demand sources to transact with based on supply, demand, and pricing data." Google had formerly viewed Admeld "as a direct competitor that could 'disintermediat[e]' Google's control over advertiser-publisher relationships, . . . that risked 'break[ing]' Google's ability to enforce policies such as First Look, . . . and that offered a 'better publisher base' and improved audience data integration." Google's treatment of Admeld was mixed after its acquisition. While it "incorporated some of Admeld's features, such as its network yield management functionality, into AdX and DFP to improve Google's sell-side ad tools[,]" it "also shut down some of Admeld's features, including its ability to pass real-time AdX pricing into non-DFP publisher ad servers." This "deprecation of Admeld features was consistent with Google's pre-acquisition plan to 'pick[] up the [yield manager] with the most traction and park[] it somewhere."

m) Google sought to counter the adoption of header bidding by publishers when, in 2018, it implemented "Open Bidding—a tool that mimicked the functionality of header bidding but occurred within DFP—with the goal of creating a 'slightly better' version of header bidding. . . . But Open Bidding was not a substitute for header bidding because it discriminated against non-AdX exchanges, including by extracting a 5% fee from their bids, by prohibiting them from submitting any bids that originated from their own demand-side platforms or ad networks, and by requiring them to share their bid data with Google."

n) Furthermore, Google used "Last Look" so that "AdX was able to outbid the winner of the header bidding auction for every impression in DFP. . . . DFP publishers that wanted to place the winning bid of a header bidding auction in competition with AdX's bids were required to incorporate that winning bid as a price floor in DFP. . . . AdX would then have the unique opportunity to adjust its bid in response to the highest bid from rival ad exchanges." This, [i]n what was otherwise a sealed auction, Last Look let AdX 'open the envelope for the winning bid, know what the winning bid [wa]s, and be able . . . to bid after everybody else.'" This ability to "view its competitors' bids provided Google and its advertising customers with a 'significant informational advantage,'. . . that 'significantly disadvantage[d] other competitors' in the ad exchange space." This, in turn, "harmed publishers using DFP, who were not compensated as much as they would have been for their inventory had Google's AdX demand been required to compete with third-party exchanges (i.e., non-Google exchanges) on a level playing field. . . . Because AdX could 'see all the other bids' with Last Look, it could 'just bid 1 cent more,' which 'harm[ed] publishers' by reducing their revenue in comparison to a situation in which AdX had to bid without knowledge of competing bids."

o) Google also used "a pricing model called sell-side dynamic revenue share" that bolstered Last Look because "[t]his dynamic pricing model allowed AdX to adjust its

take rate—the percentage fee it charged—on an impression-by-impression basis to 'exploit the last look advantage.'. . . Although AdX maintained an overall take rate of around 20%, it would lower its take rate below 20% on competitive impressions that had received relatively high offers from third-party exchanges via header bidding. . . . Selectively lowering its take rate on competitive impressions made AdX's advertisers more likely to win auctions for these impressions, as publishers ranked bids by the revenue they offered net of fees. . . . AdX would compensate for such temporary losses in revenue by charging a take rate above 20% for impressions where its advertisers faced less competition from third-party exchanges." These other exchanges "did not have Last Look to 'see all the bids' and vary their take rate accordingly, they lost scale and revenue from AdX's use of sell-side dynamic revenue share."

p) Google also used "Project Poirot[,]" starting in 2017, where "Google 'shaded,' or lowered, bids from its demand-side platform DV360 on impressions offered for sale on non-AdX exchanges. . . . Publishers more frequently rejected these shaded bids from non-AdX exchanges, which offered them less revenue, and increasingly accepted bids from AdX." Project Poirot, when it was implemented, "resulted in advertisers that used DV360 spending an average of 9% more on AdX and 10% less on non-AdX exchanges." In 2018, Google implemented another iteration of Project Poirot, "DV360 bids on non-AdX exchanges decreased in value by as much as 90%, resulting in DV360 advertisers dedicating an even higher proportion of their advertising spending to AdX." This harmed AdX's main competitors, which "saw their revenue from DV360 advertisers decrease by an average of 15%. . . . One main ad exchange competitor, OpenX, experienced a 40% decrease in revenue from DV360, which 'damaged' the company 'very severely' and contributed to 45% of its staff being laid off."

q) In 2019, as Google faced more complaints from publishers and "an increasing belief within Google that its size in the ad tech space and the policies it had implemented to benefit its products across the ad tech stack posed regulatory and 'competition

concerns[,]'" Google "agreed to remove Last Look." But Google replaced Last Look with "Unified Pricing Rules, a policy that prohibited publishers using DFP from setting higher price floors for AdX than for other exchanges. . . . Unified Pricing Rules also prohibited DFP publishers from setting higher price floors for Google AdWords demand than for demand from other ad networks or demand-side platforms." This policy continued to advantage AdX because "Google knew . . . that many publishers using DFP had been setting higher pricing floors for AdX than for other exchanges so that they could reduce their high dependence on Google's ad tech stack. . . . Despite its name, Unified Pricing Rules did not require a level playing field between exchanges, as it permitted publishers to set higher price floors on third-party exchanges than on AdX." Although "[s]ome of Google's largest publisher customers were disgruntled with the implementation of Unified Pricing Rules," they "continued using DFP as their sole publisher ad server, believing that they had 'very little' ability to switch given DFP's tie to the unique advertising demand from AdX and AdWords."

r) Furthermore, "Unified Pricing Rules increased the number of impressions AdX won and the revenue it received, while decreasing impressions won and revenue received by third-party exchanges. . . . For at least one major publisher, The Daily Mail, Unified Pricing Rules also resulted in lower revenue per impression. . . . The overall result of Unified Pricing Rules was that Google's ad tech products continued to gain scale in the display advertising space while rival ad tech products lost scale. . . . This was consistent with what one Google employee said was the 'primary objective' of the 2019 changes to DFP: 'to help the buyside' of Google's ad tech products, namely AdWords and DV360."

s) The Court summarized Google's current market dominance: "Since Unified Pricing Rules were implemented in 2019, Google has remained the dominant force in open-web display advertising. On the sell-side, DFP has remained the leading publisher ad server, and AdX has continued to be the leading ad exchange. . . . On the buy side,

DV360 has remained one of the leading demand-side platforms, . . . and AdWords has remained the leading source of small and medium-sized online advertisers, having benefited greatly from being the platform through which advertisers purchase Search ads." Furthermore, "Google's unparalleled scale in programmatic advertising has given it significant advantages over rival firms. Scale is a crucial factor for ad tech companies' ability to compete because of the importance of big data analytics for optimizing ad tech services and the significant network effects that exist in programmatic advertising." This "unmatched scale that Google has achieved across the open-web ad tech stack helps the company test products more quickly and make higher-quality matches between advertisers and publishers. . . . As ad tech products continue to integrate artificial intelligence and machine learning capabilities, Google's vast repositories of data about advertisers, publishers, and Internet users, combined with the company's scale and technical sophistication, will further benefit its open-web display advertising business."

t) The Court found two relevant product markets:

i. "The Court finds that publisher ad servers for open-web display advertising constitute a distinct relevant product market. Publisher ad servers for open-web display advertising are uniquely suited for managing ad inventory for large web publishers, are priced differently than other ad tech tools, and are recognized as a distinct product by ad tech industry participants. . . . The lack of substitutability between publisher ad servers and alternative tools is evidenced by how successful Google's publisher ad server has been in maintaining dominant market share among the largest open-web publishers. Indeed, the commercial realities of the publisher ad server market suggest that a monopolist could engage in anticompetitive conduct by raising prices or degrading product quality without seeing significant diminution of its customer base." Evidence of publisher ad serves as constituting a distinct market include:

1. That they serve a "distinct purpose: they help publishers manage and monetize their web ad inventory." They "offer[] a number of unique product features to publishers, such as allocating ad inventor between direct sales and programmatic sales; placing ad exchange bids in competition with bids from header bidding, programmatic direct sales, and other ad exchanges; rendering an advertisement on the publisher's webpage for each impression; billing for ads rendered; and providing inventory and revenue analytics."
2. The publisher ad servers "are priced differently" in charging a flat fee per impression sold versus "ad exchanges, which charge publishers a percentage-based fee per impression sold, and demand-side platforms, which charge advertisers a percentage-based fee per impression purchased." Furthermore, "publisher ad servers are much less expensive than other ad tech tools" because their "fees typically average 1% to 2% of the revenue generated by the sale of the impression, which is significantly lower than the double-digit percentage take rate charged by ad exchanges[.]"
3. Furthermore, "[t]he unique purpose, features, and pricing of the publisher ad server has resulted in its being recognized as a distinct product within the ad tech industry." Thus, "Google regularly identified its publisher ad server, DFP, as being a unique product, and the firm has assessed its market share in display web publisher ad serving." Moreover, "Google marketed DFP as a distinct product until it rebranded DFP as part of the Google Ad Manager product suite in 2018." Besides Google, "[o]ther technology firms that participate in the ad tech ecosystem, including AppNexus, Equativ, Index Exchange,

Meta, and Microsoft, also recognize the publisher ad server as a unique product. . . . As do publishers, such as Gannett and News Corp."

4. The Court also found that "the commercial realities of the publisher ad server market support the conclusion that a monopolist could engage in anticompetitive conduct without realizing significant customer loss." This was evident in how even though "Google decreased DFP's quality by 'plac[ing] restrictions on how publishers could work with rival ad exchanges' (e.g., giving AdX advantages over third-party exchanges with First Look and Last Look) and by removing features that its publishers used (e.g., eliminating variable price floors with Unified Pricing Rules), DFP still maintained 99 of its top 100 publisher customers in the ensuing years. . . . Moreover, Google estimated internally that it could increase net revenue by at least $40 million by raising DFP prices by 20%. . . . Both Google's dominant grip on the publisher ad server market even after ill-received product changes and its internal estimates indicating a lack of customer sensitivity to price increases support the Court's conclusion that publisher ad servers constitute a distinct relevant product market."

5. Publisher ad servers also cannot realistically be built anew because "[b]uilding an in-house ad server is 'incredibly sophisticated and incredibly complex,' and is not within the 'core competencies' of most organizations that publish news or other content online. . . . The 'extremely major investment' required to develop a publisher ad server makes doing so infeasible for companies that do not specialize in enterprise software development." Furthermore, "maintaining an in-house publisher ad server is also difficult given the significant 'operational support,' 'infrastructure[, and] capital resources required'

for both day-to-day maintenance and continuous evolution to keep apace with third-party publisher ad servers. . . . As a result, very few publishers have successfully developed and used an in-house publisher ad server, and almost all of those publishers are large digital technology companies. . . . Even fewer publishers use their in-house publisher ad serves for open-web display advertising. Instead, they more often use in-house servers to meet site-specific needs, such as serving customized, native ad formats like social media ads or sponsored listings."

6. Furthermore, "other technologies capable of serving display ads on open-web publishers' websites are not reasonably interchangeable with—and cannot serve as effective substitutes for—publisher ad servers. For example, the publisher-facing side of an ad network, such as Google AdSense, is not a reasonable alternative for large publishers because an ad network cannot place a variety of advertising demand sources in competition with each other for each impression; instead, an ad network is limited to sourcing bids from advertisers who have signed up for the network. . . . Therefore, a publisher relying on an ad network alone cannot use that network to display ads sold via direct deals, which remain a significant proportion of large publishers' ad revenue."

ii. "The Court also finds that ad exchanges for open-web display advertising constitute a distinct relevant product market. Ad exchanges play a distinct role in the open-web display ad tech stack by connecting publishers using publisher ad servers with advertisers using programmatic buying tools such as demand-side platforms and ad networks. . . . The lack of substitutability between ad exchanges and alternative tools means that a monopolist could profitably raise prices significantly above competitive levels, as Google determined in a study

that showed its ad exchange price changes had limited effect on its customers' behavior."

1. The Court found that "[t]he ad exchange is the only ad tech tool through which publishers can auction their ad inventory at scale and in real-time to the largest sources of programmatic advertising demand. Advertisers and their ad agencies use demand-side platforms like DV360 and The Trade Desk, or advertiser-facing sides of ad networks like AdWords, to purchase open-web display advertising programmatically. . . . These buying tools bid into ad exchanges, which run real-time auctions to rank sources of advertising demand and select winning bids to be sent to a publisher ad server."
2. Furthermore, "[i]ndustry participants consider ad exchanges to be a distinct product that they categorize separately from other ad tech tools. . . . Google regularly identifies ad exchanges as a distinct product that differs from publisher ad servers, ad networks, and demand-side platforms. . . . As do third-party ad tech developers, including companies that specialize in creating ad exchanges."
3. Moreover, "[t]he discrete nature of the ad exchange market is reflected in the distinct prices that ad exchanges charge publishers. Ad exchanges typically charge publishers a percentage of the total winning bid for each impression, while publisher ad servers typically charge publishers a flat fee per impression sold and demand-side tools charge advertisers directly. . . . Moreover, given the unique role that ad exchanges play in holding real-time auctions to identify the highest advertiser bids, ad exchanges charge much higher fees than publisher ad servers do, often making between 10% and 20% of revenue from the winning bid."

4. Owing to ad exchanges' "unique functionality—as reflected by their distinct pricing structure and the industry's recognition of them as a distinct product—other ad tech tools are not reasonably interchangeable or substitutable with ad exchanges." And while "ad networks are another tool for connecting advertisers to publishers, the sophisticated publishers who receive the majority of open-web display advertising revenue do not view ad networks as substitutes for ad exchanges because ad networks offer very limited control and are unable to place bids from disparate demand sources in competition with each other." Furthermore, "[d]irect deals with advertisers are also not reasonable substitutes for ad exchanges, given the distinct advantages of programmatic advertising. . . . As an internal Google document observes, it would be 'highly unlikely' for programmatic advertising to shift to direct deals, in part due to the '[e]fforts required to make and maintain direct connections."

5. Google also recognized that it had pricing power over ad exchanges: "an internal Google study projected that a 25% decrease in the price AdX charged would have limited impact on AdX's market share, indicating customer stickiness and inelastic demand." Furthermore, "[p]ublishers have particularly inelastic demand for ad exchanges given their inability to turn to alternative tools for placing demand sources in competition with each other and for maximizing the monetization of their web inventory."

iii. Even though the Court found that "Plaintiffs have failed to show that advertiser ad networks for open-web display advertising constitute a relevant product market[,]" the Court nevertheless found that Google's dominance of ad networks has bolstered its dominance in the exchange market because of the

dominance of AdWords and its ability to provide a unique source of demand to publishers: "AdWords [has] emerg[ed] as open-web publishers' primary source of small and medium-sized businesses' advertising. Over four million advertisers use only AdWords to purchase open-web display advertising. . . . Instead of confining these advertisers to AdSense websites, AdWords bids into Google's ad exchange, AdX, and places ads on websites that operate outside of the Google Content Network (i.e., websites that use publisher ad servers to manage their inventory). . . . In doing so, AdWords provides large publishers with a unique source of revenue from smaller advertisers that lack the scale and sophistication to use demand-side platforms as their ad buying tools."

iv. As for the relevant geographic market, the Court found that "the worldwide market . . . is the relevant geographic market" because "[t]he globally networked nature of the Internet has resulted in worldwide competition among ad tech providers, with the speed of light serving as a primary impediment to intercontinental ad serving."

u) The Court found that Google exercises monopoly power in the publisher ad server and ad exchange markets:

i. The Court found, "Plaintiffs have proven that Google possesses monopoly power in the publisher ad server for open-web display advertising market. Google's publisher ad server DFP has a durable and 'predominant share of the market' that is protected by high barriers both to entry and expansion. . . . This conclusion is reinforced by evidence that Google has acted to degrade DFP's features without fear that its customers would switch to alternative publisher ad servers."

1. The Court found that the market share as calculated by plaintiffs' expert was consistent with Google's internal calculations, with a market share in the 80's to 90's percentile: "[The plaintiffs' expert's] market

calculations showed that in 2022, Google had a 91% market share of the worldwide publisher ad server market for open-web display advertising as measured by the number of impressions served. . . . From 2018 through 2022, Google's share of this worldwide market held steady between 91.0% and 93.5%, and its U.S. market share stayed between 86.5% and 92.3%. . . . [This] is relatively consistent with Google's internal estimates, which assessed DFP to have between 84% and 90% market share at different points over the past decade." Furthermore, "[i]ndustry participants perceive DFP to be the 'dominant' publisher ad server, . . . with some even referring to Google as having a monopoly in the publisher ad server market." And "[w]ithin Google, a DFP engineering manager speculated that 'losing some market share' would have the 'positive' effect of 'demonstrating to regulators that viable alternatives exist / we're not a monopoly."

2. The Court also found that "[t]he significant barriers to entry and expansion that exist in the publisher ad server market make DFP's high market share durable." The Court credited the testimony of "multiple witnesses" that "building a publisher ad server is a complex, resource-intensive process, even for a large corporation." Furthermore, "[p]erhaps more importantly, it is very challenging to gain publisher ad server customers. Publishers almost always use a single ad server for open-web display ads because operating two or more publisher ad servers would not be practical due to challenges with forecasting, integration, and latency (i.e., the delay in an ad being displayed to a user, which is increased by data having to be sent between multiple publisher ad servers). . . . To gain market share from DFP, a rival would have to convince publishers to stop using DFP and switch to the rival's

publisher ad server. This, however, is very difficult to do. As the evidence showed, publisher ad servers are 'sticky' products that take 'a lot of work' to change. . . . In the words of a former Google and DoubleClick executive, switching publisher ad servers '[t]akes an act of God to do' and is a 'nightmare' because '[n]othing has such high switching costs.'. . . A publishing executive described his experience switching ad servers as a year-long process that was 'akin to . . . changing the tires on the race car mid race.'. . . These assessments are consistent with general industry sentiment."

3. Furthermore, "[t]he large difficulties that publishers face in switching ad servers are exacerbated by the lack of meaningful alternatives to DFP. . . . It is no wonder, then, that open-web publishers very rarely switch from DFP to another ad server, even when Google makes product changes with which they disagree. . . . Recognizing this dynamic, many once-large rival ad servers have either left the ad serving business entirely (e.g., OpenX), or sought to compete in channels other than open-web display advertising (e.g., Kevel). . . . Even Meta shut down its project to build a publisher ad server due to the significant barriers to gaining scale in a market dominated by Google."

4. The Court found that Google recognizes its dominant position and acts accordingly: "Google has acted in accordance with its dominant market position and these high barriers to entry and expansion. For example, Google degraded some DFP features, such as by removing publishers' ability to set a higher price floor on AdX as part of its Unified Pricing Rules update, despite negative publisher feedback. . . . In estimating the impact of this change, Google was not concerned about whether publishers would switch away from DFP, and publishers did not switch

> despite other publisher ad servers allowing variable price floors. . . . Moreover, although Google has not exercised its monopoly power to raise DFP's prices, the company has internally estimated that the 'market w[ould] bear' a price increase and projected that a 10% to 20% increase in DFP fees 'could have a substantial positive impact on . . . overall profitability."

ii. The Court found, "Plaintiffs have proven that Google possesses monopoly power in the ad exchange for open-web display advertising market. Google's AdX has long been the dominant exchange for facilitating open-web display advertising. For over a decade, Google has charged durable supracompetitive prices for AdX—taking 20% of each open-web display transaction—and has exhibited an unwillingness to lower AdX's take rate even as the market matured and other ad exchanges reduced their prices. Despite the availability of lower priced exchanges, customers generally has not left AdX due to Google's substantial market power in the ad exchange market. That market power has been fortified by high barriers to entry that resulted from Google's scale and network effects across the open-web display ecosystem. Accordingly, Google has maintained a high share of the open-web display ad exchange market, with AdX having a market share roughly nine times greater than that of its next-largest competitor."

1. The Court found: "AdX's charging a durable 20% take rate for well over a decade is direct evidence that Google has possessed monopoly power in the open-web display ad exchange market. . . . Google employees recognized that AdX's 20% take rate was higher than that of rival ad exchanges like IndexExchange, Magnite, and Xandr, which often charged closer to 10%. . . . But Google has profitably maintained AdX's 20% take rate, even when other exchanges further decreased their take

rates. . . . At the same time, Google has refused to negotiate AdX's take rate with almost all of its customers, only offering minimal discounts to a handful of very large publishers."

2. The Court further found, "Google employees have recognized the durability of AdX's pricing by describing how the exchange's market power left both publishers and advertisers with very little choice but to keep using it. . . . For example, in 2014, an internal Google study projected that a 25% decrease in AdX's take rate would have limited impact on its customer retention. . . . A few years later, after a non-Google industry consortium embraced header bidding to mitigate Google's dominance across the ad tech stack, Google considered reducing AdX's 20% take rate. . . . But an internal study showed that reducing the take rate 'd[id]n't win many queries compared to the profit lost,' and the sales team 'd[id] not think' such a reduction would 'help them win deals.'" Thus, "Google has never reduced its overall 20% take rate and has continued to deny discount requests, yet AdX's customers have not left and AdX has not lost market share." Furthermore, "a competing ad exchange conducted experiments over the years to reduce its take rate, including at one point setting its take rate to zero, but found only a 'nominal, at best, effect on win rate.'. . . Competitors' 'inability to constrain [AdX's] pricing' constitutes direct evidence of Google's monopoly power in the ad exchange market."

3. Further evidence that Google's take rate was a result of monopoly power was how "[b]roader industry dynamics" tended to push down margins, and Google employees often expressed "that the product was no longer worth 20%." Yet "Google has maintained AdX's 20% take rate for over a decade and has kept a relatively steady share of the ad exchange

market." Thus, "Google's ability to maintain AdX's 20% take rate under these market conditions is further direct evidence of the firm's sustained and substantial power in the open-web display ad exchange market."

4. The Court further found: "Another direct sign of monopoly power is that Google has used its market power in adjacent segments of the ad tech ecosystem to make it more difficult for customers on both sides of the ad exchange market to switch to rival exchanges." The Court found: "On the buy-side, Google's policies made AdX the only ad exchange that had 'exclusive access to [AdWords],'. . . which publishers highly valued as 'a large and unique demand source.'. . . Google has largely limited AdWords' exchange bidding to AdX despite internal recognition that allowing AdWords to bid on other exchanges would be valuable for AdWords' advertiser customers. . . . By so limiting AdWords, Google has ensured that publishers would view AdX as a 'must call' exchange. . . . The unique advertising demand from AdWords has helped Google maintain the power to keep charging AdX publishers a 20% take rate." And "[o]n the sell-side, Google's power in the two-sided ad exchange market and its power in the publisher ad server market have been mutually reinforcing. . . . For example, Google limited AdX to send real-time bids only to DFP, thereby foregoing a desirable AdX feature for non-DFP publishers to entrench the firm's monopoly power in the publisher ad server market. . . . Google did so despite requests by customers of other publisher ad servers to access AdX's real-time bids. . . . This was one of the reasons why publishers felt they had to use DFP to obtain effective access to AdX and, consequently, to AdWords' unique demand. . . . Once DFP had obtained

near-total market share, Google combined DFP and AdX under a single publisher-facing product, Google Ad Manager, which further intertwined DFP and AdX. . . . These practices on both the advertiser buy-side and publisher sell-side are evidence that Google could set its terms of dealing with its customers 'without considering rivals[,]' and constituted behavior that is 'difficult to explain unless' Google had monopoly power."

5. Moreover, the Court found: "AdX's relatively high and durable market share is consistent with the Court's conclusion that Google has monopoly power in the open-web display ad exchange market. . . . [F]rom 2018 to 2022, AdX was the exchange for 63% to 71% of the worldwide open-web display transactions among the ad exchanges that produced data for this litigation, and . . . AdX handled between 54% to 65% of the market's total transactions. . . . AdX's market share has remained durable over time. . . . Moreover, AdX's share of the worldwide ad exchange market was roughly nine times larger than the share held by Google's next-largest competitor, which had only 6% of the market."

6. Google's monopoly power in the ad exchange market is further evidenced by "AdX's high barriers to entry and expansion. Scale and network effects are crucial for ad exchanges because these exchanges exist to create matches between publisher inventory and advertiser demand. . . . Ad exchanges benefit not only from having large groups of customers on both sides of the platform, but also from processing a high number of transactions. . . . Such economies of scale help mitigate the significant capital expenditures required to build an ad exchange. . . . Large groups of customers also provide exchanges with auction and

targeting data that can be used to run rapid experiments on the effects of price and quality changes, to train machine learning algorithms, and to improve publisher-advertising matching."

v) The Court concluded that Google unlawfully maintained its monopoly power through tying DFP to AdX and through other anticompetitive acts:

i. The Court concluded: "Plaintiffs have proven the four elements of their tying claim."

1. "First, publisher ad servers and ad exchanges are 'two separate products' that are not reasonably interchangeable. . . . Publisher ad servers and ad exchanges serve different functions, use different pricing structures, and are recognized as different products by industry participants. . . . Moreover, there is 'sufficient demand for the purchase of [publisher ad servers] separate from [ad exchanges]' such that there is a 'distinct product market' for publisher ad servers. . . . Google's rebranding DFP and AdX under a unified name, Google Ad Manager, cannot overcome these 'market realities.'"

2. "Second, the policy and technology restrictions that Google has placed within AdX 'condition[ed] purchase of the tying product [AdX] upon purchase of the tied product [DFP].'. . . Access to real-time bids from AdX is considered particularly valuable by publishers because of the unique advertising demand that AdX receives from the millions of advertisers who exclusively use AdWords. . . . By restricting AdX's submission of real-time bids only to DFP, and by not allowing AdX to provide real-time bids to other publisher ad servers, Google made AdX ineffective at its core function when used by publishers who did not also use DFP. . . . In practice, therefore, Google's restriction of AdX's real-time bidding to DFP required Google's publisher customers who

wanted to use AdX's core feature to use DFP. This coercive policy made purchasing DFP, the tied product, together with AdX, the tying product, 'the only viable economic option' for publishers who wanted to gain effective real-time access to AdWords, which they could only accomplish by using AdX."

3. "Third, Google has possessed 'sufficient economic power in the tying product market to restrain competition in the tied product market.'. . . The Court has found that Google has monopoly power in the open-web display ad exchange market because AdX charges supracompetitive prices, is nine times larger than the next largest ad exchange, and is protected by high barriers to entry and expansion. . . . Such proof of monopoly power in the tying product market is more than sufficient to show that Google has had the requisite level of economic power to establish the third element of a tying claim." The Court further explained, "[a] primary source of Google's monopoly power in the ad exchange market is AdWords' uniquely large and diverse array of advertising demand. . . . Google has been able to amass this unparalleled group of mostly small and medium-sized advertisers in large part due to the dominance of Search, which another district court has found to be the source of Google's monopoly power in the markets for general search services and general search text ads. . . . By effectively restricting the unique advertising demand offered by AdWords advertisers to AdX, Google has ensured that publishers would lose significant revenue if they did not use AdX. . . . Google's monopoly power in the open-web display ad exchange market, bolstered by its significant Search-derived power on the buy-side of the digital advertising industry, constitutes

'sufficient economic power in the tying product market to restrain competition in the tied product market.'"

4. "Fourth and finally, the tying of AdX and DFP has had a 'not insubstantial impact on interstate commerce.'. . . AdX and DFP are used by publishers across the United States and worldwide. . . . And the AdX-DFP tie, which facilitates the billions of dollars of revenue that AdX generates annually, has a large and substantial impact on interstate commerce. . . . Because they have established these four elements, Plaintiffs have sown that Google has engaged in unlawful tying under Section 1 of the Sherman Act."

5. The Court further concluded: "Google's tying of DFP to AdX also violates Section 2 of the Sherman Act because it 'contribute[d] significantly to the maintenance or creation of monopoly power . . . even though it [wa]s unilaterally imposed.'. . . As Google employees recognized, the 'value of Google's ad tech stack is less in each individual product, [than] in the connections across all of them.'. . . To deepen these connections, Google 'artificially handicap[ped] [its] buyside ([AdWords]) to boost the attractiveness of [its] sellside (AdX),'. . . by effectively limiting its programmatic open-web advertisers in AdWords to bidding for inventory from publishers that used AdX and DFP. Google did this despite knowing that its advertiser customers would benefit from AdWords' bidding for open-web display ad inventory on non-Google exchanges. . . . Indeed, the leadership of Google's buy-side team 'want[ed AdWords] to buy into all auctions regardless of what the AdX margin is.'. . . But Google limited where its advertisers could bid to '[p]rotect [DFP's] position' as the dominant 'operating system for publishers globally' and to disincentivize

publishers from switching away from DFP." These "limitations on AdWords and AdX expanded Google's dominance in the publisher ad server market, with rival publisher ad servers exiting the market and DFP maintaining more than 90% market share from 2018 through 2022. . . . Even though some industry participants thought Google's DFP 'wasn't the best ad server,' almost 'every other publisher ad server either went out of business or was sold for scrap' because Google has 'destroyed all competition' in the ad server market through its AdX-DFP tie and associated activities."

6. The Court summarized its conclusion regarding tying: "By forcing Google's publisher customers to use a product they would not necessarily have otherwise used, by making it difficult for rival publisher ad servers to compete on the merits, and by significantly reducing rivals' market share, the tying of DFP to AdX has had a substantial anticompetitive effect in the publisher ad server market for open-web display advertising. Accordingly, the AdX-DFP tie has violated both Section 1 and Section 2 of the Sherman Act."

ii. The Court further found that Google maintained its monopoly in the ad exchange market through anticompetitive practices: "Google's monopolies in the publisher ad server and ad exchange markets, enhanced by the AdX-DFP tie, have enabled Google to introduce a series of anticompetitive policies, practices, and technology changes to its sell-side ad tech tools that were not in its publisher customers' best interests. These changes decreased product quality and harmed competition by further entrenching Google as the dominant company in open-web display advertising. Google made these changes, despite customer complaints, by exploiting its durable monopoly power in the open-web display ad exchange and publisher ad server markets. The changes are

further evidence that Google has engaged in 'anticompetitive conduct,'. . . by its 'willful acquisition or maintenance of [monopoly] power.'"

1. The Court found that "First Look exacerbated the anticompetitive effect of the unlawful AdX-DFP tie by artificially advantaging AdX within DFP's auction logic at the expense of Google's publisher customers. . . . Google's use of its monopoly power to impose artificial technical limitations that made it harder for customers to do business with rivals, instead of competing on the merits by 'making [its ad exchange] more attractive to customers,' constituted anticompetitive conduct. . . . Moreover, Google's 'bundling of its [AdX and DFP] products . . . reinforced the exclusionary effect' of First Look."
2. The Court also found that "Google's Last Look was another anticompetitive policy that entrenched Google's monopoly power, disadvantaged Google's publisher customers, and harmed the competitive process. This DFP feature, which gave AdX the ability to see competing exchanges' bids in an otherwise sealed auction before AdX would bid, harmed publishers, rival ad exchanges, and advertisers using non-Google ad buying technologies."
3. The Court then found that Last Look's anticompetitive effects "have been compounded by Google's sell-side dynamic revenue share. . . . By using the Last Look informational advantage to vary AdX fees and win impressions that it would have lost in a fair auction, Google has further enhanced AdX's market power at the expense of rivals, thereby reducing competition and harming its publisher customers' ability to diversify their revenue sources away from Google."
4. The Court found that even after Google eliminated Last Look, in response to regulatory concerns, "in implementing Unified Pricing

> Rules, Google simultaneously took away publishers' ability to set higher price floors on AdX than on third-party exchanges, which was a primary tool that publishers had used to maintain revenue diversity and to mitigate Google's dominance of the ad exchange market. . . . Publishers viewed Unified Pricing Rules as not in their best interests, but felt stuck using DFP given its tie to AdX. . . . Unified Pricing Rules is another example of Google exploiting its monopoly power and tying arrangement to restrict its customers' ability to deal with its rivals, thereby reducing its rivals' scale, limiting their ability to compete, and further compounding the harm to customers. Under these circumstances, Unified Pricing Rules constituted anticompetitive conduct because it involved Google using its coercive monopoly power to deprive its publisher customers of a choice that they had previously exercised to promote competition."

w) Finally, the Court issued a stern warning to Google for its improper document retention and privilege marking practices: "Google's systemic disregard of the evidentiary rules regarding spoliation of evidence and its misuse of the attorney-client privilege may well be sanctionable." The Court declined to impose sanctions because it already found liability, but warned, "As in Google Search, the Court's decision not to sanction 'should not be understood as condoning Google's failure to preserve chat evidence.'"

700. On May 2, 2025, EDVA held a hearing concerning the process for the remedies phase of the AdTech Action. During the hearing, the Court hinted that divestment of the ad exchange plus some behavioral remedies may be appropriate because they would remove the tie between AdX and the "golden goose" of "AdWords, that incredible trove of business." The Court also observed that a corporate monitor may be appropriate because, in part, of "a great deal of distrust based upon the track record of Google, not the least of which is . . . the policy about hiding e-mails and that sort of thing."

701. On May 5, 2025, the United States and its coalition of state AGs filed their Notice of Proposed Remedies in the EDVA Action, which proposed: 1) an immediate divestiture of AdX; 2) a phased divestiture of DFP; 3) several behavioral remedies to prevent self-preferencing and tying; 4) placement of revenues from AdX and DFP into an escrow account to prevent unjust enrichment of Google; 5) requirements to share data with third parties, as well as prohibitions on using other Google properties' data so as to prevent AdWords or DV360 from attaining an unfair advantage; 6) a corporate monitor and measures to prevent retaliation against those who cooperated with plaintiffs in their investigation and litigation; and 7) reforms to the Company's document retention / attorney-client privilege processes / training, to be overseen by a corporate monitor.

E. Google Has Also Engaged in Other Anticompetitive Conduct

1. Google Manipulated the Market to Gain Dominance in Maps and Navigational Services

702. Google achieved early dominance in navigational services from its tried-and-true strategy of acquiring nascent competitors, flooding the market with cheap or free products, and leveraging its dominance in other areas to leverage preset default status for its own products.

703. Google Maps began with a string of acquisitions. In 2003, Google Labs launched "Search by Location," but it did not have mapping data. In October 2004, a few months after its IPO, Google acquired Where 2 Technologies, an Australian start-up that created web-based dynamic maps. Google then acquired Keyhole, which used satellite images and aerial photos to create digital-mapping software, and ZipDash, which provided real-time traffic information captured through GPS. With these acquisitions, Google launched Maps in 2005.

704. One of Google's key acquisitions in navigational services was the only other company with turn-by-turn navigation, Waze, for $1.3 billion in 2013. Google thus eliminated one of the few independent sources of mapping data from the market. Internal Google documents produced to Congress show that Google was closely tracking Waze's fast growth. One 2012 Google presentation, according to the House Report, noted that Waze was the most downloaded navigation app, and that it saw a 30% increase in daily downloads and was averaging around

100,000 downloads per day. Google also focused on how Waze was the only other mapping provider that was completely vertically integrated, spanning the provider, application, map, traffic, and search layers. A May 2013 Google presentation produced to Congress identified several strategic reasons for acquiring Waze, such as obtaining its "highly-engaged community of map contributors and expertise" to "nurture/grow communities," achieving a "scalable solution" for maintaining maps with "real-time incident data," using Waze as a "sandbox" for "test[ing] map/navigational features," and acquiring a "highly-talented team" with "deep experience in maps." A June 2013 presentation also noted that Waze's accuracy and search capabilities were limited, that Waze's financial projections were "highly speculative," and noted that a purchase price of almost $1 billion would be "expensive for a company with <$1 million in 2012 revenue." Moreover, around that time, Waze's own CEO viewed it was "the only reasonable competition" to Google Maps.

705. Between Maps and Waze, Google captures more than 80% of the navigational app market. Google Maps, as a standalone product, would be worth $61.5 billion, according to Barclays.

706. Google also used its tremendous profitability in other areas to subsidize the growth of Google Maps. In 2006, Google introduced Google Maps API, which enabled developers to use and build on top of Google's digital maps. It enticed the adoption of the API by offering a free tier, which incentivized developers to build their apps with Google Maps.

707. Google also built up its independent capabilities through more investments by launching "Ground Truth" in 2008, which included Google Street View Cars, taking pictures of buildings and landscapes around the world, and delivering Google structured data to create digital maps, as well as obtaining mapping information from satellite, aerial images, and public databases. A 2008 Google budget request stated that Ground Truth was to help Google achieve "long term independence from Tele Atlas and Navteq," two sources of mapping data owned by TomTom and Nokia, respectively. Google spent over $88 million on Ground Truth in a year. But the effort paid off because as early as 2008, Google's internal documents showed that it was "#1 in Maps usage,"

having already overtaken MapQuest, which was the navigational leader when Google Maps launched in 2005.

708. Google then furthered adoption of Google Maps by offering Google Maps for Mobile for free, which had functions that included turn-by-turn directions, live traffic updates, and automatic rerouting. This was widely seen as disfavoring incumbent navigational services, whose stock prices fell when Google announced its free offering. Google also used its existing dominance in Search to bolster Maps, by pushing search results to Maps. In 2013, Consumer Watchdog wrote to the DOJ Antitrust Division to complain that Google "was able to muscle its way to dominance by unfairly favoring its own service ahead of such competitors as MapQuest in its online search results."

709. Google's era of free products came to an end when it achieved dominance (with at least one estimate that the API captures over 90% of the business-to-business market), and in 2018, Google Maps introduced a "pay-as-you-go" pricing plan for the core mapping APIs. This drastically reduced the number of free Maps API calls a firm could make from 25,000 per day to around 930 per day, and developers stated that this amounts to a price increase of 1,400%. By then, developers and businesses were forced to pay these prices because, as one customer told Congress, "There are no viable alternatives." Another developer told Congress that the 2018 price hike "took our bill from $90/month in October to $20,000/month in December." It was only able to reduce its bill by enabling a location-retrieval function on users' devices, which gave Google "greater ability to identify and track" the users. Uber publicly disclosed that it relies on Google Maps for "the mapping function that is critical to the functionality" of the Uber platform and that Uber "do[es] not believe that an alternative mapping solution exists that can provide the global functionality that [Uber] require[s.]" From 2016 through 2018, Uber paid Google $58 million for the use of Google Maps. Another customer notes that there are no alternatives to Google Maps: "Local businesses are most likely to use Google's tools to index their websites because Google controls the search engine space, which has the ability to deliver—or restrict—whether these websites appear in corresponding links in consumer search results." Furthermore, "the data

advantages that Google incorporates into its tools will only grow with time, making it impossible for a new player to ever achieve the scale, user base, or database necessary to compete"; Google is essentially charging two fees: one in kind through giving Google valuable usage data and one monetarily by paying Google's volume-based fees for API calls.

710. Google has also cemented its dominance in Maps by having it be the default navigational product on Android. Google also advantages Maps through the vast troves of data it collects through Search and Android. Google Maps also had an advantage through its early collection of user data before new data restrictions have come into place, which prevent startups from acquiring the same data advantage. Yet these rules were in part caused by outraged stemming from Google's own actions, such as its mapping through Street View, but by the time the rules were implemented, Google was mostly done with its mapping project. Google earns money from Maps by selling location-based advertisements. According to the House Report, analysts estimate that Google earned $2.95 billion in revenue from Maps, and that if it were a standalone product, it would be worth more than $60 billion.

711. Google also cements Maps' dominance through tying. The "Google Maps Platform" offers developers traffic data and places data (also known as place search) and maps data. Google prohibits developers from using any of these tools alongside non-Google mapping features. And in 2020, Google further tamped down on non-Google products by prohibiting developers from using "Google Maps Core Services with ***or near*** a non-Google Map in a Customer Application." (Emphasis added). This has led several major companies to switch entirely to Google's ecosystem, and driven business away from non-Google providers that provide specialized services that may otherwise be better. And Congress was told by one developer that Google closely tracks and pressures developers who use Google's place data along with mapping data from another source by making them choose either all or no Google. One company describes it as, "It's a bigger player putting a gun to our head saying 'switch or else.'"

712. Now that Google has achieved dominance in Maps, it is using the product to grow other businesses. For example, Google has used its dominance in mapping to acquire customers

for Google Cloud; in 2018, Google required all API calls to use a valid API key, which must be linked to a Google Cloud account. This tying has led Google Cloud to more than triple its income since 2017, the year before Google began tying Google Maps functionality with Google Cloud.

713. Google Maps' quality has also worsened since it achieved dominance, with news reporting that there are millions of fake business addresses and names on Google Maps. Rather than remove these fake listings, however, Google has demanded additional payments (through buying ads) with the threat of wiping out their legitimate business. Google also preferences its own products, degrading access to third parties that rely on Google Maps to disfavor them as competitors to Google's other products.

2. Google's Killer Acquisitions Choked off Competition

714. According to the House Report, Google used its dominance in Android to collect data on users and developers, which further helped Google monetize its ad business and provide market intelligence on tracking emerging competitors and business trends. Google's agreements with device manufacturers require them to configure a "Client ID" in each smartphone that enables Google to combine metrics it tracks in the hardware combined with all the other data Google collects on users. And a January 2014 document cited by the House Report requests manufacturers to use a Google Account as the identifier rather than a non-Google account. Moreover, Google only allows downloading of apps on the Play Store through Google accounts. Google also uses Android to collect location data. All this combined allows Google to create sophisticated user profiles regarding demographic information, where they are located, where they go, and what apps they use at what time and for how long. Google has billions of these user profiles.

715. The House Report also details Google's project "Lockbox" where it collected data for third-party apps and other market intelligence, since at least 2012. Among the metrics Lockbox measured are tracking how installation of the Amazon app corresponds to a trend in Amazon's shopping queries, and also trends relating to *Candy Crush* and *Angry Birds*. In about 2013, Lockbox grew from collecting information about app installation to the actual usage and time spent on apps. Google used this data to compare Google's first-party apps against third-party apps,

according to the House Report, citing a January 13, 2017, report. The same document, according to the House Report, supports how Google has used the market intelligence gathered through Lockbox to inform Google's strategic moves and potential business transactions. For example, YouTube employees used Lockbox data to track TikTok usage in India when Google was developing and planning a TikTok rival. When confronted with allegations about how Android surveilled rival apps to develop competing products, at a Congressional hearing, Pichai responded, "we try to understand what's going on in [the] market and we are aware of, you know, [the] popularity of apps" but claimed that "the primary use for that data is to improve the health of Android."

716. Google has conducted extensive market intelligence in deceptive ways. This extensive market intelligence has allowed Google to target would be competitors for "killer acquisitions," *i.e.*, to get rid of nascent competitors and instead increase its own dominance. The most notable examples have been described above. In 2005, Google's acquisition of Android allowed it to achieve dominance in the mobile operating system market, and it has, in turn, dominated the search and app markets on Android devices. In the same period, Google also began its spree of acquisitions in the digital ad publishing and exchange markets that have made it the dominant player in the digital ad space. Google has also made key acquisitions that have led to its dominance in the streaming video, navigation, and voice assistant markets, and it is seeking to achieve dominance in healthcare devices through acquisitions. Over 20 years, Google has made more than 260 acquisitions that are known, but there are still other acquisitions that Google has made that have not been reported. According to the House Report, as early as 2006, Google executives recognized that Google should deploy its "tremendous cash resources" to execute its "strategic plan."

717. Google executives, including former CEO Schmidt, are on the public record for espousing a strategy for Google to quickly acquire nascent competitors rather than compete on its own. This was the admitted strategy for Google acquiring YouTube. Google had previously sought to build its own video service, Google Video, but it did not gain much traction. Meanwhile,

YouTube was achieving rapid growth. Schmidt admitted in a deposition in another case that he convinced the then-Board to approve a purchase price of more than $1 billion over the apparent valuation of YouTube because of the potential to lock down the video market.

718. Schmidt expounded on this strategy in a recent interview with Reid Hoffman ("Hoffman"), the co-founder of LinkedIn. On the one hand, Schmidt admitted that in his personal choices, he "did not do enough due diligence." Schmidt recounted how, just days after meeting with YouTube's founders, they settled on a price (almost three times an earlier $600 million valuation, which Schmidt rejected, until he found out he had competition from Yahoo! to potentially buy YouTube), and then the YouTube team was invited to Google's Board meeting, and the Board voted then and there to approve the acquisition. Schmidt then espoused Google's acquisition strategy to Hoffman: "We have plenty of engineers . . . but let's imagine that we have engineers that can build an equivalent product in one year, versus an acquisition that's expensive. And let's say that we can monetize this fairly quickly. So, choice A is 'We're going to build it ourselves, do it right.' And choice B is, 'Buy that company and do it now.' You always should choose 'do it now.'"

719. Susan Wojcicki, then YouTube's CEO, confirmed in another interview with Hoffman that buying YouTube was a result of a decision to capitalize on YouTube's growth because Google was not as successful in competing. She recalled that Google Video, a direct competitor to YouTube, launched a few months before YouTube did, but YouTube's growth was so rapid that it eclipsed Video. Google "realized that we were losing. . . . We were failing. . . . I knew it'd be very hard for us to catch up." At the same time, YouTube was looking to be acquired so it could have more capital to invest, and Wojcicki saw that as "just a huge opportunity in terms of future video. . . . We got together and we had a good conversation with Sergey [Brin] and Larry [Page]. I produced a model. I did a model in like 15 minutes to show that this actually had huge potential in the future – not just in views, but in revenue, too." Shortly afterwards, Google proceeded to explore an acquisition.

720. Google also acquired Nest Labs for $3.2 billion in 2014 to enter the voice assistant and smart speakers market, as well as to eliminate a potential rival. Google then gained a huge share of the home devices market through engaging in predatory pricing, tying, and bundling, often after having engaged in killer acquisitions. Google has used predatory pricing to attempt to build market share in the smart speaker/voice assistant market. According to a lawsuit by Sonos, the maker of another smart speaker/voice assistant, it is impossible to compete with Google because Google prices its speakers at below the cost.

721. Furthermore, Google stifles innovation in the home speaker market by barring speakers that carry Google Assistant from carrying another voice assistant. Sonos created such a device, and as their CEO explained at a Congressional hearing: "These companies have gone so far as demanding that we suppress our inventions in order to work with them. The most recent example of this is Google's refusal to allow us to use multiple voice assistants on our product simultaneously." He continued, "I think the whole spirit of trying to encourage small companies, encourage new innovations and new startups is at risk, given how dominant these companies are." Moreover, Google's choice to stifle concurrency makes it more difficult to switch platforms or to even have other companies' devices within a given home, because of limited or lacking interoperability. As a result of Google's anticompetitive practices, Google has rapidly grown its smart speaker market share, to 23.8%, second only to Amazon. After Amazon and Google, the next two largest smart speaker manufacturers, Apple and Sonos, have only 2.7% and 2.2%, respectively, of the market.

722. Another company, Sensory, Inc. ("Sensory"), sued Google for alleged antitrust violations in the voice search submarket of general search services. Sensory "is a Silicon Valley based independent technology company and innovator in the development of wake words and other voice recognition technology, including custom voice assistants, voice control, and sound ID technologies." Sensory alleged that it "was the first technology company to solve certain specific problems in wake words and their deployment with voice assistants." Furthermore, "Sensory also solved complicated technological problems related to a concept called

'concurrency.' Concurrency allows more than one voice assistant to run simultaneously on a device and to be activated by distinct wake words. Sensory's solution allowed a small common code base to work with multiple voice assistants (instead of a separate unique wake word codebase for each voice assistant). This saved memory space and battery life, and Sensory's concurrent wake word product allows multiple voice assistants to function together in a coordinated way by simultaneously listening for each assistant while avoiding redundant code and power consumption." Sensory licensed its technology to numerous companies, including Google, and built a successful business.

723. Sensory alleged that in 2012, Sensory and Google entered an agreement, signed on Google's side by Brin, licensing Sensory-developed technology for Google Glass, and that "Google was so impressed with Sensory's technology that Google and Sensory entered negotiations for Google to acquire Sensory." But "[a]fter doing substantial due diligence on Sensory's technology, Google decided to not acquire Sensory." Instead, "Google developed its own hotword/wake word technology and began to compete with Sensory in the market for wake words for use on smartphones and tablets using the Google-supplied Android operating system."

724. According to Sensory, based on information revealed by the DOJ Search Case, Google stacked the deck in its favor by distributing its technologies to almost all non-Apple devices in the United States that required the use of Google Assistant and hotwords: "Once Google had developed its own wake word and voice assistant technology, it began to distribute the technologies to virtually every smartphone and tablet sold in the United States that is not made by Apple through modifications to its Mobile Device Distribution Agreement (MADA). These modifications included: (1) requiring the use of Google hotwords and the Google Assistant and (2) in many cases to require that the use of Google hotwords and the Google Assistant be exclusive."

725. Sensory alleged that "Google at first faced competition in the wake word and voice assistant markets for" Android-powered smartphones and tablets because OEMs "could use Sensory's wake word and voice assistant technology to initiate search queries on a competing search engine."

726. To meet this potential competitive threat, Sensory alleged, "Google entered anticompetitive agreements (at least including MADA and RSA agreements) with device manufacture[r]s to (1) require the distribution of Google['s] own Assistant; and (2) in many case[s], make the use of Google Assistant exclusive on the device." And "[i]n many cases, Google's MADA and RSA agreements prevent device manufacturers from using non-Google wake words and voice assistants." Furthermore, often, "Google's MADA and RSDA agreements prevent device manufacturers from using technology that would allow wake word/voice assistant concurrency, meaning that the device could listen for multiple wake words at the same time."

727. Sensory alleges that Google's attempts to secure exclusivity for Google's voice assistant technology succeeded in "[e]liminating its Competitor, Sensory, from the Market[.]" When Google changed its MADA and RSA agreements around 2019, it led to steep drops in Sensory's revenues:

a) "In its fiscal year ended in September 2019, as Google's MADA and RSA agreements required the use of Google's hotwords and Assistant, Sensory's revenue from companies that used Google's Android operating system and Sensory's TrulyHandsfree Product in smartphones and tablets dropped by over 75% from the previous year[;]"

b) "In its fiscal year ending in September 2020, as Google's MADA and RSA agreements required the use of Google's hotwords and Assistant from even more companies, Sensory's revenue from companies that used Google's Android operating system and TrulyHandsfree Product in smartphones and tablets dropped by over another 80% from the previous year[;]"

c) In its fiscal year ended in September 2021, as Google's MADA and RSA agreements required the use of Google's hotwords and Asxsistant 'got' Google what it wanted, Sensory's revenue from companies that used Google's Android operating system and TrulyHandsfree Product in smartphones and tablets was effectively eliminated from the previous year[; and]"

d) "In its fiscal year ending in September w022, Sensory's revenue from companies that used Google's Android operating system and TrulyHandsfree Product in smartphones and tablets disappeared completely."

728. Recently, Google was also sued for antitrust violations by Branch Metrics Inc. ("Branch"), which built its allegations based largely on the public records developed in the DOJ Search Action and the Google Play Store actions, especially the Epic Action. Branch alleged that Google used the anticompetitive agreements, extensively explained through the above mentioned actions, to stifle competition for "application search services" such as Branch's program that used "deep linking" technology to respond to queries within one's phone based apps.

729. Branch explained that it "developed an innovative Androis application search technology called 'Discovery Search' or 'Discovery[.]'. . . Discovery Search was designed to, and if utilized at full capacity can, effectively and extensively allow Android mobile consumers to use an integrated search bar on their device as a 'one-stop shop' to access content across a broad universe of Android apps available on their device, whether already downloaded or not. BNranch uses 'deep-link' technology to return search results not just for an app's main page, but also for specific content within an app[.]"

730. Branch alleged that it "is a direct victim of Google's anticompetitive conduct. Branch's past and ongoing injuries are not the unintended or remote consequences of that unlawful conduct. To the contrary, recently unsealed documents from the U.S. Department of Justice's case against Google demonstrates that Google intentionally and specifically targeted Branch as a rival – a recognized competitive threat in multiple markets – and foreclosed Branch Discovery Search (and other rivals) from gaining distribution on past, present, and future Android mobile devices."

731. Specifically, Branch alleges that Google used its existing agreements requiring exclusivity for revenue share to cast doubt on whether Branch would count as an "alternative search service" forbidden by the RSA, and through casting that doubt, got Samsung and AT&T to pressure Branch into either offering lower-function versions of Branch's technology or foreclosing

Branch entirely. Branch added, "By foreclosing Branch Discovery Search (and other rivals), Google eliminates competition for integrated application search services on Android."

732. Google is currently looking to repeat this playbook in healthcare devices. It acquired Fitbit in 2019 for $2.1 billion, and closed the transaction in 2021.

F. Google Uses Existing Advantages to Dominate Nascent Generative Artificial Intelligence Market

733. In 2014, Google acquired DeepMind, which was conducting leading research in artificial intelligence. DeepMind published leading artificial intelligence research, including in large language models.

734. Generative artificial intelligence ("gen AI") is the use of artificial intelligence to generate "new" content in response to a prompt or an input. Generative AI exploded into the public scene with the release of ChatGPT by OpenAI.

735. Microsoft CEO, Satya Nadella, initially projected confidence that its partnership with OpenAI and its incorporation of OpenAI's gen AI program into Microsoft Bing would "make Google dance." However, Google's dominance in search has been demonstrated through how the market share of Google Search has barely gone down in the almost year and a half since generative AI became one of the hottest investment theses and public products.

736. Furthermore, Google has used its own dominance to develop gen AI through anticompetitive means.

737. Google's dominance in other areas also gives it an advantage in developing gen AI because it can use the profits of its other businesses to cushion the tremendous capital expenditures of developing gen AI before it becomes profitable. Small start-ups, on the other hand, do not have this type of funding and will be starved out before they can develop competitive products. In its latest earnings release, Alphabet disclosed that it spent $12 billion in the first quarter of 2024, double the amount of the first quarter of 2023, on capital expenditures – which the investor community understood to be largely a result of increased expenditures related to gen AI. By fourth quarter of 2024, Alphabet's capital expenditures had increased to over $14 billion per quarter, and Pichai announced that the Company planned to spend $75 billion on capital expenditures in 2025.

Alphabet can make these commitments because, primarily owing to Google, it generates more than $100 billion in profits for the year, on top of $350 billion in revenues. Alphabet also has an advantage in being the third largest cloud services provider in the United States. CEO Sundar Pichai told investors that more than 1 million developers were using Google Cloud's gen AI tools and 60% of gen AI startups were Google Cloud customers.

738. In January 2025, news media reported that Pichai has told Google employees that Google should aim to have 500 million people use the Gemini chatbot by the year end. Google has a unique advantage in that it has so many widely used products, such as Gmail and Chrome, that it can bundle Gemini with those products to push usage.

739. Furthermore, less than two years after OpenAI kicked off the current frenzy for AI products, many gen AI startups are folding because they cannot continue to absorb the billions of dollars of development and maintenance costs when prospects for profits are still far away. Instead, the gen AI landscape is being consolidated in a couple of big tech players that can fund their investments through profits in other divisions – with Google and Microsoft consolidating their holds over the entire industry. One of DeepMind's founders now runs all AI at Alphabet, and Microsoft recently hired another of DeepMind's co-founders to be CEO of Microsoft AI. Meanwhile, other startups either rely on investments from big tech companies, including Google, such as Anthropic AI, or are dying through attrition of talent, such as Stability AI.

740. Regulators are also on the alert regarding potential antitrust violations by Alphabet or Google, as well as other big tech companies. In March 2023, at an antitrust conference, FTC Chair Lina Khan stated that her agency was on the alert for how big tech companies may try to quell competition when they "start to panic" about their own gen AI progress. She stated, "As you have machine learning that depends on huge amounts of data and also depends on huge amounts of storage, we need to be very vigilant to make sure that this is not just another site for the big companies becoming bigger and really squelching rivals[.]" Furthermore, she noted that during times of technological transition, "that's when you see the incumbents start to panic. . . . You see the incumbents sometimes having to resort to anticompetitive tactics to protect their moats and

protect their dominance." At the same conference, Jonathan Kanter, the head of DOJ Antitrust, added, "When we think about AI, it is inherently dependent on scale. . . . And so markets that are inherently dependent on scale often present a greater risk of having deep moats and barriers to entry. It's really important that we understand that." In April 2023, Chair Khan reiterated that the FTC is prepared to take action against unlawful attempts to block new entrants into the AI market, and she added, "A handful of powerful firms today control the necessary raw materials, not only the vast stores of data but also the cloud services and computing power, that startups and other businesses rely on to develop and deploy AI products. . . . And this control could create the opportunity for firms to engage in unfair methods of competition." In January 2024, the FTC sent subpoenas to Alphabet, Amazon, and Microsoft inquiring as to their investments in AI startups Anthropic and OpenAI. FTC Commissioner Rebecca Kelly Slaughter observed that big tech companies appeared to be structuring their investments in a way designed to avoid having to be subject to merger scrutiny. She stated, "It's reasonable to wonder whether these investments could lead to a heavily consolidated market dominated by only a few[.]" Google, for example, invested $2 billion in Anthropic in convertible notes, which become equity in the next fundraising round, which do not require the Company to notify the FTC until the conversion occurs. The FTC's subpoena is under its authority to conduct market studies per Section 6(b) of the FTC Act.

741. Moreover, training gen AI models requires an enormous amount of data. There, Google also has an unparalleled advantage. This is an advantage that the Company realizes internally. Google's chief scientist, Peter Norvig, in 2010, even admitted publicly, "We don't have better algorithms than anyone else. We just have more data."

742. An amended complaint filed by two local newspapers, Helena World Chronicle of Helena, Arkansas, and Emmerich Newspapers of Jackson, Mississippi (the "Newspaper Publishers"), describes in detail both Google's anticompetitive practices regarding the news industry and Google's anticompetitive uses of gen AI.

743. First, the papers described how Google's monopoly power in the general search services "gives Google enormous power over [newspaper] Publishers, who depend on Google as

the largest external distribution channel for online news: search traffic. Google's stranglehold on search distribution allows Google to exclude rivals from this indispensable channel of news distribution. Since Publishers cannot bargain for a better deal from rival search engines, because there are no practical alternative choices available, Google can dictate the terms of trade for them."

744. One of the ways in which Google has exercised this leverage, according to the Newspaper Publishers, is by misappropriating the content of the Newspaper Publishers to train Google's own gen AI program, with the unacceptable alternative that to opt out of having their content be used by Google's gen AI tools, the Newspaper Publisher would be dropped from Google Search entirely. Moreover, when newspaper publishers try to limit Google's copying of "snippets" of news, which are often pulled from lead paragraphs, they risk Google retaliating by downgrading their search rankings and not staying "above the fold" (the part of a webpage viewable without scrolling). And in a real world example of retaliation, Google temporarily banned California news outlets from showing up in search results, in protest against a proposed California Journalism Preservation Act that would have required Google to pay for news content.

745. The Newspaper Publishers allege that Google harms the newspaper industry through cabining clicks to its own page, depriving newspapers of traffic: "Google's mass misappropriation covers virtually the entire inventory of news in the U.S. When this content is repackaged and republished by Google, it produces 'zero-click searches,' where users consume content directly from Google without ever leaving the search platform. Roughly 65% of all Google searches now end in zero-clicks. The rate is even worse for Google's 'surfaces' (the various places across the Google platform where a product listing might show up). For example, 97% of People Also Ask boxes (a type of rich result that appears on the right side of the Search Engine Results Page ('SERPs') when people search for an entity, such as a person, place, organization, or thing) have zero-clicks. And 89% of articles in the Google Discover feed (a personalized feed of content from the web that is tailored to a viewer's interests) have zero-clicks. Every zero-click search deprives Publishers of a return on their investment by depriving them of the opportunity to sell subscriptions, generate ad revenue, or collect user data for marketing and product improvement.

But for Google, its ability to confine these consumers within its walled garden enables it to capture more ad revenue, more user engagement, and more user data, thereby giving Google the advantages of scale and network effects that enable it to maintain its monopoly."

746. Google and news publishers' formerly symbiotic relationship was that Google would direct traffic toward the news publishers, while they would provide Google with content through crawling the web and indexing websites. The content helps keep users on the SERP, where Google can sell ads. However, Google has had increasing incentives to keep users on its own platforms, thus leading to less traffic referral to news publishers.

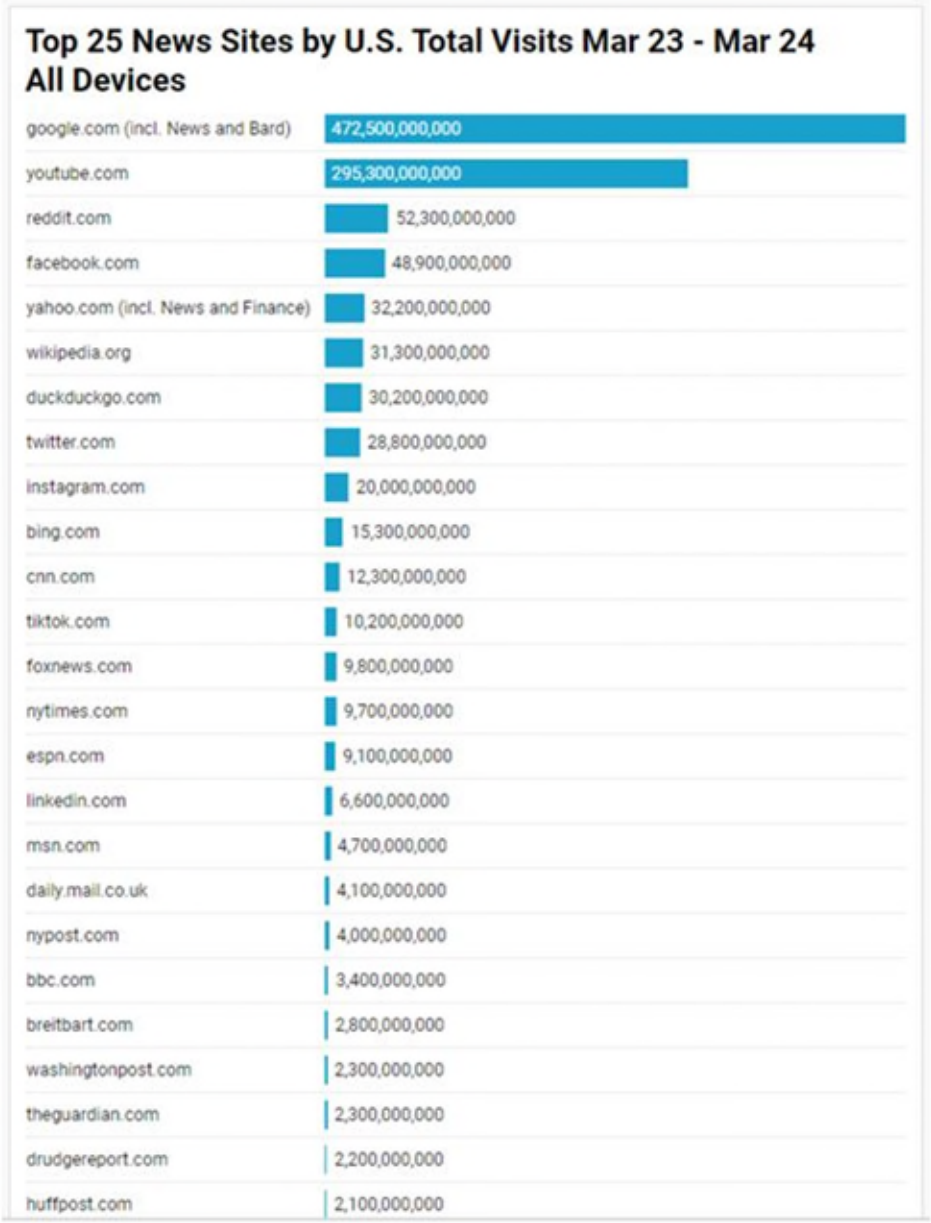
747. For example, Google acquired YouTube to gain strength in online video. But YouTube sells advertisements in its videos. Thus, Google's incentives with respect to YouTube are to keep people engaged on the platform, so that they can show more ads on it, rather than refer out traffic. Google self-preferences YouTube over news publishers by providing links to YouTube videos in response to news search inquiries, thus directing traffic to Google's own platform, YouTube, rather than to an external news site.

748. Similarly, Google has self-preferenced YouTube by using gen AI tools to help generate content or ideas for it. Gen AI is also being used on Android devices to generate summaries of news content, which is another way in which the formerly symbiotic relationship between Google and news publishers has become a one way street. Google reinforces its monopoly through its incorporation of technology developed by DeepMind.

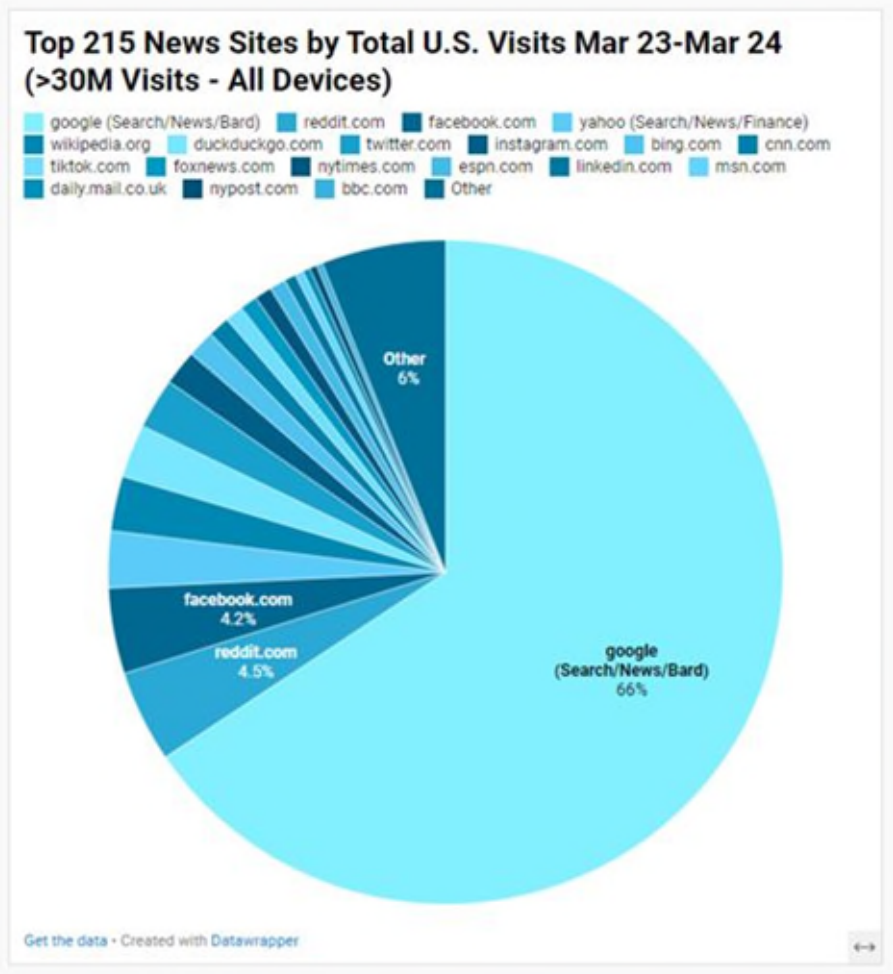
749. Google is deeply motivated because, according to the News Publishers, "News is central to Google's business model" (capitalization omitted). Google realized after the September 11, 2001 terrorist attacks that it needed to build an infrastructure for delivering news to its users, and in 2002, Google launched Google News as a means to drive traffic to General Search. Google has also invested in developing news products and features for Search, YouTube, and other Google products. The fact that 80% of Google's queries are for informational, and are not commercial, further indicates the importance of news as a major driver of demand and traffic for Google.

750. Google's symbiotic relationship with news organizations is that they provide the content that supplies the information Google users want, while Google searches drive traffic to the news organizations' websites.

751. The News Publishers cite a chart that shows that Google is the dominant provider of news online. Among the top 25 news sites in the United States by total visits from March 23 to March 24, google.com accounts for 472,500,000,000 visits, Youtube.com accounts for 295,300,000,000 visits, and the next largest site after that, reddit.com, only accounts for 52,300,000,000.



752. Put in percentages, as illustrated by a pie chart in the complaint, Google.com accounts for 66% of visits (though the chart appears to exclude YouTube), while the next largest individual site, reddit.com, only accounts for 4.5% of site visits.



753. Google's monopoly is further entrenched by its own actions: to some extent, its snippeting and otherwise citing of news from publishers prevents some visits (while directing others). But Google bears no or little incremental costs to summarizing or aggregating news, while the individual organizations bear all the costs. This high cost to benefit ratio for news organizations means that there are fewer of them, and both drives out existing players who can no longer bear the costs and discourages new entrants from entering the market because the high capital costs are not likely to be followed by outsized profits.

754. Scale is important to achieving success in news. And Google has acquired massive scale that dwarfs all other news organizations. The larger the number of users, the more of a pool there is to attract advertisers, and the more money advertisers are willing to pay to someone with a large audience. More ad revenues then in turn give the news provider more resources to produce higher quality news, which in turn attracts even more users or readers. Because of Google's scale that crowds out other news providers, the latter are not able to gain enough readers to attract enough ad dollars to feed into the above-described virtuous cycle.

755. In addition, as Google keeps more users on its own website, the costs of acquiring readers for news publishers has increased. No longer able to rely on having traffic driven to them, news providers then have to spend money on marketing materials – such as Search Ads on Google – to drive traffic to their websites. By the same token, news publishers have to use these other means to acquire data instead of relying on user data from traffic.

756. News publishers, to stem Google's misappropriation, have had to introduce more paywalls, which make news less available to consumers – but this also hurts publishers because they are able to drive less traffic to their sites from organic search results on Google.

757. Google also withholds licensing payments for use of their content and services and that also diminishes publishers' revenues and abilities to invest in news.

758. Striking examples of the damage done to the news industry include more recent entrants such as BuzzFeed News and Vice.com, who have both drastically reduced or ceased original news publishing, and conducted mass layoffs, because Google's misappropriation has led to massive declines in traffic. Similar phenomena have occurred with other news publishers, who collectively rely on search referrals for 46% of their traffic, and Google supplies 95% of all search referrals.

759. Google is able to force news publishers to provide content for free because they are so dependent on it to generate traffic to their sites. This misappropriation has gotten worse recently with Google incorporating gen AI into their answers.

760. Gen AI relies on large language models ("LLMs"). LLMs generate natural language text in response to a prompt. LLMs in turn are "trained" by processing huge volumes of text and then iterating outputs it generates in response to the prompts. With enough training, which relies on massive amounts of data, LLMs can predict patterns of speech – i.e. what words will typically follow another when a topic is being discussed. Google has an advantage in training LLMs because it can provide them with updated information by connecting the LLM to its search engine, a process called "grounding." Google "grounds" its LLMs with news content from news publishers that Google gets from crawling and indexing their sites, and it does not allow news publishers to opt out of this process. In September 2023, according to the Newspaper Publishers, Google nominally allowed them to opt out, but in reality did not because opting out would mean Google Search would no longer include its website at the top of the SERP. Other ways Google coerces publishers into providing content include conditioning search optimization tools on receiving royalty-free licenses and threatening to ban publishers who seek collective bargaining rights.

761. Google convinces publishers to allow it to copy text for Featured Snippets, which Google claims have a 42.9% click-through rate, higher than the 39.8% for an organic search result link. But Featured Snippets only appear in about 12% of searches. Furthermore, Google then uses the snippet for other search features that have almost no traffic generation: for example, snippets can also appear in People Also Ask boxes, which appear in 77-78% of all searches but have approximately a 3% click through rate. 75% of the time, an SGE, such as Google, provides the answer to a user inquiry, which translates to diverting traffic from potential customers. Google presents this as an all or nothing proposition rather than offering specific choices. As an executive at the *Guardian* put it: "They treat it all as one big search product. They're like, 'No, you don't get the granularity choice. We give you the opportunity to opt out.' But obviously, we don't want to opt out of all web crawling."

762. Under the guise of helping publishers, Google gains free licenses to their content. Google markets products such as Google Publisher center or Google Search Console, which help

publish content to Google News and monitor and optimize traffic and impressions, respectively. But Google's Terms of Service, to which publishers must agree to use Google's products, include a provision stating that publishers "give Google a perpetual, irrevocable, worldwide, sublicensable, royalty-free, and non-exclusive license to Use content submitted."

763. When publishers seek help from legislatures to enact laws to make Google pay for the news content, Google threatens to boycott those countries or regions. For example, in 2014, Google withdrew Google News from Spain and blocked news articles from Spanish publishers when Spain enacted a law requiring Google to pay for news snippets. In 2021, Google made a similar threat to Australia after its legislators introduced a bill requiring Google to pay media outlets. (Google did eventually comply with the new law, after it fired a shot across the bow by blocking Australia at first). Google is conducting similar blocks in California because of a bill being proposed there that would compel Google to share ad revenues with news outlets. Between 2012 to 2022, Google's AI research resulted in bolstering its search engine. But Google's scale has also allowed it to underinvest in research and development compared to other companies. Google also wanted to prevent cannibalizing its profitable search ads business, fed by general search, so it delayed launching gen AI products.

764. Because Google has massive scale from user data and publisher content, Google had an early advantage in developing Gen AI. It further added to its advantage when it acquired DeepMind. In 2017, Google developed the "transformer," a machine-learning technique that trains LLMs by processing words in relation to all the other words in a sentence, rather than in sequence one by one.

765. The release of ChatGPT caused Google to follow suit in launching gen AI products. But here Google's entrenched advantages again helped it, but also hurt consumers because Google rushed flawed products to market that relied on misappropriated data from publishers, among others.

766. After ChatGPT gained widespread public and investor attention, Google rushed out its own chatbot and gen AI assistant, Bard. Google employees have described BardAI as being

quickly produced and badly executed, and have characterized it in testing as being a "pathological liar." Upon launch, Bard validated their concerns when it gave a false answer during a public Q&A, which resulted in Google's stock price dropping and wiping off $100 million from Google's market capitalization. In April 2023, the Center for Countering Digital Hate published a study of how they tested Bard's guardrails against promoting misinformation and found that they were ineffective, resulting in many false statements, including espousing Holocaust denial, excusing sexual assault or harassment based on a woman's appearance, and recommending conversion to gay users. Similarly, in 2024, Google's gen AI tool – now renamed Gemini – generated images in response to prompts that were wildly inaccurate, such as depicting Nazi soldiers as persons of color. But as a result of flooding the zone with competition, Google has been able to head off the perceived threat to its Search from Bing incorporating gen AI from OpenAI or incorporating ChatGPT in responses; their respective market shares have barely budged.

767. In May 2023, Google began to use AI overviews. The AI overviews use LLMs to generate natural-language summaries in response to users' search queries. While links are provided as citations, the answer itself is not in the form of links, as it is in traditional search. Instead, Google scrapes information from websites, uses a transformer to reword or copy information that it will put out in an answer, and then uses gen AI to publish an "answer" on top of the search results, thus crowding out or pushing down links to original sources on the SERP. Google also offers a conversational mode that suggests follow up questions and enables a user to chat with a gen AI program to ask further questions.

768. Google presents this as a user-friendly experience: "With new generative AI capabilities in Search, we're now taking more of the work out of searching, so you'll be able to understand a topic faster, uncover new viewpoints and insights, and get things done more easily." Thus, instead of "break[ing] . . . one question down into smaller ones, sort[ing] through the vast information available, and start[ing] to piece things together yourself[,]" Google uses gen AI to "do some of that heavy lifting" by providing "an AI-powered snapshot of key information to consider, with links to dig deeper" and "[b]elow this snapshot, you'll see suggested next steps,

including the ability to ask follow-up questions. . . . When you tap on these, it takes you to a new conversational mode, where you can ask Google more about the topic you're exploring."

769. Google has not allowed a true optout option, even though OpenAI has launched GPTBot, a web crawler that does allow opting out of having one's data searched. Google uses the same web crawler for its gen AI program as it uses for its general search. Thus, a publisher who wants to opt out of having its content used for Google's gen AI tool (which would have little to no value in driving traffic) would also have to opt out of having its content crawled for the general search engine (which is the key driver of traffic). As the Newspaper Publishers put it in their action, "Publishers therefore face a Hobson's choice: surrender their content or commit commercial suicide." Thus, "Publishers who use Google's search referral services will see a steep decline in the quality of Google's service, while the price Google extorts is unsustainably high—compulsory free syndication of their content. Consumers will bear the long-term effects if Publishers cannot sustain the costs of producing high-quality, trustworthy news and reference content."

770. A Google DeepMind Research Scientist, Marc Najork, admitted that gen AI reduces traffic to other sites, in a July 2023 presentation called "Generative Information Retrieval" – "Effects of GAI on web and search ecosystems." He wrote: "Direct answers reduce search referral traffic" that is "[m]ostly affecting informational queries." He had the "pessimistic view" of gen AI that "d]irect answers reduce referrals to content providers hurting their ability to monetize."

771. An April 19, 2023 *Washington Post* investigation found that Google trained its LLM foundation models on millions of unlicensed pieces of news content from the Newspaper Publishers and other publishers. The report focused on Google's C4 data set, which was only one of the mainly training data sets, which alone contained "a massive snapshot of the contents of the contents of 15 million websites that have been used to instruct some high-profile English-language Ais, called large language models, including Google's T5 and Facebook's LLaMA." Google's

LLMs trained on 650,000 "tokens" of text extracted from *The Helena World* in the C4 dataset. And more than 1 million tokens were taken from Emmerich's websites for the C4 dataset.

772. In October 2023, the New Media Alliance found that there was "pervasive copying of expressive works to train and fuel generative artificial intelligence systems[.]" Specifically, with respect to Google, "studies show that news and digital media ranks third among all categories of sources in Google's C4 training set, which was used to develop Google's GAI-powered search capabilities and products like Bard. Half of the top ten sites represented in the training set are news outlets."

773. Around the time Google introduced its gen AI Search Generative Experience, it also changed its method of charging and compensating publishers for AdSense. AdSense is one of Google's major digital ad networks, which enables publishers to sell display space to advertisers on their websites. Google used a revenue-sharing structure with publishers, which acted as a type of commission for Google in return for letting publishers use the service. For most of the history of AdSense, Google paid based on clicks on ads. In November 2023, Google changed from pay-per-click to pay-per-impression – how often a viewer saw an ad on a publisher's site. This generally results in lower clicks for publishers. Second, Google moved from an all-in revenue share to charging the publisher separate buy and sell side ad fees, which increased the cut to Google overall because Google's buy-side fees are on average 15% or higher, and sell-side fees are another 5%. Google's motivation for changing the AdSense revenue share model, the Newspaper Publishers alleged, came from how gen AI resulted in reduced traffic to websites, which meant less revenue to Google from AdSense because there are fewer clicks. But Google is offsetting this loss by changing to impressions (versus clicks) and to rejiggering how the fees work to artificially boost the amount going to Google.

774. On February 24, 2025, Chegg, Inc. ("Chegg"), an educational technology company that houses a bank of more than 135 million question-and-answer solutions, sued Google and Alphabet alleging similar gen-AI related antitrust violations as the Newspaper Publishers. *Chegg, Inc. v. Google LLC*, No. 1:25-cv-00543 (D.D.C. Feb. 24, 2025).

775. Chegg alleges it earns money primarily through subscriptions. It depends on Google to refer traffic so that students can discover the platform and subscribe to it. Thus, "Chegg not only allows Google to crawl its website to index its contents to generate such referrals, but actively pushes that content out to Google's search index for that sole and limited purpose. This exchange of access for traffic is the fundamental bargain that has long supported the production of content for the open commercial Web."

776. But, Chegg alleges, "in recent years, Google has begun to tie its participation in this bargain to another transaction to which Chegg and other publishers do not willingly consent. As a condition of indexing publisher content for search, Google now requires publishers to also supply that content for other uses that cannibalize or preempt search referrals."

777. These two new uses are Google's AI overviews that are trained on data such as Chegg's, and Featured Snippets that quote Chegg's content. Because these two features "often provide the answers to questions posed by search users, and because the answers are featured advantageously on Google's SERP, they generate lower click-through rates to the original sources from which Google generates the answers, if Google provides links to those sources at all."

778. Because Google has monopoly power in general search services, and Chegg and other publishers rely on Google and its web crawler to generate traffic, they "are forced to acquiesce to this misappropriation of their content."

779. Chegg alleges: "Google's use of its monopoly power to coerce publishers to supply content for other, often competing purposes as a condition of receiving search referrals from Google at all amounts to a form of unlawful reciprocal dealing that harms competition in violation of the Sherman Act."

780. Furthermore, Chegg alleges: "Google's reciprocal dealing reduces publishing output by depriving publishers of the revenues that, in a market that Google had not unlawfully monopolized, they would otherwise earn by either licensing their content for those uses or selling advertising to serve the traffic that those uses commandeer. These uses also unlawfully maintain Google's General Search Services monopoly by raising the costs of rivals who lack its power to

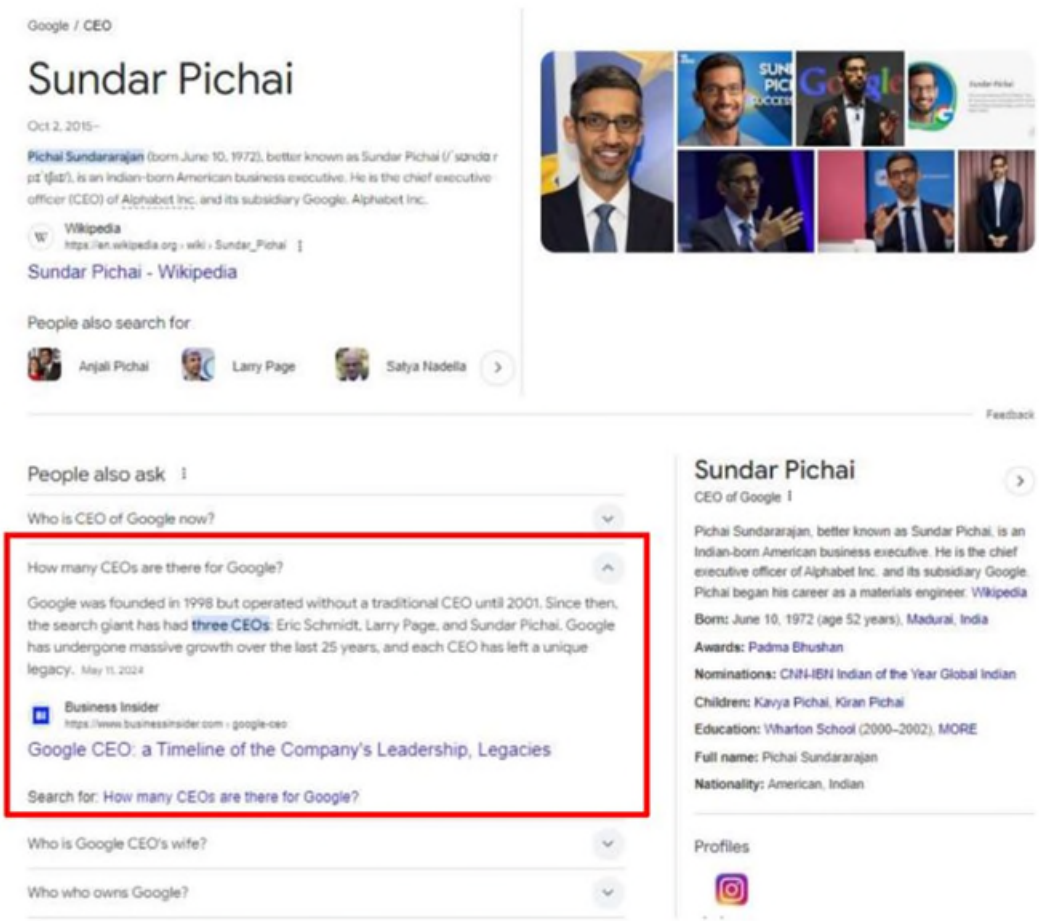
coerce publishers to provide their content for free to develop competing products with comparable features."

781. Chegg further describes Google's "playbook whereby it exploits its dominance in search to coerce firms operating in adjacent markets to supply it with content. Google then uses that content both (1) to maintain its search monopoly and (2) to compete against the firms that supplied the content to monopolize the digital publishing market."

a) "Put simply, Google's search monopoly gives it control over online distribution for digital publishers. Google uses that power to force digital publishers to give up their content. Google then itself acts as a publisher, either by republishing portions of other digital publishers' content or by using [gen AI] to summarize the content. The end result is that users increasingly consume other web publishers' content on Google's SERP, either in abridged or derivative form, which starves those publishers of traffic and revenue."

b) "This strategy of embrace, absorb, and extinguish does two things. First, it raises further barriers to entry for potential search market entrants, who must then replicate the full stack of Google services to effectively compete. Second, it also ultimately restricts output in the digital publishing market where Google competes against web publishers."

782. Starting in 2012, Google began to use a "Knowledge Panel" in its SERP that contained more in-depth answers to different kinds of inquiries, and by 2014, Google called "Featured Snippets" the long snippets of content from other sites that it would include in its Knowledge Panels. By 2015, Google also began to introduce a "People Also Ask" section in the Knowledge Panel where a user can click on a featured question and get a snippet of information. An example of a detailed Knowledge Panel was included in Chegg's complaint:



783. Because these snippets would often answer a user's questions outright, they obviated the need for the user to click a link to the originator of the information, thus depriving these sites of traffic. Chegg alleges that "by 2019, data indicated that less than 50% of Google searches resulted in a click-through to the original source, making Google more of a walled garden than a traffic director." Chegg also cites a 2024 "study by Rand Fishkin, based on clickstream data from Datos, [which] found that nearly 60% of visits to Google's SERP resulted in ***no clicks***." [Emphasis in original].

784. Moreover, "[u]ntil 2019, the only way for digital publishers to prevent Google from republishing their content was to prevent Google from indexing their content for search at all[.]" It was only in response to the EU Copyright Directive that, in 2019, "Google introduced the 'nosnippets' meta-tag that allow publishers to direct that snippets of their content not be shown on

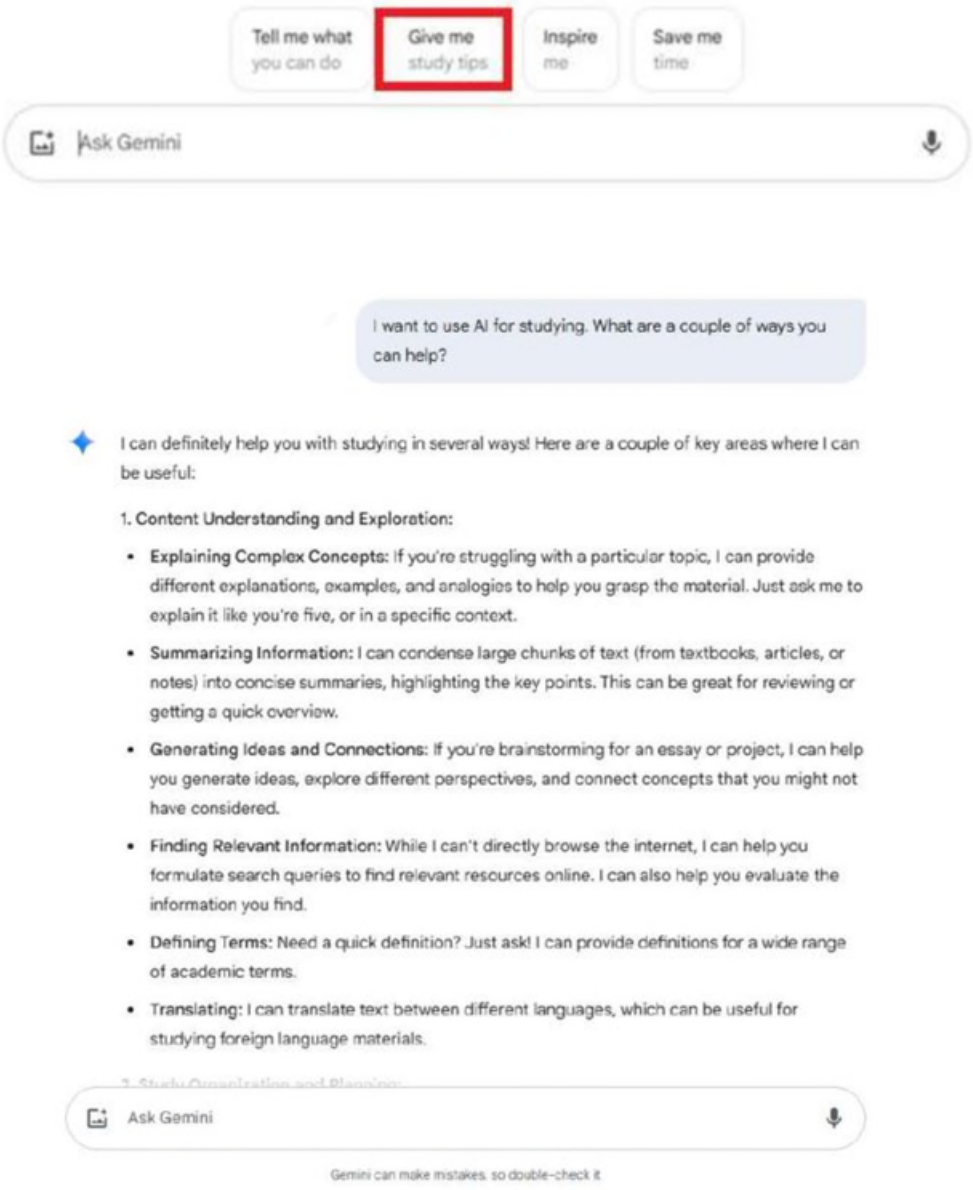
Google's SERP." But this was a Hobson's choice, because "while setting the 'nosnippets' tag would prevent site content from being republished as Featured Snippets, it would also prevent snippets from being shown as previews in search results. This and the preeminent placement of Featured Snippets ahead of search results on the SERP meant that publishers who used the nosnippets tag to stop Google from republishing their content experienced an even greater reduction in search referrals than they did by allowing republication." But "[v]irtually no digital publishers can afford to take such drastic action, because withholding data from Google's search index means demotion on the SERP or disappearing from Google's organic search results entirely, and as outlined above, appearing prominently on Google's SERP is an essential means of generating traffic and revenue for digital publishers."

785. Chegg alleges that this misappropriation of publisher content has gotten worse since Google entered the gen AI race and has started appropriating content for its AI overviews. While other gen-AI-using companies, such as Open AI or Microsoft, also have appropriated content, Chegg alleges, "one crucial difference has emerged between Google and products on the competitive fringe that seek to merge search results into AI-generated answers in this way: the non-monopolists are paying for at least some publisher content." But Google, "through the exercise of its monopoly power in General Search Services, avoids this cost of acquiring publisher content and gains an unfair commercial advantage over new entrants in order to extend and entrench Google's General Search Services monopoly in the potentially competitive new age of AI-assisted search." Google, Chegg alleges, "included millions of Chegg's proprietary Q&As and homework solutions in the training datasets for its models, including by scraping works from Chegg's website."

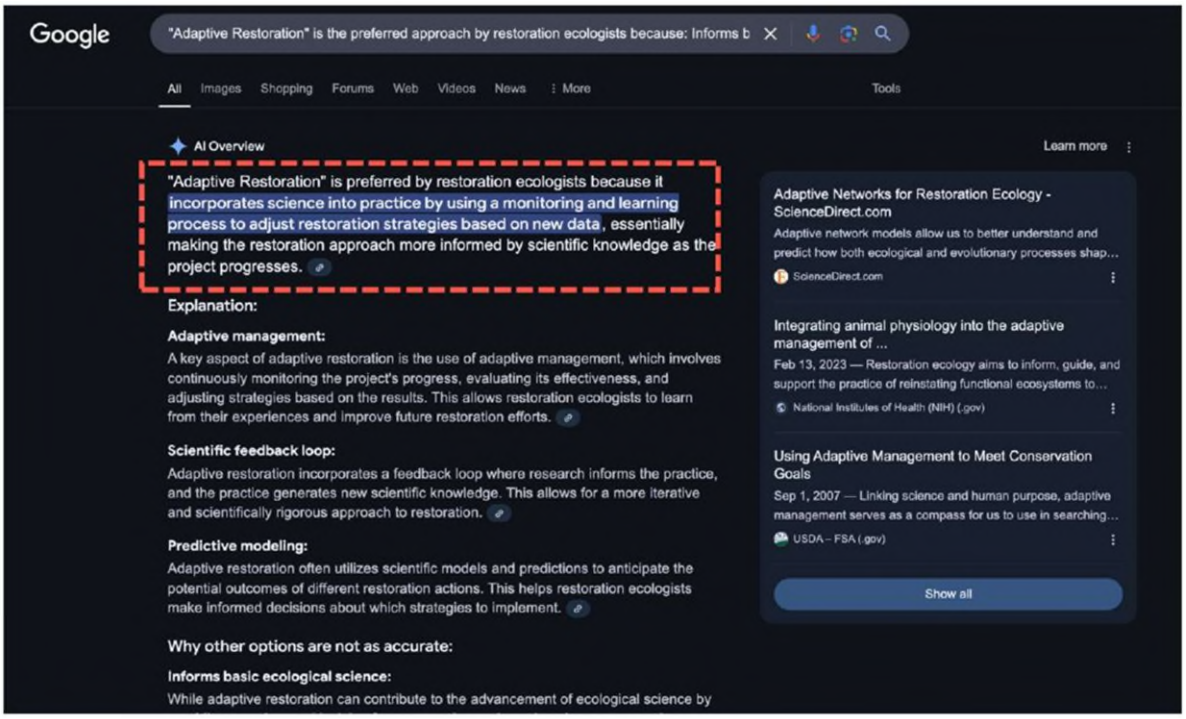
786. Google, due to its access to data, is able to generate higher-quality gen-AI-based answers. Chegg notes: "Outside observers specifically cited Google's monopoly in search as contributing to Gemini's superiority to ChatGPT, in terms of the former's ability to integrate information from the live web into outputs. One article explained that, while many websites blocked OpenAI's web crawlers, Google's web crawlers remain largely free to index the web,

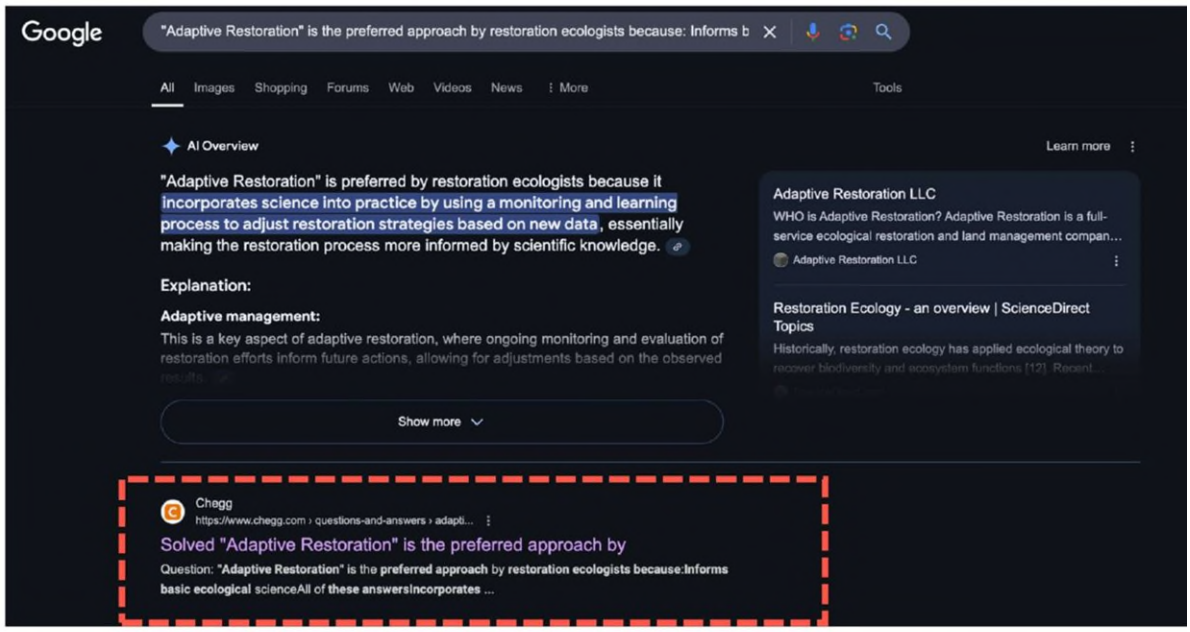
'likely due to its position as the most popular search engine.' Another article similarly explained how 'Gemini proves to be slightly more adept than ChatGPT when it comes to online searching and integrating the information it finds into its responses,' including because of Google's superior access to the web 'from day one.'"

787. Moreover, Chegg includes an example of an AI overview to illustrate how "Google has specifically designed Gemini to generate educational content. Users may be presented with a series of prompts encouraging them to explore different ways they can use Gemini, including a 'Give me study tips' prompt":



788. Chegg also provided another example where "Google's AI Overview paraphrases the first search result from Chegg's website without providing any link to that source in the AI Overview panel. Only by scrolling down the SERP past the AI Overview and clicking on the Chegg website result would a user find the original source that Google mined from its search index to generate its answer."





789. Chegg notes that in 2024, "search engine referrals made up 71% of Chegg Study traffic and 60% of Chegg Study acquisitions (new subscriptions to Chegg's Study service) in the United States. The vast majority of Chegg's Search Referral Traffic is generated through Google's SERP." Thus, "Google's misappropriation of Chegg's content to train and ground its AI models, and the way that misappropriation allows Google to publish its own content—which in turn diminishes traffic to Chegg's and other publishers' sites—threaten the very core of Chegg's business."

790. Furthermore, Chegg quotes Marc Najork, Distinguished Research Scientist at Google DeepMind, as acknowledging: "Direct answers reduce search referral traffic" and "reduce referrals to content providers hurting their ability to monetize[.]" Chegg further alleged, "Since making AI Overviews broadly available to search users, Google has significantly increased its 'coverage' of questions that are answered on Chegg's website. Coverage refers to Google's use of AI Overviews to respond to queries of the sort posed by Chegg users and which typically return Chegg links in the organic search results on Google's SERP. . . . Chegg has experienced declines in click-through rates to its website. Google's increasing coverage generates less traffic and fewer opportunities for Chegg to convert site visits into paid subscriptions."

791. On the same day Chegg filed its lawsuit, it also announced that it was conducting a "strategic review." The CEO, Nathan Schultz, expressly connected the two: "We made two important and connected decisions to maximize the future of our business and shareholder value. We are launching a strategic review process and filed a complaint against Google, which has unjustly retained traffic that has historically come to Chegg, impacting our acquisitions, revenue and employees[.]"

792. Google also violated YouTube's terms of service to harvest publisher content. An April 6, 2024 *New York Times* investigative report found that Google "transcribed YouTube videos to harvest text for its A.I. models." But YouTube's terms of service only permit Google to use uploaded content "in connection with the Service and YouTube's . . . business." Google's use of YouTube data went beyond YouTube's business, which did not have gen AI chatbots, as they are

embedded in Google Search. And this was especially galling because YouTube CEO Neil Mohan condemned OpenAI for engaging in the same practice of harvesting data from YouTube. In an interview, Mogan had said, "[W]hen a creator uploads their hard work to our platform, they have certain expectations. One of those expectations is that the terms of service is going to be aided by. It does not allow for things like transcripts or video bits to be downloaded, and that is a clear violation of our terms of service. Those are the rules of the road in terms of content on our platform."

793. In March 2024, the French Competition Authority determined that Google engaged in anticompetitive conduct to develop and operate Bard/Gemini and its SGE. The background was that France had enacted some laws that protected publishers, Google then violated these laws, and the latest fine was a penalty for Google's failure to comply with the terms of a recent settlement: in 2019, France had enacted a law that gave publishers some protection against the misuse of their protected content by digital platforms like Google. In 2020, the French Competition Authority issued an injunction against Google to assist the publishers and Google to work out an agreement, finding "that Google's practices on the occasion of the entry into force of the related rights law were likely to constitute an abuse of a dominant position and caused serious and immediate harm to the press sector." Those negotiations were marred by bad faith by Google, which led the Authority to fine Google €500 million in July 2021. In 2022, Google settled with over 300 European news publications. On March 15, 2024, the French Competition Authority fined Google €250 million for failing to comply with its 2022 settlement. The French Competition Committee found:

794. Until at least 2023, Google used scraped Publisher content in two stages in developing and operating Bard (now Gemini).

795. Google also admitted that "certain datasets for training PaLM included content originating in websites of publishers and press agencies."

796. Google admitted that each time a user poses a question to Bard, the system uses "grounding" by which Bard "sends a request to Google Search in order to obtain information useful for responding to the user's question."

797. Google did not inform publishers that it was appropriating their products and did not compensate them.

798. Moreover, prior to September 2023, "before the launch of Google Extended, [Google] did not provide any practical means permitting a publisher or news agency to refuse that its content be used in a search for text or data by" Bard/ Gemini.

799. Google launched Google Extended, a token that websites can embed in their code that purportedly instruct Google that they are opting out of having their content to be used to train or ground Bard.

800. But Bard continued to use information extracted from news websites, despite how these websites had activated Google Extend to block scraping.

801. Google admitted that "websites that contributed to the training of Bard cannot be deleted from the corresponding foundation models (notably PaLM 2)."

802. The French Competition Authority found:

- Google breached its transparency obligations by failing to disclose to publishers or the Authority that publisher content was used by Google to develop and operate Bard/Gemini.
- Google violated its obligation to avoid self-preferencing because "Google had tied—at least until September 23, 2023—negotiations" with French publishers overcompensating them for "using their protected content in Google Search, Discover, and Google News" to "the use of publisher and news agency content for the needs of another service, Bard." The French Competition Authority explained that if publishers blocked Google's web crawler, which was the only way to stop Bard from using content, before Google Extended was launched, that would have

removed themselves from Google Search, and would have negated their ability to seek remuneration for provision of news-inputs for search.

- Google's method of compensating publishers by paying a flat "rate set by Google" at a nonpublic "percentage of the 'direct' revenues generated by Protected Content on Google Search, Google News, and Discover tends to limit the revenues resulting from the additional attractiveness of Protected Content to a marginal share of the total revenues taken into account by Google in determining the amount of its financial proposals."
- Google's "violation was all the more severe because the size of Google's dominant position in the market for general search services presented extraordinary circumstances and the use of Protected [publisher] content in its search engine bears manifest significance."

803. Google was fined an additional €250 million because the scale of Google's misconduct was all the "more significant" because of its "dominant position on the generalist search services market."

804. In March 2024, news media reported that Google and Apple are negotiating to have Apple "license some of Gemini's features to power certain AI features in the new versions of Apple's iPhone and iPad software later this year." Gemini is already incorporated into Samsung and Google mobile devices. As the *New York Times* noted, if Apple enters this deal with Google, "Virtually oversight, Google could have more consumers using it's A.I. than its chief rival, OpenAI, which makes ChatGPT – making a pact with Apple a tantalizing prospect."

805. A copyright infringement lawsuit brought against Google and Alphabet further details how Google misappropriates data for its gen AI projects. It details how Google has made it a priority "to dominate this emerging field," and has "declared a 'code red,' acknowledging that 'the company may be approaching a moment that the biggest Silicon Valley outfits dread—the

arrival of an enormous technological change that could upend the business."[27] The complaint further alleges: "In response, Google has directed unprecedented resources toward generative AI. Google has consolidated its AI research divisions, such as DeepMind and Google Brain, on the belief that generative AI will define the next era of technology. Google has already integrated generative AI throughout its products, betting on it as the foundation for future growth. This effort represents not just a technological shift but a strategic overhaul, as Google seeks to dominate a field poised to reshape industries and redefine how humans interact with technology."

806. The copyright infringement alleges that Google trains its LLMs on the vast amounts of data Google has obtained: the complaint describes how an early Google gen AI product, Bard, "was developed and trained on Google's Infiniset Dataset ('Infiniset'), a vast 1.56 trillion-word corpus of internet content that incorporates the C4 Dataset ('C4'). C4, created by Google in 2020, is a filtered version of the Common Crawl dataset. Infiniset is comprised of 50% of dialogues from public forums (e.g. Reddit, Twitter), 12.5% C4 dataset, 12.5% code documents (e.g. GitHub, Stack Overflow)[,] 12.5% Wikipedia, 6.5% English web documents, and 6.5% non-English web documents." Furthermore, "Common Crawl is the largest feely available collection of web crawl data and one of the most important sources of pre-training data for large language models. Its web archive consists of petabytes of data collected since 2008. It completes crawls of the internet and releases its web archive generally every month." And "C4 contains massive quantities of copyrighted materials, including works found on piracy sites or nonconsenting digital libraries, and through subscription services" and includes material from "'b-ok.org,' also known as 'Z-Library,' is '[t]he world's largest [illegal] ebook library and digital library.' In 2022, the site's operators faced criminal prosecution for 'criminal copyright infringement, wire fraud, and money laundering.'" Moreover, "[t]he third largest site within C4 is Scribd.com ('Scribd'), a subscription-based digital library with 60 million e-books and audio books[.]"

[27] Consolidated Class Action Complaint, ¶113, *In re Google Generative AI Copyright Litigation*, No. 5:23-cv-03440-EKL (N.D. Cal. Dec. 22, 2024), ECF No. 92.

807. Google has also used its vast financial resources to steamroll authors. As the copyright infringement plaintiffs allege: "Google was well aware that the training datasets it copied, such as LAION-400M and C4, contained copyrighted works. These datasets included works from known piracy sources, subscription-based platforms, and publicly flagged copyright-protected works. For example, the presence of copyright symbols within the C4 dataset should have served as an unmistakable indicator of the protected status of the included works. Despite this, Google proceeded to use these datasets without authorization from the copyright holders." Furthermore, "Google was also well aware that potential and current customers were concerned about using its Generative AI Models, since they were built and trained by infringing upon the exclusive rights of copyright owners. Rather than change its conduct, Google rolled out an indemnification program for its Generative AI Model customers that stated, '[i]f you are challenged on copyright grounds, we will assume responsibility for the potential legal risks involved.' Rather than address its infringing conduct directly, Google used its financial strength as a means to actively encourage the use of its Generative AI Models." And "[b]y incorporating Generative AI Models like Gemini and Imagen into AI-Powered Products like Google Cloud, YouTube, and Google Ads, Google not only infringed the copyrighted works but also actively monetized them, generating billions in revenue." Indeed, "[i]n July 2024, Google and Alphabet CEO Sundar Pichai reported that Google Cloud, one of Google's AI-Powered Products, achieved quarterly revenue of $10.9 billion—a 29% year-over-year increase directly linked to AI integration. Pichai also said that Google Cloud's AI infrastructure and 'generative AI solutions, alone, had year-to-date already generated billions in revenues and are being used by more than two million developers.'. . . In October 2024, Pichai confirmed that Google's AI-Powered Products were 'paying off and driving success' by substantially contributing to record-breaking quarterly revenue of $88.3 billion."

808. The FTC issued a staff report on AI partnerships and investments between Alphabet, Amazon, and Microsoft with Anthropic and OpenAI. Though the FTC could not name Alphabet or Google individually because of the nature of the study, the report clearly indicates that

Google/Alphabet has leveraged its size to gain further revenues as well as to stifle competition in the AI market.

809. In its press release summarizing the report, then-FTC Chair Lina Khan stated, "As companies rapidly deploy generative AI technologies, enforcers and policymakers must stay vigilant to guard against business strategies that undermine open markets, opportunity, and innovation. . . . The FTC's report sheds light on how partnerships by big tech firms can create lock-in, deprive start-ups of key AI inputs, and reveal sensitive information that can undermine fair competition."

810. The press release further summarizes the key findings of the study:

811. "The report highlights several key terms of the AI partnerships, which include:

- Significant equity and certain revenue-sharing rights for CSP [cloud services providers] in their AI developer partners;
- Certain consultation, control, and exclusivity rights CSP partners hold to varying degrees with respect to their AI developer partners;
- Commitments that require AI developers to spend a large portion of their CSP partner's investment on cloud services from their partners;
- Commitments that require AI developers to spend a large portion of their CSP partner's investment on cloud services from their partners;
- Sharing of key resources and information including access to large amounts of computing resources at discounted rates; assets and IP related to AI developers' cutting-edge models; and certain financial and training data; and
- Opportunities to expand current products including through integration of AI models into CSPs' products or deployment of AI models on CSPs' platforms."

812. "In addition, the report highlights the following areas to watch regarding potential implications of the AI partnerships:

- Their ability to impact access to certain inputs, such as computing resources and engineering talent, in ways that could affect competition for both AI developer partners and non-partner AI developers;
- The potential to increase contractual and technical switching costs for AI developer partners, making it more difficult for them to change CSPs or restricting their use of multiple CSPs; and
- CSPS partners' access to sensitive technical and business information that may be unavailable to others, such as information related to generative AI models, AI development methods, confidential chip co-design, partner finances, and customer usage and revenue numbers."

813. The FTC's blog post describing the study goes into further detail about "key partnership terms. Among other provisions, the partnerships include:

- significant equity and certain revenue-sharing rights;
- billions of dollars in cloud commitments;
- certain consultation, control, and exclusivity rights in the AI developer partners;
- the provision of large amounts of discounted computing resources;
- sharing of key technical and business information;
- the potential for exchange of talent and data between partners; and
- opportunities to expand current cloud and AI products, including through the prospect of integration into partner CSPs' products.

In the words of one CSP partner, information-sharing amounted to a 'multi-year crystal ball into the future needs of AI infrastructure.' The Commission's 6(b) report also describes how one respondent believed that only a small number of players could scale past the capabilities of current state-of-the-art models, and that partnerships between AI developers and CSPs were an important way for model developers to keep ahead of the pack."

814. The FTC blog post further summarizes in detail "areas to watch:

> **The partnerships could affect access to certain inputs, such as computing resources and engineering talent**: For instance, the report describes the potential that a CSP partner might consider limiting computing resource inputs for both partner AI developers and non-partner AI developers. Computing resources are a key input for generative AI developers, and an inability to access them could impact both current AI developers and potential future entrants. In internal documents, one CSP partner employee wrote that 'we face a problem today where scarce GPU resources are being disproportionately used by a few large customers who are getting steep discounts (up to [REDACTED] discounts on [REDACTED]) is [sic] driving hoarding behavior.' Another open question is whether the partnerships may consolidate access to the AI engineering talent pool in the hands of a limited number of firms. . . .
>
> **The partnerships could increase contractual and technical switching costs for AI developer partners:** The partnerships might affect AI developer partners by restricting their use of multiple CSPs or by making it more difficult for them to change CSPs. For example, the partnerships all reportedly included billions of dollars in cloud computing spending commitments by the AI developer partners. Multiple partnerships also have provisions that impose conditions or restrictions on the ability of AI developer partners' ability to operate with other CSPs or companies. In addition, the report describes potentially lengthy migration times between AI-specialized cloud services and AI chips, technical barriers that may make it difficult to switch to another CSP.
>
> **The partnerships provide CSP partners access to sensitive technical and business information from AI developers that may be unavailable to others:** This can include generative AI models, AI development methods, confidential chip co-design plans, and customer usage and revenue numbers. This information could potentially be used to develop the CSPs' own internal models and applications, some of which may compete with those of their partners. CSP partners also receive financial and strategic business information—including non-public, potentially sensitive information—through the partnerships as well as through their role as platforms. In internal documents, one CSP highlighted: 'If we wait for our own models to mature, we risk not participating in developing the necessary IP to build, operate, and secure these applications. By partnering with [REDACTED], we can more quickly learn the "art" of refining and reinforcing these types of models.'"

815. The FTC's report further details these agreements and investments. The FTC pointed out that just the publicly reported amount of investment by Google into Anthropic was $2.55 billion. It also pointed out that "[p]arts of the CSPs' current strategies have their roots in past acquisitions. For example, Google's 2014 acquisition of DeepMind for reportedly over $500 million contributed to Google's AI efforts today. DeepMind's former CEO, Demis Hassabis, is

now the CEO of Google DeepMind. Google's flagship generative AI models, the Gemini family of models, are built by this team."

816. The FTC also noted how tech companies often had made acquisitions that were priced just below the threshold where they would have to report the acquisitions to the FTC, tech companies also had other "varying acquisition strategies. . . . For example, there has recently been a rise in agreements that reportedly include hiring a company's AI experts, licensing the company's AI technology, and paying a fee in exchange. In addition to licensing technologies and hiring numerous employees, these deals have elevated former startup CEOs to some of the most important roles in AI at the CSPs—leading one venture capital ('VC') firm to refer to these deals as 'Big Tech consolidating AI talent.'" With respect to Google, a footnote in the FTC study cited a news article reporting how Google had hired Character.AI's cofounders and licensed its models. The FTC also cited to several inquiries overseas by other regulators, including: "In February of 2024, the French Competition Authority opened inquiries *ex officio* to analyze the generative AI market and 'examine these types of investments' such as . . . Google's investments into Anthropic."

817. The FTC further noted: "As with all complex software products, AI development and commercialization combine several different layers into a composite product or service. The partnerships at the center of the 6(b) study involve collaboration and exchange across these layers of the tech stack, from chip development to deployment of AI-powered applications. Therefore, to understand the partnerships at hand it is essential to understand these layers and how they function." The "layers of the tech stack that CSPs and AI model developers contribute to, depend on, and benefit from [include]: AI Semiconductor Chips, Cloud Computing, Data and Models, and AI Applications."

818. The FTC emphasized the importance of "[s]emiconductor chips [as] the hardware foundation of the digital world" and how "[s]pecialized AI chips are used in training a large generative AI model. After a model has been trained, specialized AI chips are then used to generate responses or other outputs in response to prompts—a process known as 'inference.'"

Thus, "[s]pecially designed chips for AI are therefore a key input into AI model training and deployment." Google and the other CSPs "are each developing specialized chips for AI applications." Google has and is developing Tensor Processing Units ("TPUs"). Furthermore, "[i]n contrast to the GPUs designed by other providers such as AMD and Nvidia, the physical AI chips designed by Amazon, Microsoft, and Google are not available to purchase—they are only available to access via those CSPs." Plus, "[t]o use AI chips, AI developer must rely upon software that is able to integrate with those chips. That software is not necessarily compatible with different types of AI chips."

819. Another layer of the tech stack, cloud computing services, is important to AI providers because "[i]n the context of AI models, cloud providers' most relevant offering may be access to a large volume of servers with specialized AI chips that can be used to train and deploy models. The high demand for servers with AI chips has reportedly led to months-long waits for AI developers for access to this type of hardware." The CSPs also provide and build data centers, which "form the core of cloud offerings." Furthermore, "[g]iven the amount of data that is used to train and operate AI models, specialized networking needs to be installed through physical data centers to facilitate sending the massive amounts of data between servers. In particular, the widespread practice among large AI developers of parallelizing computations among multiple chips and quickly communicating the results of such computations between chips can mean that data center infrastructure is often specialized for AI needs. Similarly, high-volume data transfers inherent to AI training and inference can require significant networking between data centers—an issue that was discussed in at least one partnership, according to internal documents. AI applications also require substantial amounts of power."

820. The FTC implied that only a limited number of companies could provide the scale of cloud services that AI model developers need, because of the high costs of these services. Google is the third largest cloud service provider. And Google also has the financial resources from its search ads business to keep up the high level of spending. As the FTC notes, "Alphabet announced in its Q2 2024 earnings call that its capital expenditures for the quarter were $13 billion,

'driven overwhelmingly by investment in our technical infrastructure, with the largest component for servers, followed by data centers.'"

821. Related to providing cloud services is the ability for Google to provide enormous amounts of computational power. The FTC observes, "generally, AI developers aim to build foundation models that are fast and produce high quality responses while reducing harm and errors. Developers may also require their model to function with text, audio, images, and to some extent video as input or output, the latter of which significantly increases computational intensity of the models." And "to achieve high levels of performance, AI developer partners need an extensive amount of computational power. Anthropic CEO Dario Amodei publicly stated in April of 2024 that then-current models cost close to $1 billion to train, and that 'in 2025 and 2026, we'll get more toward $5 or $10 billion.' Having access to this amount of computational power may impact AI model development. As one CSP partner explained, 'we have entered an AI training regime where the quality of results achievable across a broad range of AI tasks is mostly constrained by the amount of AI training computing resources that can be brought to bear on the training task.'" Google, in particular, has an advantage in providing computing power because it is one of the leaders in quantum computing. In December 2024, Google introduced its latest quantum-computing chip, Willow, which "performed a standard benchmark computation in under five minutes that would take one of today's fastest supercomputers 10 septillion (that is, 10^{25}) years – a number that vastly exceeds the age of the Universe." Google further revealed that it manufactured this chip, rather than outsourced it as usual: "Willow was fabricated in our new, state-of-the-art fabrication facility in Santa Barabra – one of only a few facilities in the world built from the ground up for this purpose."

822. Access to computational power is not the only thing that Google (and only a few other companies) can provide. The FTC adds, "training data is also a key input when creating a generative AI model. Generative AI models are trained on massive amounts of information. Training data can be split up into roughly two types of data—data for pretraining and data for

'fine-tuning' the model." As mentioned above, Google is one of the two GSEs that still crawls the entire web, giving it access to an enormous amount of data that others do not have.

823. Moreover, "AI developers are often looking for new sources of training data, particularly now that a large portion of the publicly available internet data has already been used to train models. Publicly available data may increasingly consist of AI-generated content, and training AI models on content generated by models may have negative consequences on model quality. Therefore, model developers may put a premium on high-quality human-generated content. Owners of large platforms that host user-generated content have access to that data and may use that data to train models." Google is one such platform that "host[s] user-generated content," as it owns YouTube, the largest internet video provider. And even more significantly, Google has its user-generated query and click data.

824. The FTC also discussed how consumers use AI, either through apps, or through AI being integrated into existing products. "Examples include Google integrating responses in the form of 'AI Overviews' into its search results page[.]" Furthermore, "an application may be built on a cloud that provides access to AI models as one of its offerings, an option that some cloud providers describe as providing more flexibility and security. All three CSP respondents offer these 'Model-as-a-Service' ('MaaS') products, where customers can access a range of models via the CSP's platform: . . . Google offers Vertex AI." Moreover, "Consumer-facing AI products may be monetized by displaying advertising in their interfaces. For example, Google's AI Overview product, powered by its Gemini LLM, recently started showing ads related to a user's query."

825. The FTC found that CSPs and AI providers had several notable features in their agreements, "including: (1) equity and revenue-sharing rights; (2) certain consultation, control, and exclusivity rights; (3) cloud spend commitments; (4) sharing of key resources and information; and (5) the potential to expand current products and scale new offerings."

826. First, "[a]s a result of the CSPs' ownership interests in, or rights to profit from, the AI developer partner, the CSP partners might benefit financially if their AI developer partner's value increases. . . . Public reporting has indicated that both Amazon and Google have non-voting

shares in Anthropic. . . . Public reporting has also posited that each of the partnerships contain revenue-sharing agreements that provide income for CSPs based on the success of their partner's AI models, including sharing revenue from the model developer partner's own first-party API."

827. Second, the agreements allow CSPs to provide "certain consultation, control, and exclusivity rights with respect to their AI developer partners[.]" These may include "advance notice of important decisions" or board seats. Moreover, "CSP partners also have certain exclusivity or parity rights through the partnerships—such as access to certain products, distribution capabilities, or brand association." This includes how sometimes, "the agreements include exclusive or preferential treatment to the CSP partner, or require parity with other cloud partners or the AI developer's own products. Staff also notes that although the existence of exclusivity, preference, or parity provisions varied by partnership, in general, multiple partnerships have provisions that impose conditions or restrictions on the ability of AI developer partners to share accrued benefits with other non-partner cloud providers or companies."

828. One of the most striking common provisions of these agreements – which is also publicly reported – is how "[t]he partnerships include cloud commitments that require AI developers to spend a large portion of their CSP partner's investment on cloud services from their partners." The FTC elaborated: "According to public reporting . . . the AI developer partners committed to spend billions of dollars on cloud services from their partners. The committed spending on cloud computing means that, to a significant extent, the CSP is effectively investing in the partnership through the provision of cloud computing. This feature of the partnerships—circular spending—is one avenue through which CSP partners may have potentially aimed to reduce the magnitude of potential loss invested directly into their partners and cloud infrastructure to serve their partners." Public reports, according to the FTC, reveal that Anthropic has committed to spend at least $3 billion on Google Cloud services. The FTC also notes, "One CSP noted that the cloud spend commitment had limited downside since any AI infrastructure built for its AI partner could be resold or used internally: 'If [redacted] cannot raise/generate more funds, we will at least make back our [capital expenditure] by [redacted]. . . . In the improbable cause of default,

we will make back our Capex and have [redacted] at hand to resell to others or consume internally.'"

829. The FTC also points out how "[t]he partnerships provide the partners with access to key resources, including access to computing resources, intellectual property, key personnel, performance and financial data, training data, and chip co-development opportunities to varying degrees." AI developer partners, for example, get "discounted access to computing resources." The FTC notes "Google publicly offers discounts on certain GPU-based, specialized AI offerings in the United States around 56% over three years." At the same time, "[t]he partnerships provide CSP partners, which are developing their own AI models, access to assets and intellectual property related to the AI developers' cutting-edge models." According to the FTC, "[a]t least one CSP viewed its partnership as a 'bridge' to allow it to learn about frontier model development and to become a significant player in the foundation model space itself. In other documents, at least one CSP saw its partnership as an alternative to internal model development efforts, with one CSP's executives agreeing in a meeting that 'double-spend[ing] in this [generative AI] space' did not make sense given the CSP's investment in its AI developer partner." Furthermore, "AI models themselves, training methods, and related source code are valuable intellectual property owned by the AI developers. It is therefore notable that multiple partnerships provided CSP partners access to some of these core technologies, with rights to test or commercialize them in certain cases."

830. Furthermore, "[t]he partnerships may permit CSP and AI developer partners to embed engineers in one another's companies, allowing for information transfer about technology and intellectual property." The FTC explains, "Because highly skilled labor is an important input for generative AI, CSPs appear to be using the partnerships to gain access to relevant technical talent."

831. Furthermore, "[t]he partnerships provide CSP partners access to performance and financial data of AI models and infrastructure needs of AI model developers." Moreover, "[t]he partnerships also provide CSP partners with access to confidential and potentially sensitive financial information." The FTC observed, "Access to this information may be helpful to CSPs

as they develop their long-term strategic plans. For example, in internal documents, one CSP partner described its partnership with an AI model developer partner as providing a 'multi-year crystal ball into the future needs of AI infrastructure' and that by choosing 'to partner closely with [redacted], our silicon, networks, systems software, and data center infrastructure will be significantly better-positioned in the marketplace to compete and win against tough competition from [redacted].' These "[s]trategic planning decisions . . . include whether and where to build data centers, and with what capabilities. Documents described the CSP partners gaining non-public insights into these other cloud needs of state-of-the-art AI systems. . . . Parity and exclusivity provisions—as well as employee exchanges—may affect the impact of this and other knowledge-sharing."

832. Furthermore, "[t]he partnerships permit CSP and AI developer partners to share or otherwise obtain training data." The FTC also notes that both Google and Microsoft "operate large-scale web crawlers that serve their search engine products." The CSPs have troves of proprietary data that AI model developers seek, for example "customer data and traffic in training and inferencing" and as noted above, Google and Microsoft have data that they derive from their search engines, where Google's overwhelming dominance in that market means an insurmountable scale of query and click data, as well as access to user-generated data from the largest online video platform, YouTube. As the FTC notes, "Training data is a key input that can impact the development and performance of AI models."

833. Furthermore, "[t]he partnerships include co-development plans for CSP-designed semiconductor chips optimized for the needs of AI developer partners' models." Google is one such CSP that designs its own proprietary CPUs and GPUs. The FTC further described, "[t]he partnerships also feature co-development plans for CSP-designed AI chips, allowing for testing and feedback from AI developers to improve the chips for applications in AI training and inference." Moreover, "Multiple CSPs cited this as a feature of the collaboration in both their public and private documents. In at least one partnership, a participant asserted that chip feedback and co-development can benefit the CSP, estimating that their chip co-design efforts resulted in an

improvement in price-performance metrics for CSP partners." The FTC added, "at least one CSP partner viewed the partnership as an opportunity to ensure that a major AI model developer was not training its models solely on a competitor's chips."

834. Furthermore, the partnerships bolster each others' products. As the FTC explained, "[i]n addition to the revenue created in some cases by offering access to the AI developers' models, some CSP partners emphasized the importance of ensuring that 'the most capable models in the world' are available on their cloud platforms. One CSP cited the expansion of its model-as-a-service ('Maas') offerings as a benefit of the partnerships." Moreover, "some of the partnerships created avenues for CSP partners to integrate AI developers' models into their own consumer-facing products, and that some of these integrations are in progress or have been completed." And "[f]or partnerships involving brand association, CSP partners viewed association with a leader in AI model development in a quickly growing sector as providing benefits. . . . The parameters of branding associations were a negotiation point in at least one partnership." As the FTC describes later in the report, all three of the largest CSPs have MaaS offerings.

835. Moreover, "[t]he partnerships offer AI developer partners potential paths to growth through the CSP partners' cloud platforms or product integrations with CSP products." The FTC explained, "[a]s a part of the partnerships, AI developer partners made a number of their models available on MaaS platforms owned by their CSP partner. . . . MaaS platforms allow customers to access multiple AI models through a centralized platform. Having models available on major cloud platforms may provide business growth opportunities through exposure to businesses that use those platforms already."

836. The FTC Report also cautioned, "[t]he partnerships might impact competition in myriad ways. The impact could be on competition among CSPs, including either existing CSPs or potential future entrants. There could also be potential impacts on competition between AI developers broadly defined, including on potential future entrants, or on products incorporating AI." The FTC emphasized the following factors for follow-up study: "access to certain inputs,

like computing resources and engineering talent; switching costs; and access to technical and business information."

837. "The partnerships reviewed are notable for the fact that the investors are also suppliers of an input that is key for AI developers—computing resources. Users of that input include the CSP partners themselves in their role as AI developers, the AI developer partners, and non-partner AI developers." Moreover, "the agreements give CSP partners equity shares in AI developers, as well as revenue-sharing rights and certain consultation rights to varying degrees. Therefore, the partnerships might alter incentives for CSP partners that control a product or a service that other market participants would use. For example, a CSP partner might consider limiting access to computing resources for AI developers other than its partner AI developer." Meanwhile, "the terms of certain partnership agreements could restrict or raise the costs of using non-partner cloud providers for AI developers who are parties to the agreement. Such an agreement might limit access of competing CSPs to these large customers, thereby limiting those CSPs' ability to expand. These potential restrictions on competing non-partner CSPs may make it difficult for AI developers—both partners and non-partners—to obtain the computing resources they need to train models at scale and run inference."

838. Public statements and internal documents reflect these concerns: "CSP partners have acknowledged in public and private documents that AI computing resources currently have few providers . . . and are in high demand. As one CSP wrote in internal documents, 'we face a problem today where scarce GPU resources are being disproportionately used by a few large customers who are getting steep discounts (up to [redacted] discounts on [redacted] is [sic] driving hoarding behavior . . .'" Moreover, "CSP partners have acknowledged capacity constraints for AI computing resources publicly." The FTC report cites statements made by Microsoft and Amazon executives in 2024 earnings calls that acknowledge these constraints.

839. "[T]he large computing requirements of the partnerships may have . . . made it difficult for CSP partners to have computing resources left for other AI developers, including startups. In 2023, one CSP partner wrote internally about its inability at that time to meet AI-

specific demand even from smaller AI developers. . . . In late 2023, the shortage of computing resources for AI was so severe that AI developers reported multi-month waits for renting AI accelerator chips on major cloud providers" or reported that it was not possible to get access unless one prepaid or had a contract with a major CSP.

840. Furthermore, "AI developer talent is also important to researching and developing the most advanced AI models and applications. As FTC staff has previously stated, 'the talent companies can acquire and maintain may play a key role in not only the path, but also the rate, of generative AI's evolution.'" Moreover, "[w]hile specialized skills are core to many business endeavors—including software engineering—the skills necessary to develop and deploy large-scale generative AI models are relatively rare and may be difficult to acquire outside of working for large AI developers or the hyperscalers themselves. Underscoring the relative scarcity of certain types of AI talent, one . . . respondent wrote that: 'For training the LLM, there are only a few groups in the world who understand the methodology[.]'" Moreover, "[d]ynamics around access to talent may be reflected in some recent deals between AI startups and CSPs, which have included elevating talent from AI startups to leadership roles at CSPs. . . . Google's August 2024 transaction with Character.ai reported resulted in Character.ai's former CEO becoming a VP at Google, where he is 'one of three people leading Google's efforts to build the next version of its most powerful AI technology, Gemini[.]'"

841. The FTC also flagged how "[t]he partnerships might affect AI developer partners by increasing switching costs and making it more difficult for them to change CSPs or by restricting their use of multiple CSPs." The FTC elaborated, "AI developers require a significant amount of computing resources and AI-specific infrastructure. . . . [E]xclusivity terms and other provisions in the partnership agreements may prevent the AI developer partner from adding resources from a different CSP or result in increased switching costs that makes migrating from one CSP to another very difficult."

842. The FTC also notes how the partnerships include spending commitments that "may limit the options of AI developers and, for example, may require them to stay in the cloud

ecosystem if they are to receive future investments from the CSP." Plus, "[t]he committed spend agreements are also made in an environment where AI developer partners may have limited options, both in terms of CSPs and funders. Although CSPs are not the only source of funding and computing resources for AI developers, they remain by far the largest for the AI developer partners in this study. To the extent that AI developer partners feel they must partner with a CSP—and to the extent they feel they have a limited number of CSPs with which to partner—any potential benefits to AI developer partners from the partnerships do not eliminate concerns arising from the potential lock-in effects of the partnership agreements."

843. Moreover, "[b]ecause AI developers are engaged in a complex set of agreements with CSPS—including billions of dollars of investments—AI developers are likely also considering the terms of the broader partnership. One consideration could be how longer term spend commitments are packaged with investments and computing resources in the partnerships, potentially resulting in AI developers accepting longer spend commitments than they might otherwise. Similarly, it is not clear whether AI developers could obtain computing resources and capital without needing to commit to other partnership terms."

844. Furthermore, "[e]gress fees on the vast stores of data used by AI—which were raised as a potential concern by commenters in response to the FTC's 2023 Cloud Computing RFI—could be another variable considered by AI developers when determining the cost of switching providers after the partnerships have ended."

845. "[C]loud switching costs," such as "migration from one CSP to another can be potentially time- and capital-intensive due to a range of factors, including technical barriers. This may be particularly true for AI developers that rely on CSPs for specialized computing resources and managed services."

846. The FTC also cautioned how partnerships could "provide CSP partners access to sensitive technical and business information that may be unavailable to others." This information could include "generative AI models, AI development methods, confidential chip co-design, partner finances, and customer usage and revenue numbers" that would help the CSP partners

"develop their own internal models and applications, including products that may compete with those of their partners." This also "includes information that AI developer partners are contractually required to provide to CSP partners or information that the CSPs may gain via monitoring, analyzing, and collecting information from their AI customers (*e.g.*, usage metrics)."

847. The FTC emphasized, "[i]n addition to offering cloud services, all three CSP partners develop their own generative AI models and products that may compete with those of their partners. One CSP partner noted that its AI developer partner 'continues to feel competitive threat from' the CSP." The FTC noted "[v]oice assistants are one example—of many—of an area of potential overlap between CSP partner products and AI developer partner products. . . . In fact, Siri [from Apple] and Alexa [from Amazon] are now, or will soon be, reported powered by the AI partner respondents in this study. Potential concerns about information exchange between CSPs and their AI model developer partners may be heightened by any such competition between their products."

848. Furthermore, in addition to "information exchanges [that have] occurred through regular communication between partner companies, including emails and inter-team meetings[,] [c]ross-company meetings and employee exchange potentially allow for exchange of business strategy information." Furthermore, "CSPs could potentially use this business intelligence information—sensitive financial and strategy information—to understand, for example, which of their partners' offerings are most in demand. They could then adjust their own product strategy accordingly."

849. The FTC pointed out how the potential "informational advantages regarding generative AI development over non-partnered CSPs" is so important to Amazon, Microsoft, and Alphabet/Google that "[a]ccess to insights and information is suggested by one CSP internal strategy document that described that a key motivation for a partnership was to '[m]aintain relationship with one of the leading [redacted] AI startups.'" And "[l]osing that relationship, for CSP partners, could have meant falling behind on generative AI development. Or, as one CSP partner put it in internal documents: 'If we wait for our own models to mature, we risk not

participating in developing the necessary IP to build, operate, and secure these applications. By partnering with [redacted], we can more quickly learn the "art" of refining and reinforcing these types of models and better understand how to effectively integrate them into applications.' In another at internal document, a respondent described the risk of CSP partners 'cloning' the research efforts of their partners.'"

850. Furthermore, "[i]nternal board meeting notes from one CSP partner highlighted that it received early access to hardware innovations through their partnership. . . . Through this collaboration, the CSP was able to obtain hardware-related business intelligence."

851. The FTC also noted, "The CSP partners may also gain additional valuable information via their role as platform providers. As described in Section 3, all three CSPs offer 'Model-as-a-Service' products, where customers can access a range of models via the CSP's platform. The MaaS platforms operate as an intermediary between a developer who wants to integrate AI into its application, and a model provider who wants to monetize its model. Of note, each CSP also offers its own first-party models on its MaaS platforms—Amazon's Titan series of models, Microsoft's Phi series of models, and Google's Gemini series."

852. And "[i]n their role as a platform for other models (including those of their partners), the CSPs gain valuable insight into several metrics that are otherwise unavailable to rival AI developers that compete on the platform. . . . [T]hey have insight into the popularity and prevalence of generative AI adoption across industries." And "CSPs have information on which models are being used by their cloud customers. . . . [A]t least one CSP has data on how often its own first party models are being used relative to third party models it offers and uses that information to make business decisions." Moreover, "[i]nformation on usage of generative AI models of various sizes, costs, and latency by a range of customers could potentially help inform business strategies for the CSPs—including their first-party model strategy, potentially providing them with an advantage over other AI model developers (partners or otherwise)." The FTC noted, "[o]ne open question is the extent to which CSPs are seeing that certain types of models are gaining more traction and shifting their strategy to focus on developing their own similar first party

models—of the extent to which they are deciding not to develop models for a given use case if they see other models being highly successful at that use case." And "a CSP may have access to this potentially sensitive usage data for any AI developers offering their models on the CSP's MaaS offering—not just for those AI developers in the partnerships considered in this study. . . . The hosting of these models could potentially also give CSPs insight across non-partnership AI developer usage." The FTC concluded, "[t]he extent and significance of these potential information advantages over non-partnered CSPs may require further evaluation, such as by evaluating what information is available to non-partnered CSPs."

853. Testimony during the remedies phase of the DOJ Search Action further illustrates how Google's existing advantages make it difficult for even gen AI market leader OpenAI to compete. The head of products at OpenAI, Nick Turley, testified about Google's existing advantage of having a massive search index, and the costs and difficulties associated with OpenAI attempting to build its own index. Turley testified that developing OpenAI's competing search product could still take five years even if OpenAI could have access to Google's index, which is one of the remedies the DOJ is seeking, noting that he had "consistently underestimated how hard this problem is." Turley also testified how Google had rejected OpenAI's overtures to seek access to Google Search. Turley also testified that because Google's AI overview is included on its SERP, its query volume dwarfs even ChatGPT's.

854. Testimony during the remedies phase of the DOJ Search Action also shows that Google is using the same method to gain and maintain dominance in the AI space through again using defaults and revenue shares. Peter Fitzgerald, in charge of Android distribution agreements at Google, testified that Google had agreements in place with Samsung, Motorola, Verizon, AT&T, and T-Mobile, while they did not require bundling Google Search or default placement for Google products – though Google had considered it and held off at least in part because of the DOJ Search Action – his testimony indicated that Google still offered revenue share, which given Google's and particularly Google Search's size, made it almost irresistible for carriers and OEMs to place Google's AI products on their devices. Perplexity – a company that makes a popular AI

search engine – Chief Business Officer Dmitry Shevelenko ("Shevelenko") described his inability to get his company's product placed as a default on devices because of Google's existing revenue share and default placement agreements, which meant that they would have to give up billions of dollars in revenue share from Google Search if they gave the default slot to another service. He testified, "[w]e kept hitting a wall because they were fearful of losing Google revenue share." Shevelenko also testified that Google had revenue share agreements conditioned on carrying its AI products, as well.

855. In May 2025, *Bloomberg* reported that the DOJ is investigating Google's recent deal with Character.ai for potential antitrust violations. According to *Bloomberg*, "Antitrust enforcers have recently told Google they're examining whether it structured an agreement with the company known as Character.AI to avoid formal government merger scrutiny, said the people, who asked not to be identified discussing the confidential probe. In a deal with Google last year, the founders of the chatbot maker joined the search firm, which also got a non-exclusive license to use their venture's technology." The report further states, "The Justice Department civil investigation ramps up antitrust scrutiny on Google following federal court rulings that the company had illegal monopolies in the online search and advertising technology markets."

G. Courts Have Criticized Alphabet and Google for Their Failure to Preserve Evidence and for Their Improper Assertions of Attorney-Client Privilege

856. In the course of the numerous antitrust litigations, Google's disturbingly obstructive discovery practices have come to light. Numerous courts in these cases have criticized Google and Alphabet for their failure to preserve evidence, through improperly keeping the default setting of internal business chats on a 24-hour automatic deletion process, and for improperly asserting attorney-client privilege to shield communications from scrutiny.

857. The Board is responsible for overseeing the Company's litigation and litigation conduct. These widespread failures that numerous courts have outlined reflect that the Alphabet Board and management breached their fiduciary duties, failing to oversee how management and other Google employees complied with its document preservation obligations by ignoring red flags demonstrating problematic practices regarding evidence preservation and avoidance of spoliation.

The red flag risk heightened as the numerous antitrust litigations proceeded, when Google, through its attorneys, were warned repeatedly about their failures to ensure the proper preservation of communications and about widespread over-designation of attorney-client privilege for internal communications.

858. The Board also has direct knowledge of the chat preservation and attorney-client-privilege overmarking issues because Sundar Pichai, Alphabet's CEO, and a Board member, has testified as to his knowledge of these practices. He has testified and been shown documents concerning how he has asked chats to have the history turned off, as well as testified as to how he marked emails as "attorney client privileged" because he did not want them forwarded, rather than because he was expressly seeking legal advice.

859. Furthermore, the memorandum concerning chat and attorney-client privilege marking that multiple courts have criticized was a company-wide memorandum that the Board directors and senior employees all would have been aware of. The Board would also have had direct knowledge of this memorandum, and owing to Alphabet's relatively low Board turnover, a majority of the directors on the current Board would have seen this memorandum.

860. Judge Donato, who oversees the numerous Google Play antitrust litigations, was especially critical of Google and Alphabet's practices, which continued even after Google was on notice that various actors would sue over antitrust violations, and therefore, had an obligation to preserve all evidence – necessitating switching the setting of its internal chats from automatically deleting to automatically preserving. But Google did not make these changes. Judge Donato called it the worst discovery misconduct he had ever witnessed.

861. Judge Donato was especially frustrated because he had already reached a written decision with findings of fact and conclusions of law at an earlier stage in the proceedings concerning Google's failure to preserve relevant evidence. A March 28, 2023 ruling sanctioned Google by ordering it to pay plaintiffs' attorneys' fees and costs for bringing the motion to sanction (which included briefing and two days' worth of evidentiary hearings, as well as argument). In sanctioning Google, the Court observed how the sanctions motion was prompted by how, in the

course of discovery, "[i]n April 2021, plaintiffs asked Google about a curious lack of Chat messages in its document productions. In October 2021, Google said that Google Chats are typically deleted after 24 hours, and that Google had not suspended this auto-deletion even after this litigation began. Google chose instead to let employees make their own personal choices about preserving chats."

862. After finding that Google is a sophisticated actor, that chats were used in routine business communications, and that Google had the technical ability to turn the chat history "on" by default, the Court concluded, "[t]he record establishes that Google fell strikingly short" in its duties to preserve evidence: "As Rule 37 indicates, the duty to preserve relevant evidence is an unqualified obligation in all cases. The Court's Standing Order for Civil Cases expressly spells out the expectation that 'as soon as any party reasonably anticipates or knows of litigation, it will take the necessary, affirmative steps to preserve evidence related to the issues presented by the action, including, without limitation, interdiction of any document destruction programs and any ongoing erasures of e-mails, voice mails, and other electronically-recorded material.'" The Court also found that "Google clearly had different intentions with respect to Chat, but it did not reveal those intentions with candor or directness to the Court or counsel for plaintiffs."

863. The Court further found: "Google has tried to downplay the problem and displayed a dismissive attitude ill tuned to the gravity of its conduct. Its initial defense was that it had no 'ability to change default settings for individual custodians with respect to the chat history setting,' but evidence at the hearing plainly established that this representation was not truthful." Moreover, "The Court has repeatedly asked Google why it never mentioned Chat until the issue became a substantial problem. It has not provided an explanation, which is worrisome, especially in light of its unlimited access to accomplished legal counsel, and its long experience with the duty of evidence preservation."

864. "Another major concern" that the Court had was "the intentionality manifested at every level within Google to hide the ball with respect to Chat. As discussed, individual users were conscious of litigation risks and valued the 'off the record' functionality of Chat." And while

"Google automatically preserves all emails from relevant custodians without requiring any individual action[,] . . . Google took the opposite course with Chat, and gave each employee carte blanche to make his or her own call about what might be relevant in this complex antitrust case, and whether a Chat communication should be preserved." The Court also found, "Google aggravated the situation by intentionally deciding not to check up on employee decisions to ensure that relevant evidence was being preserved. In effect, Google adopted a 'don't ask, don't tell' policy for Chat preservation, at the expense of its preservation duties."

865. Thus, the Court held: "Google did not take reasonable steps to preserve electronically stored information that should have been preserved in the anticipation or conduct of litigation. . . . The Court concludes that Google intended to subvert the discovery process, and that Chat evidence was 'lost with the intent to prevent its use in litigation' and 'with the intent to deprive another party of the information's use in the litigation.'"

866. The Court also concluded that the plaintiffs were prejudiced by Google's practices because "relevant, substantive business communications were made on Chat that plaintiffs will never see, to the potential detriment of their case." And as a remedy, while "[t]he determination of an appropriate non-monetary sanction requires further proceedings[,]" the Court found "it is entirely appropriate for Google to cover plaintiffs' reasonable attorneys' fees and costs" for bringing the sanctions motion.

867. At the conclusion of the trial, the Court was even more disturbed by Google's discovery misconduct. The Court ordered Kent Walker, Google and Alphabet's CLO, to testify as to document retention policies. At the close of the trial, in granting a permissive adverse inference jury instruction, the Court observed, that Walker's testimony "did not do anything to assuage my concerns[]" and was "evasive." The Court further emphasized, "[a]ll of this presents the most serious and disturbing evidence I have ever seen in my decade on the bench with respect to a party intentionally suppressing potentially relevant evidence in litigation. I have just never seen anything this egregious." The Court further stated, "[a]nd my concern, as every judge's concern would be, is motivated by the fact that this conduct is a frontal assault on the fair

administration of justice. It undercuts due process and it calls into question the just resolution of legal disputes. It's antithetical to our system." While the Court found that "it would be well within bounds to issue a mandatory inference instruction," the Court declined to do so in deference to the jury deciding the issue for itself.

868. But in addition, the Court promised to "pursue these issues on my own outside of this trial in subsequent proceedings, which I intend to do. I am going to get to the bottom of who is responsible among outside counsel for allowing this to happen. I'm going to get to the bottom of who is responsible within Google for tolerating this culture suppression. That's going to be separate and apart from anything that happens here, but that day is coming."

869. Judge Mehta, who adjudicated the DOJ Search and Colorado AG Actions, was similarly disturbed, and criticized Google's practices. Judge Mehta declined to create an adverse inference or impose other sanctions because he already found liability against Google, and thus felt that additional sanctions were unnecessary. Nevertheless, the Court cautioned that its "decision not to sanction Google should not be understood as condoning Google's failure to preserve chat evidence. Any company that puts the onus on its employees to identify and preserve relevant evidence does so at its own peril. Google avoided sanctions in this case. It may not be so lucky in the next one."

870. Judge Brinkema similarly criticized Google's practices and reserved her judgment on how Google's practices would impact her decision. At an August 27, 2024 hearing on a motion for an adverse inference due to spoliation, the Court sharply criticized Google's chat retention practices: "There are a whole bunch of problems with how Google approached the preservation of evidence in this case. I mean, the Walker memo of course goes back to before litigation was actually started, but there's incredible smoking guns within that document. I mean, there's a clear recognition, you know, 'as you know, Google continues to be in the midst of several significant legal and regulatory matters, including government review of our deal with Yahoo.' And then it goes on. And then – you know, so it sets the setting for an argument that there was definitely a very clever approach to try to hide relevant information going back to 2008." Judge Brinkema

further observed, "And then my concern from the record of this case . . . which talks about the litigation hold and the incredible delay in which various witnesses were notified about that litigation hold. Because that has a huge impact, given the fact that there was this automatic deletion as to chat messages that just indicates that an awful lot of evidence has likely been destroyed."

871. Judge Brinkema also pushed back on Google's counsel's argument concerning how the Walker memo is from 2008: "Well, the [Walker memo was] from before this case was filed, but it recognizes that even back then, Google was being looked at by regulators. . . . [I]t is wise to tell your people, hey, the government's going to be looking at us, we want to make sure that sensitive information is not kept, because if it's kept, then we might have – in fact, it says that in the memo, our discovery obligations, we have to turn it over. . . . [I]t's not saying to them directly, destroy any relevant evidence; it's sort of a wink and a nod. But, I mean, it's clearly giving a message to employees that there are different ways of communicating this particular way through the chats we can kind of control. And corporation-wide, there was this default put in, as I understand it. So if you were involved in a chat and you're a Google employee, there was automatically a default that that conversation would be destroyed within a few hours unless the employee did something. So you put the burden on the ordinary employee to decide whether or not that particular chat needed to be preserved, and, even then, the length of preservation, as I understand it, the max was, what, 18 months."

872. Judge Brinkema also observed that improper guidance was being provided for how to invoke attorney-client privilege, that in a "Communicate with Care" presentation, "you've got some examples here of where [the attorney/client privileged] heading was put on, I think the president of Google, some of his emails, that absolutely would not be calling for a legal opinion." She further observed, "I've looked at the record of this case. I've also looked at the California-related litigation where there was a clear finding by the judge there. . . . He did give the jury a spoliation instruction. And of course Judge Mehta also had the issue presented, also made, you know, obviously some findings but did not actually have to use a spoliation decision in reaching the decision ultimately that he reached."

873. Judge Brinkema concluded: "I certainly do not mind saying right now from the bench that the policy – the Communicate-with-Care policy, in my mind, is not the way in which a responsible corporate entity should function. Slapping on the – you know, attorney on email – in many cases routine email messages just to be able to throw up a smoke screen of, you know, attorney-client privilege is, in my view, a clear abuse of the privilege. . . . [T]his approach, putting the attorney communication business on almost all communications that are at all sensitive is absolutely inappropriate and improper, and I would draw inferences from that." The Court further concluded, "I do not understand, frankly, why the history-on/history-off default concept was not changed as soon as Google realized that it was going to be truly under the gun. I mean, I understand why they did it, but it was a foolish decision. I think that should have been changed quickly. . . . So certainly, as you call your witnesses, this will be an issue that the Court will take into consideration in evaluating the credibility of that witness. Whether I have to make a formal spoliation decision at the end of the day, I'll wait and see how all the evidence comes in, but I think this was very serious – this record creates a very serious problem for Google in terms of how much credibility the Court will be able to apply. Intent is a serious issue in this case, and I think it's going to be a problem given this history."

874. As referenced above, in her May 2025 decision finding liability, Judge Brinkema repeated her criticisms of Google's chat retention and attorney-client-privilege marking practices. She wrote, "Google's systematic disregard of the evidentiary rules regarding spoliation of evidence and its misuse of the attorney-client privilege may well be sanctionable." While the Court declined to impose sanctions because it already found liability, it warned, "As in Google Search, the Court's decision not to sanction 'should not be understood as condoning Google's failure to preserve chat evidence.'"

875. Plaintiffs have moved for sanctions in the Texas AG Action. Supporting evidence includes:

a) Ex. 1 to the Plaintiff States' Motion for Spoliation Sanctions (Texas AG Action, ECF No.752) ("Texas AG Action Spoliation Motion") is an email from Matthew Drake to

Bill Coughran and Kent Walker asking: "Is there a way to override the 'corporate default setting' so that all chats I'm part of are On the Record by default? I rely pretty heavily on chat history for day-to-day work since it is used interchangeably with email and I lookup the same sorts of information I'd find in my email (links, decisions we made, how to do things, etc)[.] If the corporate default setting of 'off the record by default' means that every single chat I am part of I'll need to 'Go on the record' for, that'll be a huge decrease in my productivity + a ton of time spent clicking the same checkbox. This may make sense as a corporate default but definitely not as a default for myself." This was in response to Coughran and Walker's memo telling Googlers to take more care about their communications and avoid using chat:

> Googlers –
>
> As you know, Google continues to be in the midst of several significant legal and regulatory matters, including government review of our deal with Yahoo!, various copyright, patent, and trademark lawsuits, and lots of other claims. Given our continuing commitment to developing revolutionary products and doing disruptive things, we're going to keep facing these kinds of challenges. So we've got two requests of you and one change to announce.
>
> First, please write carefully and thoughtfully. We're an email and instant-messaging culture. We conduct much of our work online. We believe that information is good. But anything you write can become subject to review in legal discovery, misconstrued, or taken out of context, and may be used against you or us in ways you wouldn't expect. Writing stuff that's sarcastic, speculative, or not fully informed inevitably creates problems in litigation. In your communications, please avoid stating legal conclusions.
>
> Speculation about whether something might breach a complex contract, or whether it might violate a law somewhere in the world, is often wrong and rarely helpful. So please think twice before you write about hot topics, don't comment before you have all the facts, and direct questions regarding continuing litigation holds and any legal and/or regulatory matters involving Google to the friendly (albeit lawyerly) folks at litigation-hold@google.com[.]
>
> Second, remember that these same rules apply not just to Gmail but also to Google Talk and all other forms of electronic communication (for example wiki's, doc's, spreadsheets, etc.). We end up reviewing millions of pages of these communications as part of producing documents in regulatory and

> litigation matters – and we're working together to streamline and simplify that process.
>
> To help avoid inadvertent retention of instant messages, we have decided to make 'off the record' the Google corporate default setting for Google Talk. We'll also be providing this option to our Google Apps enterprise customers. You should see this new default setting taking effect over the next few days. You will still be able to save Talk conversations that are useful to you – but please remember that "on the record" conversations become part of your (more or less) permanent record and are added to Google's long-term document storehouse. If you've received notice that you're subject to a litigation hold, and you must chat regarding matters covered by that hold, please make sure that those chats are "on the record."
>
> Finally, remember that even when you're "off the record", your chat partner may be recording the conversation, so always take care with what you write.
>
> Thanks for your help and understanding on this. Let one of us know if you have any questions.
>
> Bill Coughran
> Kent Walker

b) Ex. 3 to the Texas AG Action Spoliation Motion includes excerpts from the deposition of Defendant Sundar Pichai. Pichai admitted that Google Chat would be used for regular workplace communications: "Q. All right. Now, is it also true that Google used Chat for purposes including anything sensitive? A. We definitely use Chat for regular communication as part of our ongoing work." He also admitted, "I assume people are using Chat for business communications, yes, and which would include sensitive communications." He also admitted that he understood that Google employees "used Chat to discuss and delete substantive business topics, including antitrust matters" and that it was "not something [he would] approve of[.]" With respect to the Coughran and Walker memorandum discussed above, Pichai admitted, "[a]s a CEO, when I looked at it [in preparation for this deposition], you know, I think that I would have been – I may have worded portions of the document clearly differently."

c) Ex. 4 to the Texas AG Action Spoliation Motion is a 30(b)(6) deposition regarding document retention policies, the corporate representative, who is the information governance lead, testified that: in the absence of a litigation hold, a chat will be retained in Google's system for a maximum of 18 months; Retention can also be as short as 30 days, or even 24 hours and when a chat is no longer retained, it is deleted. Furthermore, he confirmed that "for a chat to be retained at all by Google, . . . it requires . . . history to be on[.]" He also confirmed that every message in a chat prior to history being turned on will not be retained. He also testified, "if history is off and a message is sent, even within that 24-hour period, Vault does not have access to that message. So if a legal hold is issued 12 hours in, it's not going to be able to retain that message that was sent in the history-off state, because it doesn't have access to that message." Moreover, he also testified, "History off is [sic] equals 24 hours, never available to Vault." He also testified that emails are subject to a different policy, and are retained for 18 months and that once an employee is on a litigation hold, they cannot adjust the email retention. He also affirmed that it was "[c]orrect" that "Google relies entirely on individual employees to decide which of their one-on-one or group chats will be preserved."

d) Ex. 6 to the Texas AG Action Spoliation Motion is a presentation, "YOU SAID WHAT?! 10 THINGS TO ENSURE YOU ARE COMMUNICATING WITH CARE," where the first slide reminds, "At Google, We are constantly in the public eye … and the courthouse. We often have to produce employee communications as evidence, which means your communications can become public at any time. Our communications can hurt or embarrass us as a company, or as individuals. We need to be cautious in our communications to avoid unnecessary harm." The presentation then proceeds with illustrating several "rules[,]" including:

i. "Rule 01" is "Communicate as If It's Public. Assume everything you write, send, share, and say may be subject to public scrutiny at some point (or even

> scrutiny for folks inside the company that monitor communications on our systems and equipment). Treating it that way will save you a lot of hassle."

876. In "Rule 04," the presentation urges, "Stick to the Facts. I'm sure you've heard this *a million times* and think folks working at *a company that employees only the smartest people in the world* would *never, ever* get this wrong, but exaggeration, sarcasm, and hyperbole increase the risk that someone could accidentally, or intentionally, misconstrue the meaning of your communication." [Emphasis in original]. In the answer to another activity, the presentation cautions, "[t]he words 'exterminating', 'crushing', 'killing', and 'destroying' are exaggerations that often focus on harming a competitor. That's not consistent with Google's competition philosophy and is problematic under competition laws." In response to another prompt about "put[ting a product] in the hands of a few . . . devotees" draws, "Nope. Google wants its customers and users to have the freedom to choose whatever products or services they want. We embrace the challenge of building amazing products and services they will choose. A phrase like 'putting products in the hands of customers' can be interpreted as expressing an intent to deny consumers choice." And in response to a prompt about "grind[ing a competitor] into the dirt[,]" the presentation states, "Nope. Competing fairly is about focusing on the user, not harming competitors."

877. "Rule 07" states: "'Privileged and Confidential' ... What?" – "While phrases like 'confidential,' 'sensitive,' and 'private' may alert Googlers to the sensitivity of your communication, they won't protect it from being disclosed in the course of a legal or investigative matter, as would be the case if it were protected by the attorney-client privilege. Attorney-client privilege is a legal concept that protects a confidential communication between a Googler and a Google lawyer that is about the Googler asking for or getting legal advice from the Google lawyer. Privilege can apply not only to emails, but to any record of a communication between a lawyer and client. This can include Google docs, presentations, calendar invites, video- or audio-taped meetings, etc. Communications intended to be privileged should be labeled as such."

878. "Rule 08" – "Kick It Old School." states, "Email, IMs, and Docs are nice and all, but sometimes the best way to communicate something super sensitive is to not write it down. Reduce the risk of your communication being misconstrued or disclosed by having an old-fashioned phone call or face-to-face meeting. Also, carefully consider whether you should be recording a team meeting, talk, or Hangout where sensitive information is being shared."

879. "Rule 10" states "Think… Then Speak." – "Your communications can have unintended consequences for you and the company. Think carefully before you speak publicly about anything related to Google. Understand that unless you're specifically authorized to speak on behalf of the company, you aren't. Even if it isn't your intent to speak on behalf of the company, your status as a Googler makes it likely that your communications will be attributed to Google anyway. Be careful out there." Furthermore, "Avoid Legalese and Uninformed Fault Finding" – "Are you a lawyer? Are you responsible for drawing legal conclusions on Google's behalf? Do you have all the facts? Unless you answered 'yes' to all three questions, avoid communications that conclude, or appear to conclude, that Google or Googlers are acting 'illegally' or 'negligently,' have 'violated a law,' should or would be 'liable' for anything, or otherwise convey legal meaning. Your conclusions could be incorrect and could hurt us." A collage illustrates "Risk Words" to avoid, such as "Unfair," "See You In Court," "Liable," "Force," "Crush," "Negligent," "Kill," "Guilty," and others.

a) Exhibit 8 to the Texas AG Action Spoliation Motion is a chat between Aparna Pappu and a redacted employee, where one employee states, "omg have you heard about the adx thing . . . the lowering of floors[?] . . . [I'm] sick just thinking about it[.]" The two employees then debate over whether a "confidential" conversation should be on "chat" because "this is OTR" or "off the record[.]"

b) Ex. 12 to the Texas AG Action Spoliation Motion is a 2020 chat that discusses a report about Google potentially violating GDPR, and one participant states, "what have you done" – "Sometimes it feels like Johnny Ryan isn't incented to paint a fair picture of the ecosystem" and one participant asks "did you take your 'You said what!?' training

this year? . . . this chat room is on the record . . . I would like to vocally disagree with the comments that have been expressed in this thread and distance myself from the conversation . . . according to the training . . . now you're supposed to leave the room[.]" Another participant also responds, "I too would like to distance myself rom these comments. The comments made by certain individuals on this thread do not reflect the values and beliefs I and the entire Cloud organization stand for."

c) In Ex. 13 to the Texas AG Action Spoliation Motion, Google employees chat about the chat retention policy. One remarks, "History 'on' means 30 days for 1:1 chats, and 18mo for group chats. The 30-day thing has bit me a few times unfortunately." Another remarks in response to the question, "What is the chat history retention policy and is there a way to make it 'forever'?" – "probably not a great idea for a public company unless you want to end up getting deposed a lot [sic]." Another remarks, "30 days is too soon for the 1-on-1 chat links/history but I've got in the habit of stashing the reference links off… part of the Noogler experience . . . (having to ask -again- for that link someone shared a long time ago). [First ellipsis in original].

d) In Ex. 14 to the Texas AG Action Spoliation Motion, other Google employees discuss the chat retention policy. One employee states, "30 days seems far too short. records-retention@google.com is the alias to raise this up to." Another employee states, "30 days is only for 1-1 conversations with history on. It is 18 months for group conversations with history on or for spaces." Another employee states, "chat is not ephemeral . . . it remains potentially useful forever[.]" Another employee responds, "+100 to this. At every one of my previous jobs, it's been the case that people (including myself) have searched / gone back multiple months in 1-1 chat histories in order to find key aspects of prior discussions and conversations. In many cases, the 1-1 chat history is the only summary of something that was discussed in a brief face-to-face conversation (hallways/ lunch tables / video chat etc.). As an example: At PayPal (my previous company), all chat history was preserved for 3 years." Another employee

replied, "it's a risk management issue. . . . One on one chats are more likely to be taken out [of] context, especially as some records age out in other systems. The communication patterns tend to be more hyperbolic and undisciplined." The former PayPal employee responds, "funnily enough, that's exactly why PayPal preserved it for 3 years – philosophy was 'if you're communicating using a company tool, assume it's legally discoverable.'" Another responds regarding "appetite for risk" – "Understood, though I wish we (Google) had a bigger appetite. I know that I can store important information elsewhere, but I don't always know what is important at the time and I don't want to spend time looking when a solution exists. I've worked in larger organizations that managed this risk. From what I understand, I see this as a detriment to productivity. . . . [A]nd why 30 days? Why not 60, 90? What is important about 30?" Another employee responds, "2 thoughts – 1) We should make it more obvious to the user, eg, where it says "HISTORY IS ON", could add "Messages saved for 30 days" so people know it's not permanent. 2) Offer a way to save chats." Another employee remarks, "part of this is fighting against a culture google itself promulgated starting with gmail. '[N]ever delete anything, archive, archive, archive, then search later" – to which another employee responds, "aside re: Gmail – Google promulgated that externally with Gmail, but it is also worth noting that corp Gmail only lasts for 18 months [unless you explicitly Vault it]. I don't think this is covered in Noogler training and I think a lot of people are surprised by it. It can be particularly challenging for promo situations where some of the useful artifacts are emails and there have been more than 18 months between promos." An employee mentions that "the gmail retention policy is mentioned during orientation. . . . Furthermore 18 months only applies to emails that you have actually opened. Unread emails are dispositioned after 6 months. Drafts are deleted after 30 days. . . . Also, Google has rolled out a new retention policy for Meet video recordings of 90 day retention."

e) Ex. 27 to the Texas AG Action Spoliation Motion is a chat where apappu@google.com complains, "[s]o ABCs it turns out vegas is not vegas. Chat in it's [sic] infinite wisdom does _not_ have a history off option for rooms. That's right. Everything kept forever or until garbage collected which I think for rooms with no activity is 28 days? Nope I lied, it's forever. . . . We need to go through a convoluted set of steps to make a history off group chat in old classic hangouts and then use that here – that's the only way[.]"

f) In Ex. 28 to the Texas AG Action Spoliation Motion is a chat regarding ad tech that starts off with "[i]n-light of the recent DOJ and House committee stuff, I wanted to see something with you all on our DV3 strategy . . . feedback . . . from folks at at DMExco who expressed concern with DV3 growing share of spend going to Google Inventory. . . . In reality, our strategy is to win share in a tool that makes it possible to manage as much media as possible *adjacent* to our media and for our media to capture spend" – another employee stated after some further discussion ensued, "maybe we should discuss this off-the-record, [I] think there[']s a lot to unpack here[.]" Another employee stated a bit further down, "this is the discussion we need to have. . . . [M]y concern is that our strategy is our strategy, but the way we talk about it matters. [W]e can talk about it with nuance based on familiarity over years and years. But when it lands in the hands of execs who don[']t know the nuance or worse – regulators – the nuance really matters[.]" Another then asked, "should we include legal in some of these conversations, for guidance as well as the ability to mark things privileged?" To which another replied, "yes[.]"

g) In Ex. 30 to the Texas AG Action Spoliation Motion, testimony of Christopher LaSala ("LaSala") in the EDVA trial on September 13, 2024, he admits that an "off-the-record ping thread" that he asked to start "is an off-the-record chat[]" and that while he could not recall asking others to take chats off the record, he stated, "[m]y MO was mostly off the record." LaSala admitted that in the context of this request to take a chat off the record, he knew based on a litigation hold that the government was investigating

AdTech and that "documents related to the ad tech business likely would be turned over to the government" and "was covered in the training."

III. GOOGLE FACES NUMEROUS OTHER REGULATORY ACTIONS ALLEGING ANTITRUST OR COMPETITION VIOLATIONS THAT ARE RESULTING IN BILLIONS OF DOLLARS IN DAMAGES TO THE COMPANY

880. The foregoing conduct, in addition to the U.S., state AGs, and private party lawsuits, also resulted in various enforcement proceedings and lawsuits against the Company outside the United States, including in the European Union.

881. Christian Bergqvist, Senior Fellow at the GW Competition and Innovation Lab at George Washington University, has identified more than 100 antitrust cases brought against Google across 23 jurisdictions. In addition to the cases brought by federal and state authorities in the United States, there have been investigations and cases brought by the U.K. Competition and Markets Authority, the Commission, as well as enforcement actions in South Korea, Japan, India, South Africa, Brazil, Australia, and Turkey. Over a three-year period, the Commission fined Google more than €8 billion over three separate competition violations: Google's Shopping search comparison service (€2.4 billion in 2017), anticompetitive agreements and tying relating to Android and the Google Play Store (€4.3 billion in 2018), and AdSense (€1.49 billion in 2019).

882. In May 2021, Google was fined $123 million by Italy's antitrust authority for abusing its dominant market position as it relates to Android Auto, its mobile OS intended for in-car use. In February 2025, the European Court of Justice ruled that Google likely abused its dominance and violated competition laws by refusing to allow an electric vehicle charging app made by Italian company Enel SpA to work with Android Auto. The case has been remanded to the Italian court for a final decision.

883. In September 2021, the Korea Fair Trade Commission ("KFTC") fined Google $177 million for abusing its market dominance in the Android OS market. In April 2023, the KFTC fined Google an additional $32 million for using its market dominance to squeeze out a Korean app store.

884. In October 2022, the Competition Commission of India ("CCI") fined Google $161 million for entering one-sided agreements with smartphone makers to ensure the dominance of its apps, and another $113 million for its anticompetitive Play Store policies.

885. On March 25, 2024, the Commission opened a new investigation into the Company for non-compliance under the Digital Markets Act (DMA) relating to Alphabet's rules on steering in Google Play and self-preferencing on Google Search.

886. The Commission also opened formal proceedings into possible anticompetitive conduct by Google in the online ad tech sector. Importantly, the Commission found that Google has such a stranglehold on ad tech that the EC's concerns could only be addressed if Google sold part of its ad tech services.

887. The Commission preliminarily found that, in this particular case, a behavioral remedy is likely to be ineffective to prevent the risk that Google continues such self-preferencing conducts or engages in new ones. Google is active on both sides of the market with its publisher ad server and with its ad buying tools and holds a dominant position on both ends. Furthermore, it operates the largest ad exchange. This leads to a situation of inherent conflicts of interest for Google. The Commission's preliminary view is therefore, that only the mandatory divestment by Google of part of its services would address its competition concerns.

888. In April 2024, the Japan Fair Trade Commission concluded an investigation into Google after Google agreed to stop restricting the provision of technologies for search engines and search advertising to Yahoo that are necessary for Mobile Syndication Transactions.

889. In February 2025, news reports disclosed that the EC is set to announce charges against Google for violating the Digital Markets Act.

890. Also in February 2025, news media have reported that South Africa will seek to fine Google up to $135 million ($27 million per year over five years) regarding how Google has hindered the ability of news media to acquire and monetize traffic.

891. In March 2025, the EC formally pressed ahead with charges that Google has violated the DMA through its self-preferencing conduct in Search and in the Play Store.

892. In April 2025, the Japan Fair Trade Commission announced that it issued a cease-and-desist order to Google after it found that Google's Android licensing policies violated the country's Antimonopoly Act, and required Google to stop requiring companies to preinstall Google Search and Chrome to gain access to the Play Store, as well as prohibiting preinstallation of its own apps and exclusion of other apps in return for revenue share.

893. In April 2025, a U.K. class action led by Dr. Or Brook was filed against Google, on behalf of hundreds of thousands of advertisers, alleging anticompetitive practices that inflated advertising prices. This action alleges more than £5 billion in damages.

894. In May 2025, Moltiply Group filed an antitrust suit against Google in Italy alleging that Google engaged in unlawful self-preferencing of Google Shopping at Moltiply's expense, and alleged €2.97 billion in damages. Moltiply Group's lawsuit followed the EC's earlier findings and fines concerning Google Shopping, where Google lost its final appeal in September 2024.

895. As of May 2025, the numerous actions arising out of the European Commission concerning Google Shopping allege at least €12 billion in damages.

IV. DERIVATIVE AND DEMAND FUTILITY ALLEGATIONS

896. Plaintiffs bring this action derivatively in the right of, and for the benefit of, Alphabet to redress the breaches of fiduciary duty and other violations of law committed by the Individual Defendants as alleged herein.

897. Plaintiffs are current shareholders of Alphabet and have continuously held Alphabet stock for the duration of the Relevant Period, and will continue to hold Company stock through the resolution of this Action.

898. Plaintiffs will adequately and fairly represent the interests of Alphabet and other Alphabet shareholders in enforcing and prosecuting Alphabet's rights, and Plaintiffs have retained counsel experienced in prosecuting this type of derivative action.

899. Plaintiffs have not made a demand because doing so would be futile for two reasons: (1) the current directors all face a substantial likelihood of personal liability for allowing Alphabet to carry out a vast array of illegal and anticompetitive business plans; and (2) the current

directors cannot assess a claim independently and disinterestedly because of their business ties with one another and the material impact Board compensation has on their income.

900. Demand is futile as to the Board because all current directors face a substantial likelihood of personal liability for condoning illegal anticompetitive practices, including through their refusal to conduct direct oversight over the illegal business plans described herein even as it became increasingly apparent that regulators would bring enforcement actions against the Company based on investigations into the myriad anticompetitive practices described herein. Furthermore, all current directors were on the Board by the time regulators began to investigate and eventually filed the antitrust actions described herein.

901. Page and Brin are the co-founders of Google and face liability for their actions in authoring and directing the illegal and anticompetitive business plans described herein. In addition, Page and Brin together control who sits on the Board due to their majority voting power.

902. Hennessy, Doerr, and Shriram cannot independently assess a litigation demand against Page and Brin because of their longstanding business relationships with them. Arnold and Washington are not independent because the Board compensation they receive forms a material part of their income. And Pichai cannot be independent of Page and Brin due to his position as an Alphabet employee and because of his own exposure to liability for the wrongdoing described herein.

903. Shriram was one of four initial angel investors in Google, and a founding director of the Board. During Google's earliest days, he held weekly meetings with Page and Brin, helped incorporate the Company, and assisted with a licensing agreement with Stanford University ("Stanford") regarding the search algorithm Google was based on. His close friendship with Page and Brin is also evident in how he jointly licenses the use of Moffett Airfield with them (along with Schmidt). Due to his early investment in Google, he has made hundreds of millions to billions of dollars. Shriram also has extensive ties to Stanford, where Page and Brin had their start, and has served as a member of Stanford's Board of Directors since 2009. Institutional proxy advisor ISS also views Shriram as being too tightly connected to the Company and its founders to be

considered an independent director. His monetary gains from his investments and his mentorship of Page and Brin render him unable to independently assess a litigation demand against either.

904. Doerr is also one of the earliest investors in Google and, along with Page, Brin, and Schmidt, holds Class B shares which give him disproportionate voting power. When Doerr was the head of Kleiner Perkins, he decided to recruit Schmidt to Google's CEO position. Doerr also serves as a long-time mentor for Page and Brin. Kleiner Perkins also has numerous investments with Google and affiliated entities controlled by Page and Brin, including approximately $40 million within the last year alone, according to Alphabet's latest annual proxy statement. Doerr has also personally made hundreds of millions or billions of dollars from his investment in Google. The institutional proxy advisor ISS also views Doerr as not being independent because his long-term relationships, monetary gains from investment in the Company, and other investments render him unable to independently assess a litigation demand against Page or Brin.

905. Hennessy is also not independent on numerous grounds. Hennessy was a mentor for Page and Brin at Stanford. He also served as Stanford's President from 2000 to 2016, benefitting immensely from Stanford's association with Google and its founders as Google made significant contributions to Stanford. Hennessy was appointed to Google's Board shortly before its initial public offering in 2004, due in large part to the urging of Doerr. Hennessy also personally invested in Kleiner Perkins. In addition, before Google's initial public offering, Hennessy was granted 65,000 options to buy Google stock at a price of $20. Hennessy additionally received over 10,000 shares of Google stock pursuant to his Kleiner Perkins investment, and has personally made over $8 million through his sales of Google stock – an amount material to Hennessy's personal wealth. As Stanford's president, Hennessy also benefits from Alphabet's (and previously Google's) generous university grants (approximately $38 million annually), which involve Hennessy's personal involvement as the President of Stanford. In addition to the personal shares of Google stock Hennessy was granted, during Google's initial public offering, Stanford received shares of Google stock that it has since sold for $336 million. Stanford also continues to receive annual licensing fees as a result of the relationship that the foregoing Stanford alumni have with

Stanford. Hennessy's mentorship of Brin and Page, the monetary compensation he has received via Google and via his nexus between Google and Stanford, and the personal wealth Hennessy has created through Google stock, renders him incapable of independently assessing a litigation demand against Brin and Page.

906. Arnold is not independent because her directorship contributes materially to her income. She was granted a stock award of $1,000,000 upon her election to the Board, which constitutes perhaps three times her annual salary as a professor at the California Institute of Technology. Her annual stock award of $350,000 also likely exceeds her annual salary.

907. Similarly, Washington is not independent because her directorship contributes materially to her income. Since she retired as CFO of Gilead Sciences, she has devoted her time to serving on several boards. Her latest Alphabet Board earnings were $427,320 in a year. By comparison, Washington's other annual earnings from other boards are: $414,829 from Salesforce.com, $369,230 at Honeywell International Inc., and $254,999 at Vertiv Holdings Co. Thus, her Alphabet Board earnings constitute almost one third of her annual earnings and are therefore material. Furthermore, upon her appointment to the Board in 2019, she received a $1,000,000 stock award; her compensation at Gilead was approximately $6.3 million in 2019, and therefore, her initial grant at Alphabet would have constituted more than 10% of her annual earnings that year and are therefore material to her.

908. Pichai cannot independently assess a litigation demand because he is employed by Alphabet. Unlike many CEOs, and like virtually all Alphabet employees, Pichai does not have an employment agreement, but instead serves at Brin and Page's pleasure. Pichai's job thus is dependent on his remaining in the good graces of the Board as a whole, and Brin and Page in particular, with their majority voting share. Pichai's rapid promotion through Alphabet also was largely the result of his working relationship with Page, and his promotion to Alphabet CEO was largely the result of Brin and Page agreeing to step aside and allow him to assume certain executive functions. Moreover, due to his senior executive status at Alphabet, Pichai is personally implicated

in the monopolistic and anticompetitive conduct described herein. Pichai, therefore, cannot independently assess a litigation demand.

V. CONTROL ALLEGATIONS

A. Alphabet Is Controlled by Brin, Page, Schmidt, and Pichai

909. Alphabet's subsidiary and predecessor, Google, was founded by Defendants Brin and Page. The two have been close friends since they first met at Stanford in 1995. The two worked together on their first search engine and continue their collaboration today. Defendants Brin and Page also remain key figures in Google's development and business strategy, which they have steered since its founding. Brin and Page have also both been directors and controlling shareholders of Google since its founding, in addition to their executive positions.

910. Brin and Page further draft an annual "Founders' Letter" to investors, describing their vision for the Company. In their initial letter, included with Google's Registration Statement, Defendant Page wrote that, "Sergey and I intend to write you a letter like this one every year in our annual report. We'll take turns writing the letter so you'll hear directly from each of us." The formation of Alphabet did not change the role that Brin and Page take for the Company, as reflected in the following statement from the 2015 Founders' Letter written by Page: "you should expect that Sundar, Sergey, and I will use this space to give you a good personal overview of where we are and where we are going."

911. Schmidt also has had a significant role at the Company, serving at the highest levels of Google and Alphabet. He was Google's CEO from July 2001 to April 2011. He was also Chairman of Google's Board from March 2001 to April 2004 and from April 2007 to April 2011. He also served as the Executive Chairman of Alphabet's Board from April 2011 to January 2018.

912. Indeed, Brin, Page, and Schmidt have themselves explicitly stated that they are uniquely in control of Alphabet. As the first Founders' Letter to shareholders, included in Google's Registration Statement for its 2004 IPO, discloses, "[w]e run Google as a triumvirate." They further explain, "[t]he three of us run the company collaboratively with Sergey and me [Page]

as Presidents." The first Founders' Letter further recognizes that the "structure is unconventional," but that "we have worked successfully in this way."

913. The 2004 Founders' Letter also included further information about the unique impact and control that Brin, Page, and Schmidt exert over the Company. It stated, "[t]o facilitate timely decisions, Eric, Sergey and I [Page] meet daily to update each other on the business and to focus our collaborative thinking on the most important and immediate issues." The letter further stated, "[d]ecisions are often made by one of us, with the others being briefed later. This works because we have tremendous trust and respect for each other and we generally think alike." In addition, the letter stated, "Eric, Sergey, and I [Page] run the company without any significant internal conflict, but with healthy debate. As different topics come up, we often delegate decision-making responsibility to one of us." The letter further stated that, "Eric, Sergey and I [Page] intend to operate Google differently, applying the values it has developed as a private company to its future as a public company," also reiterating that the three would "run the company collaboratively with Eric, our CEO, as a team of three."

914. Brin, Schmidt, and Page have overseen each and every one of the Company's major decisions and launches, together with other high-ranking executives known as Alphabet's operating committee (the "OC," later renamed the "L Team," short for Larry [Page]'s Team). The OC is a management-level committee consisting of over a dozen Google executives who advise Google's co-founders and CEO on the Company's strategic direction and all-important decision-making, including acquisitions, major contracts, and new product launches.

915. The powerful "triumvirate" of Brin, Page, and Schmidt also exerts control over Alphabet through their dominant stock holdings. The three dominate Alphabet's voting rights, with majority voting power. Brin, Page, and Schmidt, respectively, have 26.3%, 25.3%, and 4.5% of total voting power at Alphabet, a dominating 56.1% of total voting power (Schmidt also owns significantly more shares of Alphabet stock through a limited partnership and a living trust, which he controls as general partner and as co-trustee, respectively). The Company also openly acknowledges the influence of these individuals, touting it as a strength. For instance, in the

Company's proxy statement for 2016, it stated, "[w]e believe that our success is owed in large part to the leadership and vision provided by Larry, Sergey, and Eric E. Schmidt," and that, "[t]hrough their leadership and focus on innovation and long-term growth, we have established a track record of building a strong company and creating stockholder value." Similarly, the Company stated in its Form 10-K for fiscal year 2015 that Brin, Page, and Schmidt, "have significant influence over management and affairs and over all matters requiring stockholder approval, including the election of directors and significant corporate transactions . . . for the foreseeable future."

916. While Schmidt retired from Alphabet's Board in early 2020, the Company is still run by a triumvirate, with Pichai taking Schmidt's place. Brin and Page remain on Alphabet's Board, and Pichai has assumed the CEO position of Alphabet in addition to having served as Google's CEO since 2015.

B. Brin, Page, Schmidt, and Pichai Directed and Oversaw the Company's Anticompetitive Business Practices

917. Alphabet's controlling shareholders, Brin, Page, and Schmidt, have directly overseen and instituted a series of anticompetitive business practices for virtually every market in which Alphabet transacts business, using dominance in one product category to gain more in the next and reinforce its monopolies. Pichai, Google's CEO since 2015 and Alphabet's CEO since 2019, also oversaw, instituted, and executed such anticompetitive practices.

918. Defendant Page, one of the founders of Alphabet and a director since 1998, served as CEO from April 2011 to December 2019. Prior to that time, Page served as Google's President, Products, from July 2001 to April 2011. As CEO with a background in the Company's Products division, Page had intimate involvement in all aspects of the Company's business strategy and has shown no qualms about engaging in illegal conduct. For instance, in August 2011, federal prosecutors who had investigated Alphabet's practice of allowing illegal online pharmacies on its Web search engine between 2003 and 2009 singled out Page as a primary violator. Prosecutors said Page had personal knowledge of the alleged crime and failed to prevent it, leading to Alphabet paying $500 million to avoid criminal charges. Page has also been a primary reason why the Company has exploited its dominance in search in other areas. As Jordan Rohan, an analyst at

Stifel, Nicolaus & Co., remarked in August 2011, "[i]t's clear that Larry Page isn't satisfied with Google's dominant position in Web search and intends to broaden the areas of dominance," even though that was inviting more government scrutiny and "bumps in the road."

919. Defendant Brin, one of Alphabet's founders and a director since 1998, has served as President from 2001 to 2019. Like Page, Brin, too, has not been shy to directly implicate himself in violations of antitrust laws. During his time as President, Brin was intimately involved in executing the Company's anti-poaching practices. According to e-mails unearthed in the Anti-Poaching Action; to wit: *In re: High-Tech Emp. Antitrust Litig.*, No. 5:11-cv-02509 (N.D. Cal. 2011), Defendant Brin took a hands-on approach in assuring Apple's employees would not be actively solicited by Alphabet – a clear violation of black letter antitrust law. At the insistence of Brin, Alphabet agreed to enter into an anti-poaching agreement with many competitors, entitled, "Special Agreement Hiring Policy: Protocol for 'Restricted Hiring,' 'Do Not Cold Call,' and 'Sensitive Companies.'" The Special Agreement Hiring Policy listed nine companies that the Company should not "Cold Call" – *i.e.*, an explicit agreement not to solicit employees from other companies.

920. Defendant Schmidt has also commanded a significant role as both an executive and director of Alphabet. He served as Executive Chairman of the Board from April 2011 to January 2018, and, prior to that, served as CEO from July 2001 to April 2011. During his time as CEO, Defendant Schmidt had intimate involvement in the Company's anticompetitive business practices, e-mailing other company executives to discuss the illegal hiring practices. One of his emails even noted that he "would prefer that [an employee] do it verbally since I don't want to create a paper trail over which we can be sued later[.]"

921. Defendant Schmidt also had personal knowledge of the illegal practices alleged herein. While acting as CEO, Defendant Schmidt was called to testify before the Senate Antitrust Subcommittee regarding the Company's practice of favoring its own products over other company's products in its search results. During that testimony, Defendant Schmidt openly admitted that Alphabet has monopoly power in the area of general search. Defendant Schmidt

also fielded many questions regarding the Company's illegal practices. Rather than view these practices as problematic, Defendant Schmidt basically took the position that absent a court order reprimanding Alphabet for its business practices, the Company would continue to engage in the misconduct.

922. Defendant Pichai has also had personal knowledge of the illegal practices alleged herein. According to the House Judiciary Committee Report referenced in footnote 2, *supra*, Pichai was instrumental in encouraging cross-promotion of Chrome and Google Search, thus reinforcing the dominance of both, engineering and protecting the dominance of Google Search in Android-supported devices, directing the surveillance of competitor products, meeting with Apple's CEO, Tim Cook, to discuss how they could drive revenue growth, and executing on data collection from DoubleClick. As Pichai ascended the ranks at Google and Alphabet, he was known for his loyalty to the founders – for example, being called Page's "interpreter."

923. Defendants Page, Brin, Schmidt, and Pichai have all exhibited a willingness to openly and actively flaunt antitrust laws in the past. Their roles as controlling shareholders and executives of the Company are the primary driver of Alphabet's illegal business practices. Given the out-sized role of Page, Brin, Schmidt, and Pichai at Alphabet or Google, their presence on the Board, and their roles as controlling shareholders, the Board went along with the illegal business practices and sat idle as these individuals fostered a top-down culture that ignored antitrust laws.

C. The Board Fails to Challenge the Anticompetitive Conduct Orchestrated by Brin, Page, Schmidt, and Pichai

924. As a result of the triumvirate's dominance, the Board, beholden to Page, Brin, and Schmidt (and after Schmidt's retirement, Pichai), caused or failed to prevent Alphabet from engaging in a breathtaking array of illegal and anticompetitive business practices involving Alphabet's core products and services. As described above in Section II, the Board left the Company rudderless as Alphabet's monopolistic practices spread across an ever-increasing number of its product and service offerings.

925. The Board's lack of oversight was part of Google and Alphabet's long-engrained culture, a lesson taught by their long-term executive coach, the late Bill Campbell ("Campbell").

Schmidt reported, in a book about Campbell, that at one point early in Google's history, Shriram asked for more details regarding mounting losses at Google. But Campbell reassured Shriram that he need not be concerned with details because Google had the "right team in place" and was "working on the problem." Shriram was placated and then did not focus on "the problem analytically[,]" but instead focused on "the people on the team and if they could get it done."

VI. DAMAGES TO THE COMPANY

926. As a direct and proximate result of the Individual Defendants' breaches of fiduciary duty, Alphabet has engaged in the anticompetitive practices alleged herein. These illegal business practices violated U.S. antitrust law, with untold and potentially severe damages and remedial measures at stake.

927. As a direct and proximate result of the Individual Defendants' actions, Alphabet has expended, and will continue to expend, significant sums of money, including, but not limited to, costs incurred from:

a) fines paid to the United States for violations of U.S. antitrust law;

b) substantial legal fees incurred by the Company in responding to the litany of government investigations spawned by its anticompetitive conduct;

c) increased regulatory scrutiny of new products and services;

d) increased damages due to the Company's continued violations of antitrust law;

e) costs related to implementing any corrective and/or remedial measures as a result of the regulatory actions currently pending against the Company;

f) defending, settling, or paying any adverse judgment from any other legal actions pertaining to the Company's anticompetitive business practices described herein; and

g) compensation and benefits paid to the Individual Defendants at the time they were breaching their duties to Alphabet and its shareholders.

928. Finally, Alphabet's business, goodwill, and reputation have been, and will continue to be, severely damaged by the Individual Defendants' decision to allow and/or failure to prevent the Company's systemic violation of U.S. antitrust law.

CLAIMS FOR RELIEF

COUNT 1 Breach of Fiduciary Duty (Against the Individual Defendants in Their Capacity as Directors)

929. Plaintiffs incorporate by reference and realleges each and every allegation set forth above as though fully set forth herein.

930. The Individual Defendants owed and owe Alphabet the highest fiduciary obligations of loyalty and good faith in managing the Company's affairs.

931. The Individual Defendants violated and breached their fiduciary duties of good faith and loyalty. Specifically, the Individual Defendants violated their duties of good faith and loyalty by willfully ignoring the obvious and pervasive anticompetitive business practices occurring at the Company, the complete absence of internal controls in place to examine and correct those practices and prevent their recurrence, and failing to make a good faith effort to bring the Company into compliance with prevailing positive U.S. antitrust law, ultimately leading to the vast array of the illegal conduct complained of herein.

932. As a direct and proximate result of the Individual Defendants' foregoing breaches of fiduciary duties, the Company has suffered significant damages and will continue to suffer, as alleged herein.

933. Plaintiffs, on behalf of Alphabet, have no adequate remedy at law.

COUNT II Breach of Fiduciary Duty (Against Brin, Page, Schmidt, and Pichai in Their Capacity as Officers)

934. Plaintiffs incorporate by reference and realleges each and every allegation contained above as though fully set forth herein.

935. Defendants Brin, Page, Schmidt, and Pichai owed and owe Alphabet the highest obligations of loyalty and good faith in managing the Company's affairs.

936. Defendants Brin, Page, Schmidt, and Pichai violated and breached their fiduciary duties of good faith and loyalty. Specifically, Defendants Brin, Page, Schmidt, and Pichai violated their duty of good faith and loyalty by creating a culture of lawlessness within Alphabet and

directing and carrying out monopolistic and anticompetitive business plans for a vast array of Alphabet products and services, outside the bounds of positive U.S. antitrust law.

937. As a direct and proximate result of these breaches of fiduciary obligations, the Company has suffered significant damages and will continue to suffer, as alleged herein.

938. Plaintiffs, on behalf of Alphabet, have no adequate remedy at law.

COUNT III Breach of Fiduciary Duty
(Against Brin, Page, Schmidt, in Their Capacity as Controlling Shareholders)

939. Plaintiffs incorporate by reference and realleges each and every allegation contained above as though fully set forth herein.

940. As controlling shareholders of Alphabet, Defendants Brin, Page, and Schmidt owed and owe Alphabet the highest obligations of loyalty and good faith in managing the Company's affairs.

941. Defendants Brin, Page, and Schmidt violated and breached their fiduciary duties of good faith and loyalty. Specifically, Defendants Brin, Page, and Schmidt violated their duties of good faith and loyalty by creating a culture of lawlessness within Alphabet and directing and carrying out monopolistic and anticompetitive business plans for a vast array of Alphabet products and services, outside the bounds of positive U.S. antitrust law.

942. As a direct and proximate result of these breaches of fiduciary obligations, the Company has suffered significant damages and will continue to suffer, as alleged herein.

943. Plaintiffs, on behalf of Alphabet, have no adequate remedy at law.

COUNT IV Unjust Enrichment
(Against the Individual Defendants)

944. Plaintiffs incorporate by reference and realleges each and every allegation set forth above as though fully set forth herein.

945. By their wrongful acts, the Individual Defendants were unjustly enriched at the expense of, and to the detriment of, Alphabet in the form of salaries, bonuses, and/or other forms of compensation.

946. The Individual Defendants' enrichment was directly and causally related to acts that have materially damaged Alphabet.

947. These benefits were accepted by the Individual Defendants under such circumstances that make it inequitable for them to be retained. As alleged above, the Individual Defendants breached their fiduciary duties and/or abused their positions of control at Alphabet and, therefore, are not justified in retaining the benefits conferred upon them. These benefits should be disgorged back to the Company.

948. Additionally, the wrongful conduct alleged herein was continuous, connected, and ongoing throughout the period of misconduct described herein. The wrongful conduct thus resulted in continuous, connected, and ongoing harm to the Company.

949. Plaintiffs, as Alphabet shareholders and representatives of Alphabet, seek restitution from these Individual Defendants, and each of them, and seek an order from this Court disgorging all profits, benefits, and other compensation obtained by these Individual Defendants, and each of them, from their wrongful conduct and breaches of fiduciary duty.

COUNT V Corporate Waste
(Against the Individual Defendants)

950. Plaintiffs incorporate by reference and realleges each and every allegation set forth above as though fully set forth herein.

951. As alleged in detail herein, the Individual Defendants had a fiduciary duty to exercise good faith and diligence in the administration of the affairs of Alphabet and, in the use and preservation of its property and assets, they had the highest obligation of fair dealing. The Individual Defendants breached these duties by diverting corporate assets for improper and unnecessary purposes. Any benefits received by the Company cannot reasonably be viewed as a fair exchange for the corporate assets and monies expended by Alphabet.

952. The Individual Defendants' misconduct wasted Alphabet's corporate assets by paying or approving the payment of undeserved executive and/or director compensation based on the illegal conduct described herein, which exposed and continues to expose the Company to substantial civil liabilities and fines. The handsome remuneration paid to wayward fiduciaries

who breached their fiduciary duties to Alphabet was improper and unnecessary, and no person of ordinary, sound business judgment would view this exchange of consideration for services rendered as fair and reasonable.

953. Moreover, the Individual Defendants wasted corporate assets by forcing the Company to expend valuable resources in defending itself in the antitrust proceedings alleged herein. No person of ordinary, sound business judgment would view the Company's legal expenditures as fair or reasonable, given that these expenditures stem from illegal conduct of the Company of which the Individual Defendants had full knowledge and/or participated.

954. Finally, the Individual Defendants wasted corporate assets by: (a) failing to maintain sufficient internal controls over virtually all of the Company's major products and services; (b) failing to properly consider the interests of the Company and its public shareholders; and (c) failing to conduct proper supervision.

955. Any benefits received by the Company cannot reasonably be viewed as a fair exchange for the corporate assets and monies that Alphabet will expend as a result of the Individual Defendants' misconduct.

956. The wrongful conduct alleged herein was continuous, connected, and ongoing throughout the period of the misconduct described herein. The wrongful conduct resulted in continuous, connected, and ongoing harm to the Company.

957. As a result of the Individual Defendants' wrongful conduct, Alphabet has suffered, and continues to suffer, economic losses and non-economic losses, all in an amount to be determined according to proof at the time of trial.

958. As a result of the waste of corporate assets, the Individual Defendants are liable to Alphabet.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs demand judgment as follows:

A. Against all of the Individual Defendants, jointly and severally, and in favor of the Company for the amount of damages sustained by the Company along with pre- and post-judgment

interest as allowed by law resulting from the Individual Defendants' breaches of fiduciary duties, unjust enrichment, and/or waste of corporate assets;

B. Awarding to the Company restitution from the Individual Defendants, and each of them, and ordering disgorgement of all profits, benefits, and other compensation obtained by the Individual Defendants;

C. Directing Alphabet to take all necessary actions to reform and improve its corporate governance practices and internal control systems to comply with applicable laws, and to protect the Company and its shareholders from a repeat of the damaging events described herein, including, but not limited to, resolutions for amendments to the Company's By-Laws or Articles of Incorporation and taking such other action as may be necessary to implement the following Corporate Governance Policies:

i. strengthen the Board's supervision of operations and develop and implement procedures for greater shareholders input into the policies and guidelines of the Board;

ii. a Board Committee of independent directors to oversee compliance, particularly of antitrust laws;

iii. reform of Alphabet's anticompetitive practices with respect to all markets, products, and services complained of herein;

iv. strengthen internal controls concerning antitrust laws;

v. strengthen the roles of independent members of the Board in directing and overseeing the Company's operations; and

vi. permit the shareholders of Alphabet to nominate at least three candidates for election to the Board;

D. Extraordinary equitable and/or injunctive relief as permitted by law, equity, and state statutory provisions sued hereunder, including attaching, impounding, imposing a constructive trust on, or otherwise restricting the proceeds of the Individual Defendants' trading

activities, or their other assets so as to ensure that Plaintiffs on behalf of Alphabet have an effective remedy;

E. Awarding to Plaintiffs costs and disbursements of the action, including reasonable attorneys' fees, accountants,' consultants,' and experts' fees, and expenses; and

F. Granting such other and further relief as the Court deems just and proper.

JURY DEMAND

Plaintiffs hereby demand a trial by jury.

Dated: May 30, 2025

Respectfully Submitted,

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VERIFICATION

IN RE ALPHABET, INC., SHAREHOLDER DERIVATIVE LITIGATION

I, DANIEL D. GRIESER, do hereby declare:

1. I am a Deputy County Solicitor of the Bucks County Employees' Retirement System ("Bucks County"), located in Bucks County, Pennsylvania.

2. Bucks County is a co-lead plaintiff in the above-titled consolidated action. I verify that I have reviewed the Verified Amended Consolidated Shareholder Derivative Action Complaint and Jury Demand (the "Amended Complaint") to be filed in this action and that the facts stated in the Amended Complaint, as they concern Bucks County, are true to my personal knowledge. I believe the facts pleaded in the Amended Complaint on information and belief or investigation of counsel are true.

3. Bucks County has not received, been promised or offered, and will not accept any form of compensation, directly or indirectly, for prosecuting this action or serving as a representative party in this action except: (i) such fees, costs, or other payments as the Court expressly approves to be paid to Bucks County; or (ii) reimbursement, by its attorneys, of actual and reasonable out-of-pocket expenditures incurred directly in connection with the prosecution of this action.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 11th day of April, 2025.

DANIEL D. GRIESER
Deputy County Solicitor
Bucks County Employees' Retirement System
Bucks County, PA

VERIFICATION

IN RE ALPHABET, INC., SHAREHOLDER DERIVATIVE LITIGATION

I, RONALD A. KING, do hereby declare:

1. I am the Fund Counsel of the Police and Fire Retirement System of the City of Detroit ("Detroit"), located in Detroit, Michigan.

2. Detroit is a co-lead plaintiff in the above-titled consolidated action. I verify that I have reviewed the Verified Amended Consolidated Shareholder Derivative Action Complaint and Jury Demand (the "Amended Complaint"), to be filed in this action and that the facts stated in the Amended Complaint, as they concern Detroit, are true to my personal knowledge. I believe the facts pleaded in the Amended Complaint on information and belief or investigation of counsel are true.

3. Detroit has not received, been promised or offered, and will not accept any form of compensation, directly or indirectly, for prosecuting this action or serving as a representative party in this action except: (i) such fees, costs, or other payments as the Court expressly approves to be paid to Detroit; or (ii) reimbursement, by its attorneys, of actual and reasonable out-of-pocket expenditures incurred directly in connection with the prosecution of this action.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 13th day of April, 2025.

RONALD A. KING
Fund Counsel
Police and Fire Retirement System of the
City of Detroit
Detroit, Michigan

CERTIFICATE OF SERVICE

I hereby certify that on May 30, 2025, I authorized the electronic filing of the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to the e-mail addresses denoted on the Electronic Mail Notice List. All parties not so registered will be served via e-mail or U.S. Mail.

Executed on May 30, 2025, at New York, New York.

s/ Jing-Li Yu
JING-LI YU (CA Bar No. 342985)