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Competition in Digital Markets: A Review of Expert Reports

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Stigler Center

for the Study of the Economy and the State

**COMPETITION IN DIGITAL MARKETS: A
REVIEW OF EXPERT REPORTS**

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COMPETITION IN DIGITAL MARKETS: A REVIEW OF EXPERT REPORTS

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Forthcoming, Stanford Journal of Law, Business and Finance

ABSTRACT

Digital markets are at the forefront of competition policy. Over the past five years, antitrust regulators around the world have opened many investigations on digital platforms and issued and/or commissioned dozens of studies or expert reports that are focused on understanding the general competitive dynamics of markets such as online search, social media, e-commerce/marketplaces, and mobile operating systems. These studies and reports represent the forefront of our current understanding of how to adapt antitrust policy to the digital era. However, much of their wealth of knowledge is lost because these documents, which add up to thousands of pages of text, figures and tables, have been scattered around the websites of different competition agencies.

This literature review consolidates the knowledge of twenty-two reports and studies on topics related to competition in digital markets issued by eighteen different authorities and expert panels around the world over the past five years. It addresses how these reports portray the general competitive dynamics of digital markets, the benefits generated by digitalization, the potential competitive shortcomings of digital markets in general and of well-defined relevant markets in particular, and the solutions that have been proposed to increase competition in the digital world. It also indicates areas where further academic research is needed.

In doing so, it should serve as a guide to antitrust scholars, regulators, and practitioners, helping them understand the frontier of knowledge on the competitive dynamics of digital markets and the range of materials that are available for those who want to explore a certain topic more in-depth.

Keywords: Antitrust, Competition Policy, Digital Markets, Regulation

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This paper is intended to be a literature review of different expert reports and under no circumstances should be taken as expressing the view of CADE or Patricia's personal views on any pending matters or investigations. All errors are our own.

NOTE: After law school Filippo worked as an attorney to several digital platforms, including Google and Facebook. This work ceased many years ago and took place before he decided to pursue an academic career. We do not believe this past experience biases this paper, but full disclosure is important.

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INTRODUCTION

As digital platforms grow in size and importance, so do considerations about their impact on our markets and society. Companies like Google, Facebook, Apple, and Amazon are currently at the forefront of antitrust policy. Indeed, in recent years, antitrust regulators from around the world have commissioned or drafted expert reports to better understand the competitive dynamics of these digital environments. Well-known examples include the “Competition Policy for the Digital Era” report, prepared by a group of three academics for the European Commission; the “Unlocking Digital Competition” report, prepared by an expert panel for the Government of the United Kingdom; and the “Final Report of the Stigler Committee on Digital Platforms,” prepared by a group of academics convened by the Stigler Center for the Study of the Economy and the State at the University of Chicago Booth School of Business. These reports, however, are complemented by many fascinating studies. For example, both the Dutch and the Japanese antitrust authorities published studies on the competitive conditions of marketplaces; the British, the French, and the Australian antitrust authorities studied competition in online digital advertising markets; and authorities from Portugal, Mexico, India, Canada, and elsewhere have also published their views on digital competition.

Most of these documents are complementary, in the sense that they address connected but not identical topics. Together, they paint the most nuanced, well-informed view of the competitive dynamics of digital markets to date. Yet, this wealth of information is often overlooked, as it is scattered among thousands of pages, figures, and tables in different documents, located on different websites and some are (naturally) not in the English language. As a result, we lack a comprehensive review of this literature that would allow us to understand areas of agreement and disagreement among different agencies and to know what topics require further academic research.

This article helps fill this gap. It systematically analyzes and summarizes twenty-two reports issued by eighteen antitrust authorities and expert panels over the past five years. Given the many areas of overlap, it is not the goal of this article to summarize in detail each of the ideas present in the reports. Rather, it organizes and summarizes the main conclusions of these documents, indicating areas of agreement and disagreement. In doing so, it

should help scholars, policymakers, and practitioners to better comprehend the state of knowledge on the competitive dynamics of different digital markets and provide references for those who want to further explore a given topic in more detail.

This article is divided into seven parts. Part I briefly describes the selection of the reports that have been included in the review. Part II addresses the reports' general views on the competitive dynamics of digital markets. Part III discusses the benefits generated by digitalization. Part IV focuses on what potential competitive shortcoming these markets may face. Part V summarizes conclusions on specific relevant markets, such as price comparison tools, search, social media, online advertising, and online marketplaces/app stores. Part VI discusses potential solutions to the encountered problems. Part VII lists some areas that require more academic research. A brief conclusion follows.

I. SELECTION OF REPORTS

The first step in preparing this literature review was to survey the main studies, reports, white papers, sectoral inquiries, and other similar documents on the competitive dynamics of digital markets that have been issued by antitrust authorities and independent, expert committees. This review started with a search of websites, policy reports, conference agendas, and other sources to identify potentially relevant documents. This initial survey was made available at the website of the Stigler Center and advertised in multiple different channels, leading academics and policymakers to complement the list with other documents.¹ While the resulting collection of fifty documents is certainly not all-encompassing, it is conceivably the most comprehensive database of expert reports on digital competition publicly available.

The second step was then to separate from this broader survey those studies that should be included in this article. The criteria were to select documents that: (i) are final (not interim/draft reports); (ii) are mostly focused on topics relating to competition in digital markets;² and (iii) presented opinions/views about the state of competition in these markets, as opposed to simply publishing relevant data. Preference was also given to reports that were issued by expert panels or on behalf of antitrust authorities. This article covers the following twenty-two documents:

¹ The database is constantly being updated and is publicly available at the webpage 'World Reports on Digital Markets' of the Stigler Center's website <https://research.chicagobooth.edu/stigler/events/single-events/antitrust-competition-conference/world-reports-digital-markets>.

² As opposed to data protection, freedom of speech, misinformation, etc.

- i. “Sub-committee on Market Structure and Antitrust Report,” issued by the Stigler Committee on Digital Platforms, an independent academic committee put together by the Stigler Center for the Study of the Economy and the State at the University of Chicago Booth School of Business. The report was published in the United States in September 2019 (“Stigler Report”);³
- ii. “Big Data and Innovation: Key themes for competition policy,” issued by the Canadian Competition Bureau in February 2018;⁴
- iii. “Competition Law and Data,” a joint study issued by the French Autorité de la Concurrence (“AdC”) and the German Bundeskartellamt in May 2016;⁵
- iv. “Competition Policy for the Digital Era,” issued by an expert panel conveyed by the Directorate-General of Competition of the European Commission, in March 2019 (“Special Advisers report”);⁶
- v. “Digital Platforms Inquiry – Final Report,” issued by the Australian Consumer and Competition Commission (ACCC) in July 2019;⁷
- vi. “Ex-post Assessment of Merger Control Decisions in Digital Markets,” issued by the Consulting firm LEAR for the British Competition and Markets Authority (“CMA”) in June 2019;⁸

³ Stigler Committee on Digital Platforms, ‘Stigler Committee on Digital Platforms: Final Report’ <https://research.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf?la=en&hash=2D23583FF8BCC560B7FEF7A81E1F95C1DDC5225E>

⁴ Competition Bureau - Canada, ‘Big Data and Innovation: Key Themes for Competition Policy in Canada’ [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-Report-BigData-Eng.pdf/\\$file/CB-Report-BigData-Eng.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-Report-BigData-Eng.pdf/$file/CB-Report-BigData-Eng.pdf)

⁵ Autorité de la Concurrence and Bundeskartellamt, ‘Competition Law and Data’ https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.pdf;jsessionid=C4C389505B6990E252FC3EFCEC503F5E.2_cid381?_blob=publicationFile&v=2

⁶ Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, ‘Competition Policy for the Digital Era’ <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>

⁷ Australian Competition and Consumer Commission, ‘Digital Platforms Inquiry - Final Report’ <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>

⁸ LEAR, ‘Ex-Post Assessment of Merger Control Decisions in Digital Markets - Report Prepared for the CMA’ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/803576/CMA_past_digital_mergers_GOV.UK_version.pdf

- vii. “Market Study – Mobile App Stores,” issued by the Dutch Authority for Consumers and Markets (“ACM”) in April 2019;⁹
- viii. “Price Effects of Non-brand Bidding Agreements in the Hotel Sector,” issued by the Dutch ACM in June 2019;¹⁰
- ix. “Report on the Monitoring Exercise Carried Out in the Online Hotel Booking Sector by EU Competition Authorities in 2016,” issued by the Directorate-General of Competition of the European Commission together with the European Competition Network in April 2017;¹¹
- x. “Digital Comparison Tools Market Study,” issued by the British CMA in September 2017;¹²
- xi. “Publicité En Ligne: La Constitution d’un Écosystème En Forte Croissance et Tiré Par Deux Acteurs,” issued by the French AdC in March 2018;¹³
- xii. “Online Platforms and Digital Advertising – Market Study Final Report,” issued by the British CMA in December 2019;¹⁴
- xiii. “Report of the Study Group on Data and Competition Policy,” issued by the Japanese Fair Trade Commission (JFTC) in June 2017;¹⁵
- xiv. “Report Regarding Trade Practices on Digital Platforms,” issued by the JFTC in October 2019;¹⁶

⁹ Authority for Consumers and Markets, ‘Market Study into Mobile App Stores’

<https://www.acm.nl/sites/default/files/documents/2019-04/markstudies-appstores.pdf>

¹⁰ Authority for Consumers and Markets, ‘Price Effects of Non-Brand Bidding Agreements in the Dutch Hotel Sector’ <https://www.acm.nl/sites/default/files/documents/2019-06/working-paper-acm-price-effects-of-search-advertisement-restrictions.pdf>

¹¹ European Competition Network, ‘Report on the Monitoring Exercise Carried Out in the Online Hotel Booking Sector by EU Competition Authorities in 2016’ https://ec.europa.eu/competition/ecn/hotel_monitoring_report_en.pdf

¹² Competition and Markets Authority, ‘Digital Comparison Tools Market Study’ <https://assets.publishing.service.gov.uk/media/59c93546e5274a77468120d6/digital-comparison-tools-market-study-final-report.pdf>

¹³ Autorité de la Concurrence, ‘Opinion No. 18-A-03 of 6 March 2018 on Data Processing in the Online Advertising Sector’ https://www.autoritedelaconcurrence.fr/sites/default/files/integral_texts/2019-10/avis18a03_en.pdf

¹⁴ Competition and Markets Authority, ‘Online Platforms and Digital Advertisement - Market Study Final Report’ <https://www.gov.uk/cma-cases/online-platforms-and-digital-advertising-market-study>

¹⁵ Japan Fair Trade Commission, ‘Report of the Study Group on Data and Competition Policy’ https://www.jftc.go.jp/en/pressreleases/yearly-2017/June/170606_files/170606-4.pdf

¹⁶ Japan Fair Trade Commission, ‘Report Regarding Trade Practices on Digital Platforms’ <https://www.jftc.go.jp/en/pressreleases/yearly-2019/October/191031Report.pdf>

- xv. “Rethinking Competition in the Digital Economy,” issued by the Mexican Comisión Federal de Competencia Económica in February 2018;¹⁷
- xvi. “Unlocking Digital Competition,” issued by an expert panel for the Government of the United Kingdom in March 2019 (“Furman report”);¹⁸
- xvii. “Working paper: Market power of platforms and networks,” issued by the German Bundeskartellamt in June 2015;¹⁹
- xviii. “Modernizing the Law on Abuse of Market Power,” issued by Heike Schweitzer, Justus Haucap, Wolfgang Kerbe, and Robert Welker on behalf of the German Federal Ministry of Economy Affairs and Energy in October 2018;²⁰
- xix. “A New Competition Framework for the Digital Economy,” issued by the “Competition 4.0 Commission” on behalf of the German Federal Ministry of Economic Affairs and Energy in September 2019 (“Competition 4.0 report”);²¹
- xx. “Ecosystemas Digitais, Big Data e Algoritmos,” issued by the Portuguese Autoridade da Concorrência in July 2019;²²

¹⁷ Comisión Federal de Competencia Económica, ‘Rethinking Competition in the Digital Economy’ https://www.cofece.mx/wp-content/uploads/2018/03/EC-EconomiaDigital_web_ENG_letter.pdf

¹⁸ Jason Furman (chair) and others, ‘Unlocking Digital Competition: Report of the Digital Competition Expert Panel’ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf

¹⁹ Bundeskartellamt, ‘Working Paper - Market Power of Platforms and Networks’ https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Berichte/Think-Tank-Bericht-Langfassung.pdf?__blob=publicationFile&v=2

²⁰ Heike Schweitzer and others, ‘Modernizing the Law on Abuse of Market Power’ https://www.bmwi.de/Redaktion/DE/Downloads/Studien/modernisierung-der-missbrauchsaufsicht-fuer-marktmaechtige-unternehmen-zusammenfassung-englisch.pdf?__blob=publicationFile&v=3. Given language limitations, this reviews focuses on the 5 page summary of this report.

²¹ Commission Competition Law 4.0, ‘A New Competition Framework for the Digital Economy’ https://www.bmwi.de/Redaktion/EN/Publikationen/Wirtschaft/a-new-competition-framework-for-the-digital-economy.pdf?__blob=publicationFile&v=3

²² Autoridade da Concorrência, ‘Ecosystemas Digitais, Big Data e Algoritmos Issues Paper’ http://www.concorrenca.pt/vPT/Estudos_e_Publicacoes/Estudos_Economicos/Outros/Documents/Ecosystemas%20digitais,%20Big%20Data%20e%20Algoritmos.pdf

- xxi. “Market Study on E-Commerce in India,” issued by the Indian Competition Commission in January 2020;²³
- xxii. “Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations” issued by the Democratic Majority of the Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary of the U.S. House of Representatives (“House Majority Report”) and the associated “The Third Way: Antitrust Enforcement in Big Tech” report issued by Congressman Ken Buck (“House Minority Report”), both dating from October 2020.²⁴

This list is the result of some methodological choices. It excludes documents issued by multi-lateral organizations like the Organization for Economic Cooperation and Development and the World Bank because those documents are sometimes the compilation of contributions by authorities or third-parties—the goal was to focus on targeted analyses prepared by antitrust authorities and expert committees. Similarly, it does not include the expert reports prepared by the BRICS Competition Law and Policy Center, which is apparently still in draft form, and by the BRICS Competition Authorities. It also excludes reports that mostly gathered information to subsidize future analysis, like the European Commission’s E-Commerce sector inquiry.²⁵

Two final methodological notices. First, the goal of this piece is to review the expert reports referenced above. While these documents contain thousands of citations to concluded and pending litigation, statutes, scholarship articles and books, news articles etc., our focus is on the views expressed by the reports and our references are predominantly to the reports themselves. We have not independently evaluated their accuracy nor have we included these references in this document. Second, because of their overall all-encompassing nature, their prominent role in international discussion, and their largely similar conclusions, this literature review uses three

²³ Competition Commission of India, ‘Market Study on E-Commerce in India’
https://www.cci.gov.in/sites/default/files/whats_newdocument/Market-study-on-e-Commerce-in-India.pdf

²⁴ Democratic Majority of the Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary of the U.S. House of Representatives, ‘Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations’
https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf ;
Congressman Ken Buck, ‘The Third Way: Antitrust Enforcement in Big Tech’,
<https://buck.house.gov/media-center/press-releases/rep-buck-pens-antitrust-report-presents-third-way-take-big-tech>

²⁵ European Commission, ‘Final Report on the E-Commerce Sector Inquiry’
https://ec.europa.eu/competition/antitrust/sector_inquiry_final_report_en.pdf

documents—the Stigler report, the Special Advisers report, and the Furman report—as an initial backbone to structure different parts. It then complements the views of these reports with findings that agree or disagree with the conclusions of these three documents.

II. GENERAL VIEWS ON COMPETITION IN DIGITAL MARKETS

This part summarizes the general views on the competitive dynamics of digital markets. It starts with a summary of the structure of digital markets, then addresses the definition of relevant markets, the role data play as an input, how zero prices impact competitive dynamics, and the role of behavioral economics in shaping competition.

A. The overall structure of digital markets

The selected reports study the competitive dynamics of what they call, generally, digital markets, or markets where a particular set of companies—digital platforms—directly influence the supply of goods or services. The analyzed reports, however, do provide a single, coherent definition of what is a digital market or what types of companies can be called digital platforms.²⁶ In general, digital platforms are understood as intermediaries that connect two or more groups of users and benefit from direct and indirect network effects, leading to the creation of so-called two-sided or multi-sided markets that connect two or more different but well-identified user groups.²⁷

The reports, however, mostly converge on an overall structure of competition in digital markets. Digital markets do not have a single characteristic that differentiates them from traditional markets. Rather, it is the combination of a multitude of characteristics usually found in isolation in other markets that justifies a separate analysis.²⁸ In particular, markets with dominant digital platforms are normally characterized by strong network

²⁶ For example, the ACCC (n 7) defines digital platforms as “applications that serve multiple groups of users at once, providing value to each group based on the presence of other users”, but then focuses its analysis on what it calls “three categories of digital platforms (...) online search engines, social media platforms and other digital content aggregation platforms” but not on “online shopping and e-commerce platforms” *Id.* at 41; while the Stigler Report generally defines digital platforms by their characteristics as companies that present “extremely strong network effects, very strong economies of scale, remarkable economies of scope due to the role of data, marginal costs close to zero, drastically lower distribution costs than brick and mortar firms, and global reach.” Stigler Committee on Digital Platforms (n 3) at 34-35.

²⁷ Cr mer, de Montjoye and Schweitzer (n 6) at 19-21. Bundeskartellamt (n 19) at 2-4. Stigler Committee on Digital Platforms (n 3) at 34-35.

²⁸ Stigler Committee on Digital Platforms (n 3) at 34. Furman (chair) and others (n 18) at 37. Commission Competition Law 4.0 (n 21) at 16-17.

effects,²⁹ economies of scale, economies of scope connected to the role of data as an input, extremely low marginal costs, and global scope.³⁰ The Special Advisers report identified the role of data, growing returns to scale, network effects, and economies of scope as helpful to explain the growth of digital platforms and online ecosystems.³¹ The Furman report argues that decreasing average costs, economies of scope, the global nature of markets, privileged access to capital sources, and the key role played by the accumulation of data on consumer behavior all help drive concentration in these markets.³² The Portuguese report, however, cautions that, in some markets, economies of scale may become less relevant as companies hire data processing capabilities from third parties. In addition, platforms may grow to a point where they exhaust network effects or even face congestion effects, when there are diseconomies of scale.³³

Collectively, the reports describe how markets that share these characteristics tend to “tip”—that is, these factors push these markets to concentrate around a single, ultra-dominant provider.³⁴ Markets with “tipping effects” normally witness strong competition “for the market” in the beginning—that is, competition to become the leading provider in that market—which then develops into a long period of weak competition where the winner/monopolist extracts rents associated with its market power.³⁵ These economic rents are protected by high entry barriers connected with the products/services’ network effects (due to the high coordination costs associated with mass consumer migration), important economies of scale and scope (also related to the control of databases), the personalization of the services/products offered, and the growing ecosystem competition. These barriers would also hinder the expansion of competing products, even when

²⁹ Stigler Committee on Digital Platforms (n 3) at 38. Bundeskartellamt (n 19) at 3. COFECE (n 17) at 23. Commission Competition Law 4.0 (n 21) at 16. Autoridade da Concorrência (n 22) at 9. House Majority Report (n 24) at 40-41.

³⁰ Stigler Committee on Digital Platforms (n 3) at 34. Furman (chair) and others (n 18) at 21-22. JFTC (n 16) at 6. Bundeskartellamt (n 19) at 9-10.

³¹ Crémer, de Montjoye and Schweitzer (n 6) at 2-3; 15.

³² Furman (chair) and others (n 18) at 32; 37.

³³ Autoridade da Concorrência (n 22) at 12; 21. E.g. think of a dating platform that has grown to include users from the whole world. Unless its algorithms can sort users per location, a user from the US will be matched with a user from Australia, decreasing the likelihood that this will be a good match for both.

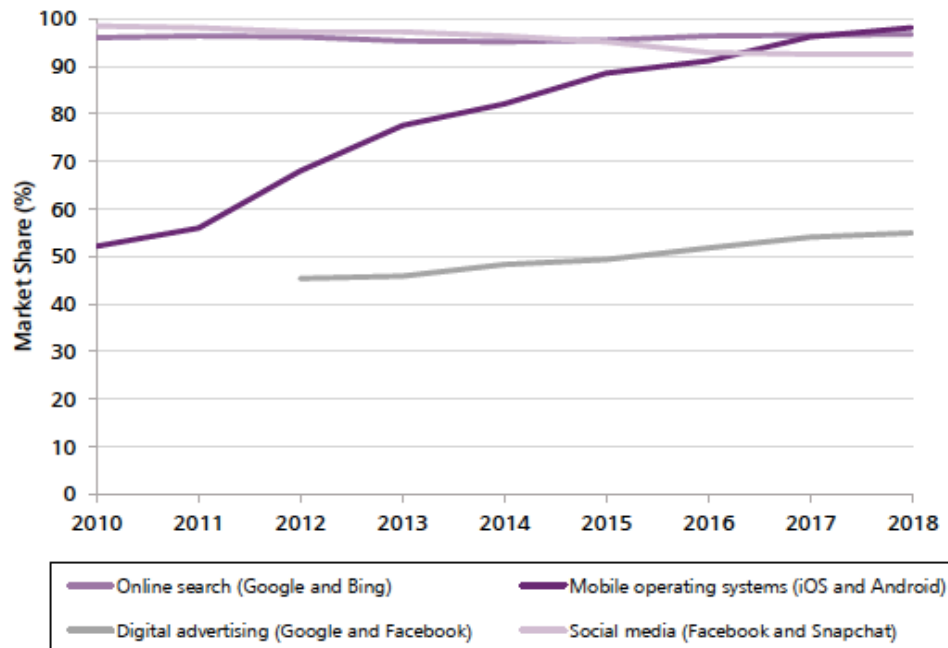
³⁴ Schweitzer and others (n 20) at 2; Crémer, de Montjoye and Schweitzer (n 6) at 3; 22; 36. Furman (chair) and others (n 18) at 38; 56; 88; Bundeskartellamt (n 19) at 9. Autoridade da Concorrência (n 22) at 22; 24. House Majority Report (n 24) at 37.

³⁵ Stigler Committee on Digital Platforms (n 3) at 39; Furman (chair) and others (n 18) at 8; 38. ACM (n 9) at 67; 103-104.

theoretically superior.³⁶ As companies obtain data as a derivative of their products/services, the incumbents' great advantage in the collection of data further protects their privileged market position.³⁷ Indeed, companies design their complex ecosystems to increase their data collection capabilities and, in doing so, protect their dominant position.³⁸

Following this rationale, the Furman report finds that incumbent digital platforms enjoy growing and persistent market power; key online markets—such as search, social network, mobile operating systems, and online advertising—have been concentrating around one or two leading agents (image I below) with some small fringe competition.³⁹

Image 1: Combined indicative market shares of leading two companies in selected UK digital markets



Sources: StatCounter,²¹ Comscore,²² and eMarketer and company reports²³

Source: Furman (chair) and others (n 18) at 25

The CMA report on online advertising calculates that Google and Facebook reach 96% and 87% of UK internet users each month and account

³⁶ Stigler Committee on Digital Platforms (n 3) at 40. Crémer, de Montjoye and Schweitzer (n 6) at 23; Furman (chair) and others (n 18) at 38-39. Bundeskartellamt (n 19) at 12-15. Autoridade da Concorrência (n 22) at 21.

³⁷ Crémer, de Montjoye and Schweitzer (n 6) at 24. Bundeskartellamt (n 19) at 17.

³⁸ ACCC (n 7) at 8; CMA (n 14) at 19; E3.

³⁹ Furman (chair) and others (n 18) at 25; 31; 39.

for almost 40% of all the time spent online (image II),⁴⁰ a number similar to that found by the ACCC (image III).⁴¹

Image 2: Consumer time spent on top 1000 UK online properties, February 2020



Source: Comscore MMX Multi-Platform, Total Digital Population, Desktop aged 6+, Mobile aged 13+, February 2020, UK.

Notes: Top 1000 properties account for 83% of total user time spent online.

* Where 'Google Sites' includes all Google owned properties eg YouTube and Google Search.

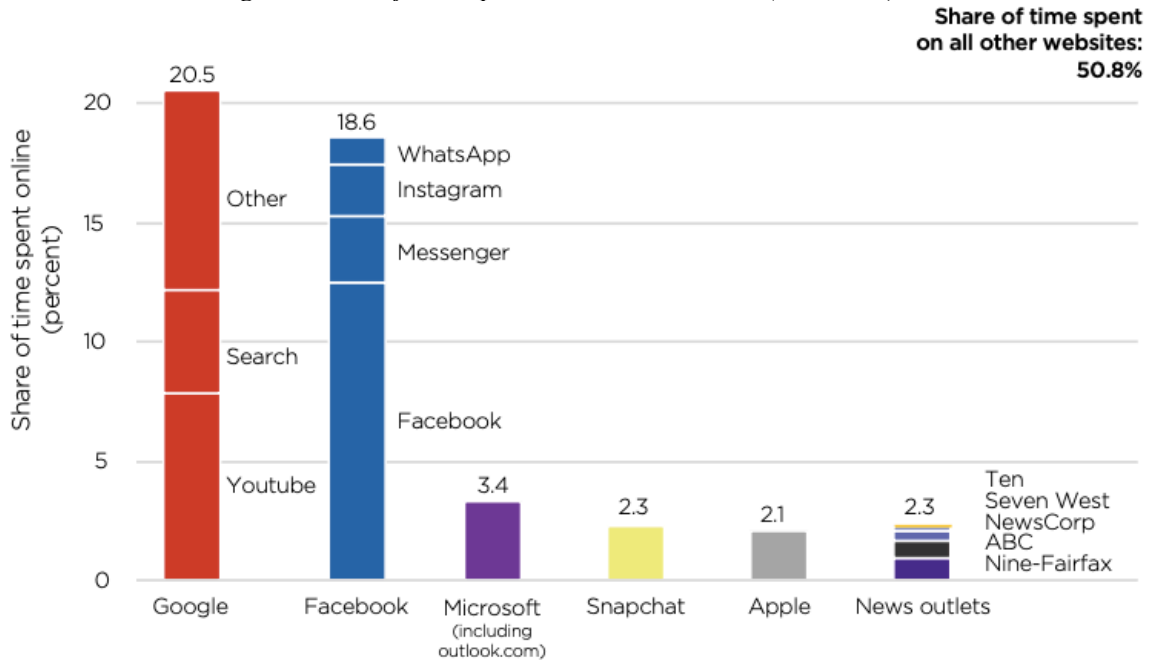
†Where 'Facebook' includes Facebook, Instagram and WhatsApp.

Source: CMA (n 14) at 48

⁴⁰ CMA (n 14) at 48.

⁴¹ ACCC (n 7) at 6.

Image 3: Share of time spent online in Australia (Feb/2019)



Source: Nielsen Digital Panel, February 2019, All demographics, PC, Smartphone and Tablet, Time Spent Share.
Source: ACCC (n 7) at 6.

According to the Furman report, these few leading companies have extensive powers to: (i) control access to services and charge high fees for this access; (ii) manipulate rankings and the prominence of certain products and services that rely on those rankings; and (iii) control reputations.⁴²

Other reports argue that antitrust regulators perform a key role in ensuring at least some potential competition and in lowering barriers to entry in these markets.⁴³ In particular, antitrust authorities must stop dominant firms from excluding or hindering the expansion of potential entrants, even if small—as otherwise incumbents might extract illegal rents and harm consumers.⁴⁴ These rents might be illegal because they are connected not to firms' superior products but to behavior that prevents potentially more innovative and efficient companies from entering the market.⁴⁵

Antitrust authorities must also consider the important role of multi-

⁴² Furman (chair) and others (n 18) at 41.

⁴³ Commission Competition Law 4.0 (n 21) at 21.

⁴⁴ Stigler Committee on Digital Platforms (n 3) at 35.

⁴⁵ *Id.* at 35.

homing and how it impacts network effects.⁴⁶ For the reports, user multi-homing is crucial for competition in these markets,⁴⁷ as it facilitates the entry and expansion of competitors by allowing for product/service differentiation and access to user data. Digital platforms are not only aware of this threat but also purposefully diminish multi-homing and limit interoperability whenever these platforms reach a minimum level of critical mass that ensures them some market power.⁴⁸ Specific strategies that Platforms can adopt to restrict multi-homing include: (i) the loss of personal data; (ii) the loss of reputation/reviews; (iii) anti-competitive terms of use; (iv) technical barriers; (v) tying services; and (vi) exploring user inertia.⁴⁹ As competition moves from services to ecosystems, or an integration of hardware and software, multi-homing becomes even harder—the competing ecosystem would need to offer all the incumbent’s services to be competitive.⁵⁰ Dominant platforms use this control over ecosystems to protect their most profitable services from competition, and they may harm competition when, in doing so, they diminish multi-homing as a way to solidify their market control.⁵¹ They also use this influence over adjacent markets to control entry points and protect their core markets from present and future competition.⁵² In these cases, authorities would be responsible for ensuring that consumers can switch suppliers by outlawing practices that unduly increase switching costs. On the other hand, authorities must also recognize that the joint offering of products/services (bundling) may benefit consumers—antitrust regulators must recognize that there are important trade-offs when assessing when to intervene.⁵³

Finally, it is worth noting that this view that digital markets present unique competitive structures that tend to concentration is challenged by the Canadian report. According to that report, digital markets are not necessarily unique—for example, Big Data is not a completely new phenomenon, given that firms have been using data for years. In addition, competition policies

⁴⁶ Furman (chair) and others (n 18) at 33-35. Multi-homing refers to the practice of users switching between different suppliers (e.g. using both Google and Bing to search the internet). If users only rely on a single supplier, they single-home.

⁴⁷ AdC and Bundeskartellamt (n 5) at 29. COFECE (n 17) at 27.

⁴⁸ Crémer, de Montjoye and Schweitzer (n 6) at 37-38. Autoridade da Concorrência (n 22) at 25. House Majority Report (n 24) at 166-167.

⁴⁹ Furman (chair) and others (n 18) at 36.

⁵⁰ Crémer, de Montjoye and Schweitzer (n 6) at 33-34; Commission Competition Law 4.0 (n 21) at 15-16.

⁵¹ CMA (n 14) at 18, 56; Crémer, de Montjoye and Schweitzer (n 6) at 6; 34; Furman (chair) and others (n 18) at 36; 41; Commission Competition Law 4.0 (n 21) at 19.

⁵² CMA (n 14) at 18, 56. Adjacent markets are those that are closely connected but not equal to a given core market (e.g. the market for travel search can be adjacent to the broader market of general online search).

⁵³ Crémer, de Montjoye and Schweitzer (n 6) at 37.

must always be based on the view that markets, not regulators, lead to optimal outcomes and that a disproportional enforcement of antitrust laws by overzealous authorities may harm innovation.⁵⁴ For the Canadian authorities, this view justifies the maintenance of much of the technique antitrust analysis employs in other markets—as seen in more detail below.⁵⁵

B. Defining relevant markets in an online world

Some studies indicate how general concepts of relevant market definition (e.g., substitutability) are applicable to online markets. However, authorities face important practical challenges in applying them to cases where they need to define digital relevant markets in practice.⁵⁶ To start, many markets are multi-sided, so prices on one side do not fully reflect the platforms' strategic choices; the extension of different market is not clear, and there are important interdependences among undertakings operating on both sides.⁵⁷ In addition, zero prices and bandwagon effects hinder the regular application of econometric tests such as the Small but Significant Non-Transitory Increase in Prices (SSNIP) or critical loss analysis.⁵⁸ A focus on the functionalities that platforms may offer is an innovative proposition to help with market definition. However, it does not have the methodological rigor of these more commonly used alternatives.⁵⁹ The analysis becomes even more complex when platforms are present in many different markets, and the constant introduction of new functionalities in products and services may diminish the value of historical analysis or may lead to the definition of relevant markets that are either broader or narrower than they should be. Finally, platforms would be increasingly trying to lock consumers into their ecosystems by offering a wider range of integrated services and by using nudges, defaults, and other forms of user steering.⁶⁰ In these cases, authorities may want to

⁵⁴ Competition Bureau - Canada (n 4) at 4-5.

⁵⁵ *Id.* at 6.

⁵⁶ Bundeskartellamt (n 19) at 5-6; Schweitzer and others (n 20) at 1.

⁵⁷ Crémer, de Montjoye and Schweitzer (n 6) at 3; 43. COFECE (n 17) at 66. Autoridade da Concorrência (n 22) at 19.

⁵⁸ Bandwagon effects are self-reinforcing effects (e.g. the more people join a social network, the more valuable for other people and the more they want to join). SSNIP and critical loss analysis are two techniques used by antitrust authorities to define whether different products or services compete with one another. The SSNIP considers whether consumers switch to alternative goods/services if the price for a given product or service increases by a small but non-transitory amount (e.g. do people buy chicken if the price of beef goes up by 5%, if yes, chicken and beef are substitutes). Critical loss analysis inverts the question and asks what amount of sales a company would need to lose to make an increase in price unprofitable.

⁵⁹ Crémer, de Montjoye and Schweitzer (n 6) at 45.

⁶⁰ *Id.* at 47-48.

consider defining a single relevant market for the entire ecosystem.

According to the Special Advisers report, antitrust authorities should focus their analysis more on the evidence of market power, theories of harm to competition, and the identification of anticompetitive strategies—and less on thoroughly defining relevant markets.⁶¹ That notwithstanding, authorities should analyze ecosystems whenever companies compete to attract consumers to their ecosystems (no relevant multi-homing) and also analyze the competitive dynamics of aftermarkets, in particular when there is consumer lock-in.⁶²

Some reports also discuss how to best measure market shares in online markets. The study by the AdC, for example, argues for the importance of using other metrics beyond turnover, such as number of registered users, monthly or daily active users, page visits, logged-in users, number of uploaded/seen videos, and number of searches.⁶³ It suggests that comparing platforms according to the total time all users spend on them may be the best metric for many zero-price markets. Similarly, the CMA mostly uses turnover, number of searches, number of page referrals, number of users, and the total time spent in the platform as the key metrics to assess market share.⁶⁴

Finally, it is worth stressing that this view that digital markets present unique challenges to relevant market definition is not unanimous. The Canadian report asserts that there are no reasons to deviate from regularly established market definition practices just because authorities are analyzing online markets.⁶⁵ Authorities must critically evaluate the role of network effects and how these impact the economic incentives of the different agents using the platform.⁶⁶ Defining relevant markets can serve as a means to evaluating market power.⁶⁷ The report prepared for the JFTC follows similar lines in arguing for the need to evaluate the existence of data markets that are related to traditional markets for products and services.⁶⁸

C. The role of data as input

Almost all studies stress the key role played by data in digital markets. Three different German reports agree that control over data is crucial for the

⁶¹ *Id.* at 3-4; 46.

⁶² *Id.* at 4. Aftermarkets are markets for the supply of products or services needed for or in connection with a good (e.g. the market for replacement parts, customer care, etc.).

⁶³ AdC (n 13) at 80-83.

⁶⁴ CMA (n 14) at 80-81; 119-122; 246. See also LEAR (n 8) at 27.

⁶⁵ Competition Bureau - Canada (n 4) at 6.

⁶⁶ *Id.* at 7.

⁶⁷ *Id.* at 8.

⁶⁸ JFTC (n 15) at 31.

market power of digital platforms.⁶⁹ The CMA report on online advertising finds that different types of data are key for the markets of general search, social networks, and online advertising,⁷⁰ and this finding is echoed by the ACCC.⁷¹ The AdC observes that the collection and processing of different types of data, including personal data, are essential to digital marketing.⁷² A joint-study by the Bundeskartellamt and the AdC has found that, in some markets, algorithms play a key role in processing raw data into inferences that can be used to improve products and services.⁷³ The House Majority Report finds that control over data by a company may increase their clients' switching costs, indicating that an online seller would be reluctant to move away from a company like Amazon and lose its valuable consumer reviews.⁷⁴ The Report by the Portuguese authority explains how data access may become a barrier to the entry and expansion of competitors in digital markets, so that data restrictions may be a violation of antitrust laws.⁷⁵

Four studies present in-depth and complementary views on the role of data as inputs for online markets.

The Furman Report affirms that companies have been using data to personalize products and services for some time. However, “new” digital markets are unique in their scale, their capacity to collect and process information, and their pronounced information asymmetries that, in many cases, prevent consumers from properly comprehending the extent of data collection and how these data can be used to personalize goods and services.⁷⁶ The report states that the key role performed by data in these markets creates a system of mutual positive reinforcement in which access to more data allows better personalization of goods/services, increasing a company's turnover. This generates more user demand, enabling the company to collect more data.⁷⁷ In particular, competitors are restricted in their ability to obtain the type of data key to competition, whether because of problems in generating/accessing such data or because of the low substitutability of some forms of data (e.g., location data is temporarily sensitive, as their value expires quickly).⁷⁸ When present, these dynamics grant incumbent companies a key—and difficult to replicate—competitive advantage.

⁶⁹ Schweitzer and others (n 20) at 4. AdC and Bundeskartellamt (n 5); Bundeskartellamt (n 19).

⁷⁰ CMA (n 14) at 47.

⁷¹ ACCC (n 7) at 7-9; 73.

⁷² AdC (n 13) at 42.

⁷³ AdC and Bundeskartellamt (n 5) at 48. COFECE (n 17) at 31.

⁷⁴ House Majority Report (n 24) at 42.

⁷⁵ Autoridade da Concorrência (n 22) at 34.

⁷⁶ Furman (chair) and others (n 18) at 23. AdC and Bundeskartellamt (n 5) at 8-9.

⁷⁷ Furman (chair) and others (n 18) at 33-34.

⁷⁸ AdC and Bundeskartellamt (n 5) at 44-45.

The Stigler Report finds that the role of data as a key input for many digital products increases the importance of economies of scale and scope in these markets vis-à-vis “offline” markets. Larger companies with more widespread product offerings not only obtain more data, but these data are of better quality (they cover a wider range of situations and are more up to date), allowing these companies to develop better products.⁷⁹ This creates some form of dynamic economies of scale, in the sense that companies with more data can improve their products at lower costs than can their smaller competitors.⁸⁰ As the same data may be a key input for different products, large digital platforms also enjoy strong economies of scope—that is, they can enter new markets and develop new products at lower costs than can entrants or even established players.⁸¹ This leads to a positive cycle where larger scale and data access strengthen the platform, which then gains even more scale and data. This dynamic becomes a key barrier to entry and expansion in many digital markets, in particular because some databases have a unique nature and access to them is restricted to the controlling company, removing from such data their natural public goods characteristics.⁸² The competitive importance of data is expected to grow both with the development of artificial intelligence (“AI”) and with the enactment of new data protection laws that restrict the collection and processing of personal data—putting digital platforms that already have large databases and a direct connection with users in an advantageous position.⁸³

Data present growing returns to scale for many key applications in online markets. Online platforms not only hold much more data than offline companies, but also are much better at processing it.⁸⁴ In particular, these companies hold both *large population datasets* (data about a large number of people) and *high dimensional datasets* (large amounts of data about a single individual). While the first allows for inferences about the behavior of an entire population, the second allows for the better personalization of goods and services. When combined, the resulting database enables unprecedented personalization as well as accurate inferences about people not yet on the database—a type of data externality. This combination of both characteristics is what generates the growing returns to scale as it enable companies to better

⁷⁹ Stigler Committee on Digital Platforms (n 3) at 36-37. AdC and Bundeskartellamt (n 5) at 38-39.

⁸⁰ Stigler Committee on Digital Platforms (n 3) at 37. Commission Competition Law 4.0 (n 21) at 13.

⁸¹ Stigler Committee on Digital Platforms (n 3) at 37.

⁸² *Id.* at 40. Crémer, de Montjoye and Schweitzer (n 6) at 24. AdC and Bundeskartellamt (n 5) at 12-13; 38. ACCC (n 7) at 11. House Majority Report (n 24) at 42-43.

⁸³ Stigler Committee on Digital Platforms (n 3) at 40-41. ACCC (n 7) at 11. AdC and Bundeskartellamt (n 5) at 41.

⁸⁴ Stigler Committee on Digital Platforms (n 3) at 50.

personalize goods/services, in particular for low probability events that, many times, are the most commercially valuable.⁸⁵ This encourages companies to collect as much data as possible.

Companies adopt different strategies to lead in this data race. For example, some companies initially encourage interoperability as a way to obtain scale, but then limit interoperability once they achieve critical mass as a way to protect their market dominance.⁸⁶ They normally do so when switching costs are high as a result of user investments (e.g., in emails, calendars, and posts) or the ecosystem of goods/services offered.⁸⁷ Strategies to limit interoperability are particularly effective because they encourage single-homing, which tends to concentrate in dominant companies.⁸⁸ Antitrust authorities must be particularly attentive to these and other violations of antitrust laws, as these practices normally happen in key moments when small competitive gains while the market is still contestable may translate into a virtuous cycle (for the company) that allows it to consolidate its dominant position.⁸⁹ When this is the case, interoperability and data portability obligations become particularly relevant.⁹⁰

The Special Advisers report relies on the World Economic Forum to classify data according to whether they were: (i) voluntarily supplied by the user of a given good/service; (ii) observed by a third-party, that is, the data were automatically generated as a result of the behavior of a given user or machine; or (iii) inferred, that is, new data that transform in a non-trivial manner the original voluntary or observed nature of the original data.⁹¹ Although these categories are not fixed, they are useful for competition purposes; for example, voluntary data are more easily shared by users than observed or inferred data are. The report also separates personal from non-personal data, indicating how the first are usually protected by specific laws. In addition, reflections on how data impact competition must always consider their different possible uses: (i) individual, non-anonymized data may be used for personalization; (ii) individual, anonymized data are useful for machine learning, etc.; (iii) aggregate data are useful for national statistics, market tendencies, etc.; and (iv) *contextual data* (non-individual data like satellite,

⁸⁵ *Id.* at 48-52. Furman (chair) and others (n 18) at 33-34; Crémer, de Montjoye and Schweitzer (n 6) at 29; AdC and Bundeskartellamt (n 5) at 50; 54. Commission Competition Law 4.0 (n 21) at 14. House Majority Report (n 24) at 45-46.

⁸⁶ *Id.* at 41.

⁸⁷ *Id.* at 54.

⁸⁸ *Id.* at 43. Schweitzer and others (n 20) at 2.

⁸⁹ Stigler Committee on Digital Platforms (n 3) at 41.

⁹⁰ *Id.* at 52.

⁹¹ Crémer, de Montjoye and Schweitzer (n 6) at 24-25. AdC and Bundeskartellamt (n 5) at 6-7.

road network, or other types of data) may also be important.⁹² Finally, it is worth considering the use of data as a service, as an input to a service, as a product, etc.⁹³ The report specifically discusses how monopolies/oligopolies may use their market power to collect data without free and independent user consent.⁹⁴ That is, if users must accept the terms of use because they lack real alternatives, then there is no legal, free, independent consent—so data protection and antitrust laws complement one another.⁹⁵

The modern information economy sometimes encourages the monopolization of data as a way to increase its value to the party that owns or controls access, even when these data are initially understood as a public good that could be efficiently shared.⁹⁶ Controlling essential data grants the party some market power. In markets where machine learning plays an important role, the size and quality of the databases used to train algorithms is crucial.⁹⁷ In general, the richer the database and the more complex the algorithm, the less databases present decreasing returns to scale.⁹⁸ In some markets where precision is key, the larger the database the better.⁹⁹ The report concludes that access to a large database over a long period of time can become an important competitive advantage to a given company, depending on the market under analysis.¹⁰⁰ Data sharing agreements can be pro-competitive when they lead to the development of new goods/services.¹⁰¹ Nonetheless, these agreements may also be anticompetitive if they deliberately exclude a given player or involve the exchange of commercially sensitive data.¹⁰² A refusal to grant access to or supply essential data may be a violation of antitrust laws, leading to a “right of access” remedy.¹⁰³ Data collection may also be abusive in certain circumstances.¹⁰⁴

Finally, the CMA report on online advertising markets reinforces many of the points discussed above. It backs the findings that data may present dynamic economies of scale and scope by indicating, for example, that past click-and-query data is essential to improve the results of static/uncommon search queries like political events, sports, etc. These uncommon queries,

⁹² Crémer, de Montjoye and Schweitzer (n 6) at 8; 25-26.

⁹³ *Id.* at 8.

⁹⁴ *Id.* at 79.

⁹⁵ *Id.* at 79-80.

⁹⁶ *Id.* at 27.

⁹⁷ *Id.* at 103.

⁹⁸ *Id.* at 103-104. That is because more complex algorithms require more and higher quality data to better perform, and vice-versa.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 29; 90.

¹⁰¹ *Id.* at 92-94.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*

however, are particularly salient for users comparing the quality of search engines and represent a significant percentage of searches—15% for daily searches on Google and 36% for those on Microsoft’s Bing.¹⁰⁵ This leads to a chicken-and-egg problem where search engines need data to improve their products, and the zero prices on the consumer side encourage users to focus searches to the product with higher relative quality, concentrating the market in a single, leading company.¹⁰⁶

For the CMA, companies like Google and Facebook that can offer a wide range of goods/services have an important advantage in the collection of data both through vertical integration (user interaction with goods/services like Android phones and search engines) and by offering functionalities to third parties in exchange for data collection (e.g., Google analytics, “like” buttons).¹⁰⁷ These data are collected from registered users as well as non-registered users through unique identifiers. The leading platforms rely on four main strategies to collect data from third-parties:

- i. they obtain data supplied directly by online advertising companies, publishers and data brokers;
- ii. online advertising companies and publishers allow platforms to collect voluntarily supplied and observed consumer data through the use of pixels, tags, and cookies;
- iii. platforms directly collect data through the use of sign-in/log-in functionalities supplied to apps and websites; and
- iv. platforms directly collect data from the advertising they place on third-party websites (clicks, sales conversion, visualizations, etc.).¹⁰⁸

The figure below compares the scale of data collection by certain platforms.

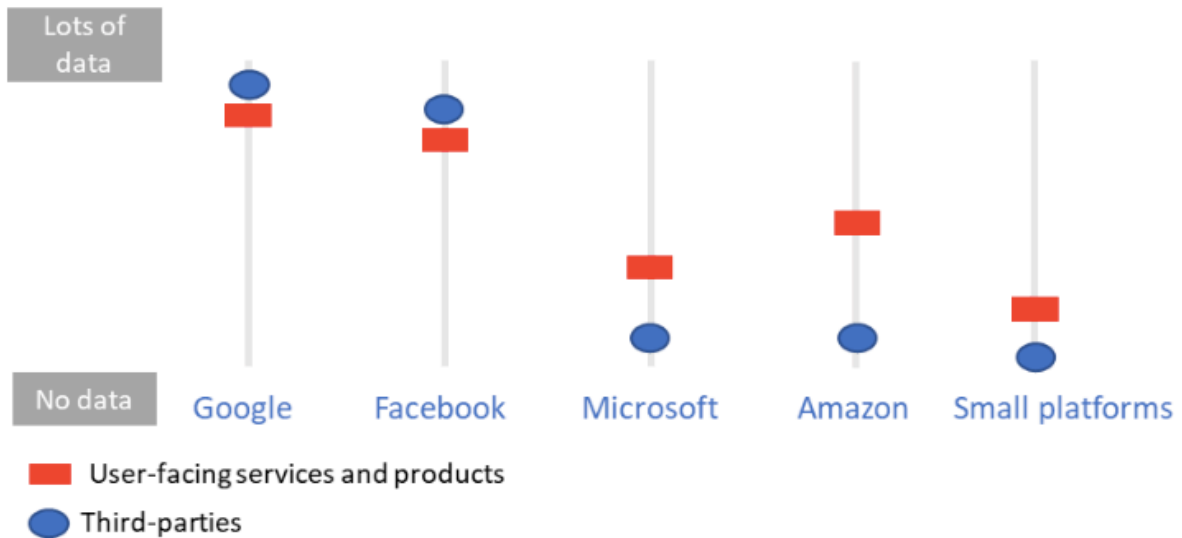
¹⁰⁵ CMA (n 14) at 93-94; I16-I18.

¹⁰⁶ *Id.* at 95.

¹⁰⁷ *Id.* at 155-156.

¹⁰⁸ *Id.* at 49; 156.

Image 4: Illustration of the scale of data collection by certain platforms, split by types of data



Source: CMA.

Note: Small platforms include Twitter, Snap, TikTok and Pinterest.

Source: CMA (n 14) at 50.

The CMA finds that while users have some control over data collection and use in search engines, they have almost no control in social networks (e.g., Facebook users could not deactivate personalized advertising).¹⁰⁹ Even the controls that exist, however, are mostly theoretical, as CMA data indicated that less than 5% of new Google and Facebook users accessed the company’s privacy controls. Those few who did access Google’s page spent, on average, forty-seven seconds on the page, and 85% of users spent less than ten seconds on the page. Facebook added a new off-Facebook activity page in 2019, but less than 5% of users engaged with the new functionality.¹¹⁰

Finally, it is worth noting that although widespread, this view that data recurrently supply incumbents with a key competitive advantage is not unanimous. The Canadian report indicates that companies have been using data as an input for years and that it is not clear that we are undergoing a “data revolution.”¹¹¹ A joint report by the Bundeskartellamt and the AdC acknowledges the importance of databases but observes that in many situations/markets, data maintain their public good nature and are not relevant for competitive dynamics. Authorities must carefully evaluate cases when public databases and/or small investments in data acquisition may erode

¹⁰⁹ *Id.* at 14.

¹¹⁰ *Id.* at 173-175.

¹¹¹ Competition Bureau - Canada (n 4) at 4.

advantages.¹¹² The JFTC also highlighted the public good nature of data, affirming that there are alternative methods for companies to obtain datasets and that in some circumstances, data have diminishing returns to scale.¹¹³ These characteristics diminish the strategic nature of data, decreasing the chances that refusals to share information would violate antitrust rules.¹¹⁴ According to the report, the value of data is growing mostly in AI, personalization, and for other specific digital applications. In markets that rely on these applications, a refusal to share data may strengthen a dominant position and lead to an antitrust violation.¹¹⁵ Concerns about a refusal to grant access would be particularly important when the data is jointly collected by undertakings that have market power.¹¹⁶

D. The impacts of zero prices

Many different reports observe that *zero prices* (prices with a nominal value of zero) are not a special zone where economic teachings or antitrust laws do not apply.¹¹⁷ Rather, zero is best understood as one number in a scale that includes both positive and negative prices (subsidies). Consumers pay for many digital services by bartering data and attention in exchange for services and ads.¹¹⁸ Indeed, not only does this combination of data and attention have a market price, but the high profit margins of digital platforms indicate that this value is not zero. Moreover, even if the price of a given good/service is zero, companies may diminish the price/quality ratio simply by diminishing the quality of the good/service supplied, harming consumers. The Special Advisers report argues that there is a discontinuity in the demand curve when prices reach zero, which makes this a focal value.¹¹⁹ The Furman report adds that platforms like Facebook have deliberately changed policies around data collection, processing, third-party sharing, and data access in general while maintaining zero prices—showcasing this trade-off.¹²⁰

The Stigler report describes how zero prices increase the importance of behavioral economics in the competitive dynamics of digital markets. By limiting price competition, zero prices force companies to contend on quality

¹¹² AdC and Bundeskartellamt (n 5) at 38-39.

¹¹³ JFTC (n 15) at 4.

¹¹⁴ *Id.* at 22; 51.

¹¹⁵ *Id.* at 10-11; 25; 52.

¹¹⁶ *Id.* at 56.

¹¹⁷ Stigler Committee on Digital Platforms (n 3) at 55; Furman (chair) and others (n 18) at 42. Bundeskartellamt (n 19) at 6. JFTC (n 15) at 34.

¹¹⁸ Stigler Committee on Digital Platforms (n 3) at 55; Crémer, de Montjoye and Schweitzer (n 6) at 44; Furman (chair) and others (n 18) at 22-23; 42. ACCC (n 7) at 61.

¹¹⁹ Crémer, de Montjoye and Schweitzer (n 6) at 20.

¹²⁰ Furman (chair) and others (n 18) at 42-43.

characteristics that are hard to compare and that disproportionately favor incumbents.¹²¹ When combined with other market characteristics, such as low marginal costs, economies of scope, and network externalities, these zero price markets tend to be dominated by the product offering the best quality, as opposed to more traditional markets where users can opt for different layers in a quality/price curve. This reinforces the potential dominance of established incumbents.

E. The key role of behavioral economics in competitive dynamics

The Stigler report observes that consumers are partly responsible for the very market power of digital platforms that harms them. Platforms explore well-known behavioral biases to solidify their dominant position.¹²² Indeed, the more technological changes enable information sharing and diminish physical barriers to competition, the more human behavior becomes a key variable to hinder effective competition between different companies.¹²³ For example, entrants supplying better products still rely on consumers willing to absorb switching costs to thrive in these markets.

The report argues that different but relevant forms of consumer behavior that limit competition in digital markets include: (i) *salience effects*, that is, consumers choosing/clicking what is salient; (ii) *confirmation bias*, or consumers tending to agree with content that reinforces their prior beliefs; (iii) biases in favor of the status quo, so that consumers hardly change defaults or switch suppliers; and (iv) impatience and lack of self-control, which lead consumers to watch another movie even when they have other important deadlines.¹²⁴ Opt-outs and program interfaces that highlight some information, that impose different criteria to enroll and cancel a given service, or that display exploding offers are good examples of commonly employed dark patterns. While these and other nudges are not exclusive to digital markets, these biases become even more relevant when platforms hold detailed information on the behavior of each consumer and may easily modify interfaces and goods/services to make them more addictive or to explore in real time specific consumers' irrationalities.¹²⁵ Indeed, asymmetries in information and analytical capabilities between companies and consumers reach unprecedented levels in many online markets, enabling

¹²¹ Stigler Committee on Digital Platforms (n 3) at 55. Furman (chair) and others (n 18) at 22.

¹²² Stigler Committee on Digital Platforms (n 3) at 42. Autoridade da Concorrência (n 22) at 30; Crémer, de Montjoye and Schweitzer (n 6) at 50.

¹²³ Stigler Committee on Digital Platforms (n 3) at 42-43. See also House Majority Report (n 24) at 53, discussing dark patterns and nudges in data collection.

¹²⁴ Stigler Committee on Digital Platforms (n 3) at 43; 58. See also CMA (n 14) at 194.

¹²⁵ Stigler Committee on Digital Platforms (n 3) at 60.

these companies to extract the maximum value from their consumers exactly in the segments where they are the most sensitive. The table below, prepared by the CMA, summarizes how platforms can use choice architecture to explore consumers' behavioral biases.

Image 5: Psychological mechanisms and choice architecture

Underlying Psychological Mechanisms		Examples of choice architecture with negative impact on consumers
Platforms' choice architecture	Consumers' behavioural biases	
<p>Information, complexity and choice overload. Platforms present more information on privacy than other topics; in a more complex way; offering more choices than consumers can assess.ⁱ</p>	<p>Limited attention and cognitive capacity Volume and complexity of information can exceed consumers' abilities to process information,^{ii, iii} filter out what is relevant^{iv} and weight large numbers of choices.^v</p>	<ul style="list-style-type: none"> • Privacy settings that mix relevant and less relevant information • Drip feeding information. • Partitioning information so that it is hard to see the whole picture. • Lengthy, complex menus with multiple choice options.
<p>Prominence Some information is more prominent with a logical flow; and links to some information are more obvious.</p>	<p>Limited attention and cognitive capacity Consumers tend to be drawn to more prominent items^{vi, vii, viii} and miss less prominent items; and are more attracted to and influenced by fluently presented information.^{ix}</p>	<ul style="list-style-type: none"> • Design features (e.g. layouts, fonts and colour schemes) that draw attention away from key information. • Ordering (eg placing key information at the end of a list). • High reading age level of content.
<p>Obfuscation Information is provided in ways that discourage attention.</p>	<p>Recognition and expectation Consumers allocate attention according to their expectations.^x</p>	<ul style="list-style-type: none"> • Vague link titles; or titles not matching the content. • Ordering and timing (e.g. key information is presented late or when not expected).
<p>Framing and wording Platforms describe information inferring specific interpretations of the information (i.e. with more or less positive connotations).</p>	<p>Sensitivity to framing and wording When making a choice, consumers are likely to be influenced by how positive or negative options are worded and framed.^{xi, xii, xiii, xiv}</p>	<ul style="list-style-type: none"> • The sharing of information is framed in terms of what consumers gain. • Personalised advertising is described as 'relevant' whilst contextual advertising is described more neutrally. • Sharing information is presented as being 'social'.
<p>Control measures that do not provide control Choices within privacy settings appear to be easily controllable but do not offer actual or complete control.</p>	<p>Illusion of control Consumers tend to interpret the presence of control settings as a sign of having complete control. When they read words like 'choice' and 'control', they start to feel in control regardless of the level of control offered. This leads to decreased engagement with the settings.^{xv}</p>	<ul style="list-style-type: none"> • Information on data sharing uses phrasing that increase illusion of control (e.g. 'your choice', 'you are in control'). • 'Incognito'-type tabs appear to offer private browsing where data on what you look at and purchase is not used for personalised advertising.
<p>Defaults A default setting opting consumers into sharing data and receiving personal advertising is preselected, and implemented, by platforms.</p>	<p>Default bias Typically, consumers stick with the status quo, which with defaults means the pre-selected option. This is because of a variety of reasons (inertia, loss aversion, trust in recommendations).^{xvi} This effect is increased when the default is completely integrated.^{xvii}</p>	<ul style="list-style-type: none"> • Opting-out is only possible with significant effort.
<p>Presentation of inherent consequences Design focuses on immediate benefits to consumers rather than future consequences of data sharing.</p>	<p>Psychological myopia Consumers naturally tend to consider immediate consequences more than future ones.^{xviii, xix, xx} This is increased when future consequences are difficult to comprehend.^{xxi}</p>	<ul style="list-style-type: none"> • Attention is guided towards direct benefits (e.g. through prominent presentation). • Consequences are hidden (e.g. through information overload).
<p>Choice order Relevant information is not prominently offered until after key decision points for the consumer.</p>	<p>Anchoring effect and commitment bias Information presented initially to consumers acts as a reference point to assess the value of a product and 'anchor' on.^{xxii, xxiii} Consumers interpret the effort and time they invest in creating an account as commitment to the platform.^{xxiv}</p>	<ul style="list-style-type: none"> • With account creation, information on data sharing is available but obfuscated through information overload and lack of prominence.
<p>Friction related to information Information is not presented at the time or stage when it is relevant to the consumer (eg when receiving targeted advertising) and finding relevant information is difficult.</p>	<p>Inertia and effort When consumers want to engage with information or options, they can be kept from doing so when the information or option is not directly available or even difficult to find.^{xxv, xxvi}</p>	<ul style="list-style-type: none"> • Consumers need to take multiple steps to find information.

Source: CMA analysis of concepts, literature (see bibliography), and examples of platform choice architecture.

Source: CMA (n 14) at Y29.

Behavioral restraints become ever more important in a world where competition is tilted towards product quality.¹²⁶ Zero prices restrict one of the main variables explored by entrant companies: discounts. In addition, whenever consumers drastically discount the future, they tend to accept terms that seem positive today but that are damaging in the aggregate. Users usually prefer to single-home and often avoid multi-homing or comparing prices between different suppliers, something that could increase competition. When users single-home and defaults are sticky, generic declarations that competition is “a click away” may be fallacious: While possible in theory, these changes are not verified in reality.¹²⁷

The Stigler report concludes by indicating that pure competition—that is, without some complementing regulation—will not correct these behavioral problems. That is because companies profit by exploring these vulnerabilities, so it is rational for them to explore to the fullest behavioral limitations as a competitive differential.¹²⁸ Companies themselves recognize the high value of these biases: Google, for example, pays Apple billions of dollars a year to be the default search engine on Safari. The CMA report also finds that Google has an 86% market share on the British general search markets on desktops (Bing, the default search engine on Microsoft’s browsers, holds 13%), but a 97% share on mobile, where Google is the default for both Android and Apple devices.¹²⁹ This view that behavioral biases are important to understand the competitive dynamics of digital markets is shared by many other reports. As the ACCC report summarizes: “Consumer behaviour favours the use of incumbents, particularly those with strong brands. The operation of default settings further entrenches the market power of incumbents, and increases the barriers to entering these markets.”¹³⁰

F. General views on market structure and platform market power

The reports generally find that the combination of all these characteristics consolidates the market power of many digital platforms, enabling these platforms to extract economic rents without facing much competitive threat.¹³¹

¹²⁶ Stigler Committee on Digital Platforms (n 3) at 42. Autoridade da Concorrência (n 22) at 29.

¹²⁷ Stigler Committee on Digital Platforms (n 3) at 41.

¹²⁸ *Id.* at 60.

¹²⁹ CMA (n 14) at 102.

¹³⁰ ACCC (n 7) at 10.

¹³¹ Stigler Committee on Digital Platforms (n 3) at 43. Furman (chair) and others (n 18) at 41-42,75. Crémer, de Montjoye and Schweitzer (n 6) at 112. ACCC (n 7) at 7-9. Schweitzer and others (n 20) at 2. House Majority Report (n 24) at 38-39.

New competitors have faced important challenges when trying to enter or expand in many digital markets—and that is despite the incentives to entry associated with incumbents’ very high profit margins.¹³² The lack of a competitive threat allows dominant companies to charge higher prices, diminish quality, and invest less in innovation without a fear of losing clients. In addition, consumers may also be harmed by price effects when companies raise the prices of goods/services to pass on the markups charged in online advertising markets.¹³³

Market share data are not an ideal proxy of market power in multi-sided markets, in particular when one side charges zero price.¹³⁴ The Special Advisers report argues that specific characteristics such as growing returns to scale, network externalities, and the key role of data as an input enable the existence of market power even in apparently fragmented markets.¹³⁵ That is because consumer/client lock-in grants the platform both the market power over this group of users and the associated intermediation power that comes from being an unavoidable trading partner. This power is more relevant whenever companies control the data necessary to develop new goods/services.¹³⁶ The same characteristics also enable platforms to enter adjacent markets, potentially in an abusive manner.¹³⁷

The overall conclusion of these analyses is that companies may abuse their market power in many different ways in online markets. Authorities must remain vigilant to the particularities of each relevant market, analyze each case in detail, and consider how biases and other behavioral characteristics may protect certain digital platforms from competitive pressures.¹³⁸

III. BENEFITS GENERATED BY DIGITAL MARKETS

The reports mention in a somewhat generic manner the multiple benefits generated by digitalization. Topics include increased connectivity, diminishing transaction costs, low prices, innovation in business models and in goods/services, increases in productivity, economic growth, and the many applications of AI.¹³⁹

For example, the joint report by the Bundeskartellamt and the AdC suggests that increased transparency and the creation of search/comparison

¹³² Stigler Committee on Digital Platforms (n 3) at 57.

¹³³ *Id.* Furman (chair) and others (n 18) at 42.

¹³⁴ Crémer, de Montjoye and Schweitzer (n 6) at 49. Bundeskartellamt (n 19) at 7.

¹³⁵ Crémer, de Montjoye and Schweitzer (n 6) at 49-50.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Id.* at 12. Bundeskartellamt (n 19) at 1. COFECE (n 17) at 15; 35.

mechanisms can increase competition and benefit consumers.¹⁴⁰ The JFTC predicts that data will be central to the next round of technological innovation in multiple different industries.¹⁴¹ The Portuguese authority finds that new goods/services based on big data increase market efficiency and consumer welfare.¹⁴² The Furman report describes how the combination of computational power, big data, online processing, and cloud systems created many new markets and expanded opportunities in different industries.¹⁴³ It also describes the major scale of platforms like Google and Facebook, which have been accessed by 99% and 95% of the UK's adult population in 2018 (for a total of 1.4 billion hours) and have generated many benefits to consumers and to the national economy.¹⁴⁴ The average user values these companies' services in thousands of pounds a year—making the digital revolution an important driver of consumer welfare and the economic growth of the UK and the global economy.¹⁴⁵ The Stigler report affirms that larger databases allow for increases in personalization, leading to clear gains in efficiency as consumers are supplied goods/services that better reflect their needs.¹⁴⁶

Indeed, platforms and other digital intermediaries have lowered geographic barriers and information asymmetries, enabled the rise of new markets, and connected assets and people in previously unthinkable ways.¹⁴⁷ The expansion of online advertising markets enabled the expansion of many small companies, that now have access to cheaper, more flexible, and better targeted marketing resources.¹⁴⁸ For example, the CMA finds that Facebook has over a million advertiser customers in the UK, and Google 200,000, even if the top 5% to 10% of advertisers account for 85% of total revenues.¹⁴⁹ The ACCC finds that advertising services supplied by digital platforms are cheaper and better targeted than traditional channels, providing companies with a better cost-benefit alternative.¹⁵⁰ These advantages are particularly relevant to small- and medium-size businesses that cannot access alternatives such as TV and radio because of complexity and high costs.¹⁵¹

¹⁴⁰ AdC and Bundeskartellamt (n 5) at 14.

¹⁴¹ JFTC (n 15) at 2.

¹⁴² Autoridade da Concorrência (n 22) at 7.

¹⁴³ Furman (chair) and others (n 18) at 17. COFECE (n 17) at 15.

¹⁴⁴ Furman (chair) and others (n 18) at 18.

¹⁴⁵ *Id.* at 19. ACCC (n 7) at 49.

¹⁴⁶ Stigler Committee on Digital Platforms (n 3) at 48.

¹⁴⁷ Furman (chair) and others (n 18) at 19. COFECE (n 17) at 16.

¹⁴⁸ CMA (n 14) at 45.

¹⁴⁹ *Id.* at 61.

¹⁵⁰ ACCC (n 7) at 131.

¹⁵¹ *Id.* at 132.

Digital platforms have benefited consumers in many different ways. They have increased competition among suppliers, improved the matching between suppliers and consumers, and increased information sources.¹⁵² They also increase allocational efficiency by better utilizing assets such as cars or real estate, among others.¹⁵³ Data from the UK also indicates how digital markets have grown 2.6x faster than has the average British economy, generated five times more jobs, and been responsible for 16% of the British output and 25% of all exports.¹⁵⁴ Digital economy companies are also drivers of innovation—Google, Amazon, Microsoft, Apple, and Facebook all list among the fifteen biggest investors in innovation. New technologies like AI and machine learning techniques should increase efficiency in other markets: health, to energy, to commerce, and many others.¹⁵⁵ For the Canadian authority, digital innovations have a tremendous unknown potential, something that forces regulators to be humble and acknowledge the major unmaterialized gains in many different industries.¹⁵⁶

IV. WHAT COMPETITIVE PROBLEMS MAY ARISE IN DIGITAL MARKETS

The Special Advisers report argues that fierce competition is key to ensure that all these benefits continue to accrue in the future.¹⁵⁷ That is because despite the many benefits listed in Part III above, market power in digital markets may harm consumers in many different ways. The Furman Report, for example, lists: (i) collecting excessive private data/violating consumer privacy, and/or increasing the amount of ads beyond what would be found in competitive markets; (ii) charging excessive prices to access platforms, charging intermediation fees, or imposing unjust contractual terms on consumers or businesses that rely on the platforms to access consumers; (iii) increasing prices associated with the passing on of these higher fees or with the exclusion of companies who cannot afford them; (iv) leveraging the control over rankings, reputational instruments, or similar mechanisms to harm competitors; and (v) removing potential competitors from markets through acquisitions or other exclusionary behavior.¹⁵⁸

According to the Stigler Report, behavioral shortcomings make it harder for antitrust authorities to correctly measure impacts on volume, quality, prices, and well-being, as traditional tools must be adapted to new contexts.

¹⁵² *Id.* at 48.

¹⁵³ COFECE (n 17) at 35.

¹⁵⁴ Furman (chair) and others (n 18) at 19-20.

¹⁵⁵ *Id.* at 21.

¹⁵⁶ Competition Bureau - Canada (n 4) at 5.

¹⁵⁷ Crémer, de Montjoye and Schweitzer (n 6) at 35. House Majority Report (n 24) at 36; 46.

¹⁵⁸ Furman (chair) and others (n 18) at 42-45.

For example, the usage of a given good/service might not be a good proxy of actual welfare when there are concerns about online addiction or lack of self-control around these products.¹⁵⁹ The combination of zero prices and somewhat subjective quality make this measurement even harder, as consumers do not have clear signals regarding the social value of their consumption—the price they believe to be paying does not reflect the real costs of the transaction (in terms of quality, negative externalities, etc.).¹⁶⁰ Authorities must carefully analyze both potential price and non-price effects¹⁶¹ of certain behaviors in digital markets to understand how they impact consumer welfare.

A. Price effects

Multiple reports find that consumers may be subject to price increases even in markets with zero nominal prices, as companies usually pass on (at least partially) the costs associated with the high fees charged by intermediaries with market power.¹⁶² The fees charged by major digital platforms would work almost as a tax on economic activity. The Furman Report, for example, holds that the persistent and high profits accrued by digital platforms would indicate unfair terms of trade—a view that reflects comments the committee received during its open consultation period.¹⁶³ The report also argues that zero prices do not necessarily reflect a competitive market equilibrium, as prices could be negative—that is, consumers could be rewarded for their data and attention.¹⁶⁴ It is up to competition authorities to understand the cases when price effects will negatively impact consumer welfare.

The Canadian report indicates that network effects complicate the analysis of price effects, as high prices charged on one side of the platform do not necessarily mean that platforms have market power or that a given conduct has anticompetitive effects.¹⁶⁵ Multi-sided markets are structured so

¹⁵⁹ Stigler Committee on Digital Platforms (n 3) at 67.

¹⁶⁰ *Id.*

¹⁶¹ Price effects reflect increases in the price of good and services as a result of a given conduct. Non-price effects reflect impacts on quality, innovation and other non-price product/market characteristics.

¹⁶² Furman (chair) and others (n 18) at 44. CMA (n 14) at 8. Stigler Committee on Digital Platforms (n 3) at 61. For example, if an intermediary charges high prices for advertising, final costs to consumers may increase as companies raise their prices to recoup their advertising expenditures.

¹⁶³ Furman (chair) and others (n 18) at 46-47.

¹⁶⁴ *Id.* at 42; CMA (n 14) at 8.

¹⁶⁵ Competition Bureau - Canada (n 4) at 7. In other words, just because a given platform can charge high prices on one side of the market (say advertisers), these high prices should not necessarily be seen as indicating market power or some form of illegal behavior. That

as to explore cross-subsidies to balance optimal participation levels on both sides of the platform. Authorities must be aware of these effects when analyzing markets.

B. Non-price effects

1. Quality and Innovation

Markets with zero nominal prices, large economies of scale, etc. tend to force companies to compete mostly or solely on quality, increasing the importance of non-price effects in the assessment of consumer welfare.¹⁶⁶

Quality is a complex variable that may be measured in a variety of ways. The Furman report points to the fact that companies like Google, Facebook, and Amazon have been increasing the number and the prominence of ads vis-à-vis organic search results as a way to increase their revenues potentially at the expense of product quality.¹⁶⁷ It finds little evidence that digital platforms have been strongly competing on variables such as privacy protection or reduction of the number of paid ads/insertions.¹⁶⁸

Dominant players may negatively impact the competitive dynamics of digital markets not only through diminished quality but also through diminishing market innovation—a key driver of long-term consumer welfare.¹⁶⁹ The Special Advisers report describes the difference between innovation processes in digital markets and those of more traditional industries: Digital products are characterized by a less structured, constant innovation process where products are never ready—relying more on network effects and consumer behavior to protect investments than on more traditional intellectual property tools.¹⁷⁰ Authorities must consider this difference when analyzing these markets. The Stigler report argues that platforms negatively impact innovation when they forestall competition or predate the companies that supply complementary products as a way to increase their profit margins.¹⁷¹ In order to understand why this is so, the report distinguishes between two types of complementary companies: those that threaten the platforms' key business and those that operate in lucrative

is because this multi-sided markets are structured so that one side (e.g. advertisers) subsidizes the other side (users). See Caio Mario Pereira Neto & Filippo Lancieri, *Towards a Layered Approach to Relevant Markets in Multi-Sided Transaction Platforms*, 83 ANTITRUST LAW J. 701 (2020) at 710 for a more detailed explanation.

¹⁶⁶ Stigler Committee on Digital Platforms (n 3) at 55.

¹⁶⁷ Furman (chair) and others (n 18) at 43.

¹⁶⁸ *Id.* at 44.

¹⁶⁹ Crémer, de Montjoye and Schweitzer (n 6) at 35; Bundeskartellamt (n 19). at 17; CMA (n 14) at 7.

¹⁷⁰ Crémer, de Montjoye and Schweitzer (n 6) at 35.

¹⁷¹ Stigler Committee on Digital Platforms (n 3) at 70.

complementary markets.

The former are the companies which may disintermediate the platform—that is, companies that may slowly commoditize the service offered by the platform, diminishing its value as an intermediary. When platforms move to exclude these companies from the market, they do so in a defensive manner that may violate antitrust laws. Examples of this type of behavior are the Microsoft/Netscape investigation.¹⁷² The latter are companies that operate in complementary niches that do not threaten the platform existence but that are highly profitable. In this case, the platform leverages its market power in an offensive way—that is, it appropriates the extra profits generated by the services that rely on them. This is the core of many new antitrust complaints against companies such as Google, Apple, and Amazon by companies such as Yelp, Spotify, and independent merchants.¹⁷³

These competitive strategies are connected to the different stages of digital platforms' evolution. For example, it is possible that these companies are initially more open to complementary goods/services as a way to attract demand and achieve a critical mass. However, as they become dominant, these platforms start appropriating a larger share of their “partners” profits.¹⁷⁴ Indeed, the report argues that today's large platforms probably perceived that former digital platforms shared too much of their profits with partners/third-parties, so they are exploiting the high entry barriers and their own economies of scale and scope to scoop a growing share of adjacent markets—and in doing so increasing their dominance.¹⁷⁵

Both defensive and offensive leveraging may be highly damaging to innovation. That is because they increase barriers to entry and discourage investments both in products that directly compete with platforms and in complementary products that may be easily expropriated without clear rewards to the innovating parties. The Stigler report argues that there is growing evidence that platforms have been entering adjacent markets to expand their market dominance.¹⁷⁶ In addition, their privileged access to data and to consumers puts enables these companies to identify major threats and preemptively remove them through acquisitions and exclusionary behavior, or by copying products/functionalities and leveraging their control over the ecosystem to favor their own versions.¹⁷⁷ The lack of transparency and the complex nature of these companies usually prevents such conduct from being subject to strict antitrust scrutiny—in particular because these

¹⁷² *Id.* at 69.

¹⁷³ *Id.* at 89.

¹⁷⁴ *Id.* at 70.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 72. Autoridade da Concorrência (n 22) at 39.

¹⁷⁷ Stigler Committee on Digital Platforms (n 3) at 74.

complementors are dependent and fearful of the platforms and may be reluctant to antagonize them.¹⁷⁸

Reports indicate how such practices may drive away potential startup investors by creating so-called “killer acquisitions” or “kill zones” that would be highly damaging to consumer welfare. The result is a vicious cycle where less investment in innovation leads to less market entry and further strengthens the market power of dominant companies.¹⁷⁹ The House Majority Report, in particular, affirms that lack of competition in digital markets has led to a decline in new business formation, early-stage startup funding and associated job creation in high-technology sectors in the US.¹⁸⁰ Consumers may, thus, end up being harmed twice.

The Canadian report, however, warns that authorities must always consider the potential chilling effect of overly aggressive antitrust policies over innovation in these dynamic markets. The report affirms that the antitrust enforcement framework and tools traditionally applicable to other segments of the economy can also be used in digital markets.¹⁸¹

2. Privacy, personalization, and addiction

Multiple reports argue that lower privacy protections and increases in data collection are important forms of non-price competition that must be considered by antitrust regulators.¹⁸² Indeed, when platforms maintain prices but lower quality variables such as privacy protection, they effectively harm consumers by increasing the price/quality ratio of their products. As the joint report by the Bundeskartellamt and the AdC explains, a merger that leads to more aggressive data collection practices may lead to lower product quality, or an abuse of dominance investigation may be based on an exploitative collection of user data—even though authorities face uphill battles when defining “optimal price levels” for data collection.¹⁸³ The House Majority Report states that the degree to which platforms have eroded consumer privacy without prompting a market response is “the best evidence of platform market power”.¹⁸⁴

The Stigler report pays particular attention to online addiction as a threat to consumer welfare. In particular, the combination of market power, high

¹⁷⁸ *Id.* at 72-74.

¹⁷⁹ *Id.* at 76. Furman (chair) and others (n 18) at 37; Autoridade da Concorrência (n 22) at 39-40. House Majority Report (n 24) at 37, 47-48.

¹⁸⁰ House Majority Report (n 24) at 46-47.

¹⁸¹ Competition Bureau - Canada (n 4) at 4-5; 8.

¹⁸² Stigler Committee on Digital Platforms (n 3) at 66. Crémer, de Montjoye and Schweitzer (n 6) at 79. AdC and Bundeskartellamt (n 5) at 24. CMA (n 14) at 318. JFTC (n 15) at 38. House Majority Report (n 24) at 52.

¹⁸³ AdC and Bundeskartellamt (n 5) at 24-25.

¹⁸⁴ House Majority Report (n 24) at 51.

profit margins, and ability to manipulate users that is found in many digital markets encourages platforms and other players to develop ever-more addictive products.¹⁸⁵ Low marginal costs also encourage platforms to expand supply by focusing on “engagement” alone—that is, keeping users hooked to the platform for as long as possible, even if this damages consumer welfare. The use of data and personalization capabilities make these companies highly effective in generating engagement, as users themselves signal to the platforms what drives their behavior.¹⁸⁶ This primary focus on engagement may become even more damaging when associated with outrageous content. It is not clear that an increase in competition would help remedy these potentially abusive strategies, as they are very profitable for the platforms.

The Stigler report also challenges the view that marketing has a primarily positive impact on consumer welfare. This view is founded on a perception that marketing campaigns help inform consumers and that competition in marketing is efficient.¹⁸⁷ However, such campaigns mostly reflect gains for the marketing companies, not necessarily consumer interest. If a gain in information may indeed benefit users, the accompanying losses in terms of privacy or manipulation may more than negate these gains. The Canadian report also touches on these topics. It argues that while Big Data may lead to better targeted ads that inform consumers, ads may ultimately harm consumers by exploiting their vulnerabilities. When this manipulation is proven, courts/regulators should assess these practices under consumer protection or antitrust laws and punish companies with higher fines for abuses.¹⁸⁸

3. Price discrimination

Only a handful of reports address the potentially positive or negative impacts of increases in price discrimination. The joint report between the Bundeskartellamt and the AdC describes how data are essential to price discrimination, and how the practice may expand output but reduce consumer surplus; it is not clear whether discriminatory pricing practices with ambiguous impacts on consumer welfare are illegal under EU Competition Law.¹⁸⁹ The Furman report addresses generally how increases in price personalization may impact consumer welfare.¹⁹⁰ The report prepared by the Portuguese authority explains how access to larger volumes of personal data,

¹⁸⁵ Stigler Committee on Digital Platforms (n 3) at 62-63.

¹⁸⁶ *Id.* at 64-65.

¹⁸⁷ *Id.* at 63.

¹⁸⁸ Competition Bureau - Canada (n 4) at 14.

¹⁸⁹ AdC and Bundeskartellamt (n 5) at 21-22.

¹⁹⁰ Furman (chair) and others (n 18) at 111.

smaller menu costs, increased opacity, and the ability to prevent arbitrage enables companies to better price discriminate.¹⁹¹ This discrimination is possible whenever companies: (i) hold some market power; (ii) can observe consumer heterogeneity; (iii) can adjust prices based on this heterogeneity; and (iv) can prevent arbitrage.¹⁹² The report points out that there is no real evidence that price discrimination is taking place. Nonetheless, the ambiguous effects over consumer welfare mean that authorities will have to properly comprehend specific processes and calibrate their analysis to assess to what level the appropriation of consumer surplus may indeed harm consumers.¹⁹³

4. Refusals to deal, essential facilities, and interoperability

The Furman report stresses the many potentially anticompetitive problems that may arise when platforms are both gatekeepers and competitors in certain markets.¹⁹⁴ While companies are not obliged to be neutral or to deal with their competitors, dominant platforms have the power to demote the goods/services offered by competing companies. This combination of self-preferencing and market power may harm competition by raising barriers to entry and expansion and by diminishing quality and innovation in different markets.¹⁹⁵

Users usually benefit from higher interoperability and lower switching costs because the associated increases in competition forces companies to innovate. At the same time, dominant companies have incentives to restrict access or interoperability as a way to protect their ecosystems.¹⁹⁶ Different reports stress the importance of mandating interoperability under certain circumstances, such as when the refusal prevents the development of high-value products or when the excluding practice cannot be reasonably justified by the dominant company.¹⁹⁷ Conduct may violate antitrust laws whenever this access restriction excludes a competitor from a primary market or whenever there is a high risk of unreasonable leveraging of market power to an adjacent market.¹⁹⁸

A mandated access may relate to data or more generally to functionalities. The Special Advisers report discusses interoperability obligations in detail. First, it separates obligations into three different groups:

¹⁹¹ Autoridade da Concorrência (n 22) at 58.

¹⁹² *Id.* at 59.

¹⁹³ *Id.* at 60.

¹⁹⁴ Furman (chair) and others (n 18) at 47-48.

¹⁹⁵ Autoridade da Concorrência (n 22) at 74.

¹⁹⁶ COFECE (n 17) at 27-28.

¹⁹⁷ Crémer, de Montjoye and Schweitzer (n 6) at 6-7. Competition 4.0 (n 21) at 36. AdC and Bundeskartellamt (n 5) at 19.

¹⁹⁸ Commission Competition Law 4.0 (n 21) at 36.

- i. *protocol interoperability*, or the ability of two (usually complementary) services to technically interconnect;
- ii. *data interoperability*, or the ability of a competing service accessing a constant data stream from the supplier; and
- iii. *full protocol interoperability*, or standards that enable substitute services to interconnect (e.g., interconnection obligations on telephone networks).¹⁹⁹

All these interoperability protocols involve important trade-offs. For example, data interoperability may encourage competition in markets where data is a key input, but it may diminish incentives for companies to collect new data.²⁰⁰ Full interoperability protocols may weaken network effects, but the necessary standardization may diminish innovation.²⁰¹

The report stresses the need to jointly consider data portability obligations and the commands of the EU's General Data Protection Regulation, as they may be in tension. It may be necessary to think about portability/interoperability of the data relating to an entire sector, which would require specific regulation or a specific investigation for the abuse of a dominant position (if the data are held by a single, dominant company). That is because companies with market power may refuse to supply third parties with necessary data.²⁰² These dynamics are particularly relevant, for example, in aftermarkets.

Agreements to limit data sharing to only a handful of companies may restrict competition when these data are essential for the development of new products or to the survival of competitors.²⁰³ Under certain circumstances, the sharing of data under non-FRAND terms may also be an "exploitative abuse" under EU Competition laws.²⁰⁴ Of course, authorities must always consider the particularities of each market/contractual arrangement in a case-by-case assessment.

The report is against simply extending to digital markets the "essential facilities" doctrine developed to address concerns in infrastructure/intellectual property markets. That is because the three main criteria of the test as applied in the EU—(i) that a company holds a dominant position in a good/service; (ii) that is indispensable for the competition in a downstream market; and (iii) refuses to supply this good/service in an unreasonable manner, leading to the elimination of competition in this

¹⁹⁹ Crémer, de Montjoye and Schweitzer (n 6) at 83-85.

²⁰⁰ *Id.* at 59; 85.

²⁰¹ *Id.*

²⁰² *Id.* at 88.

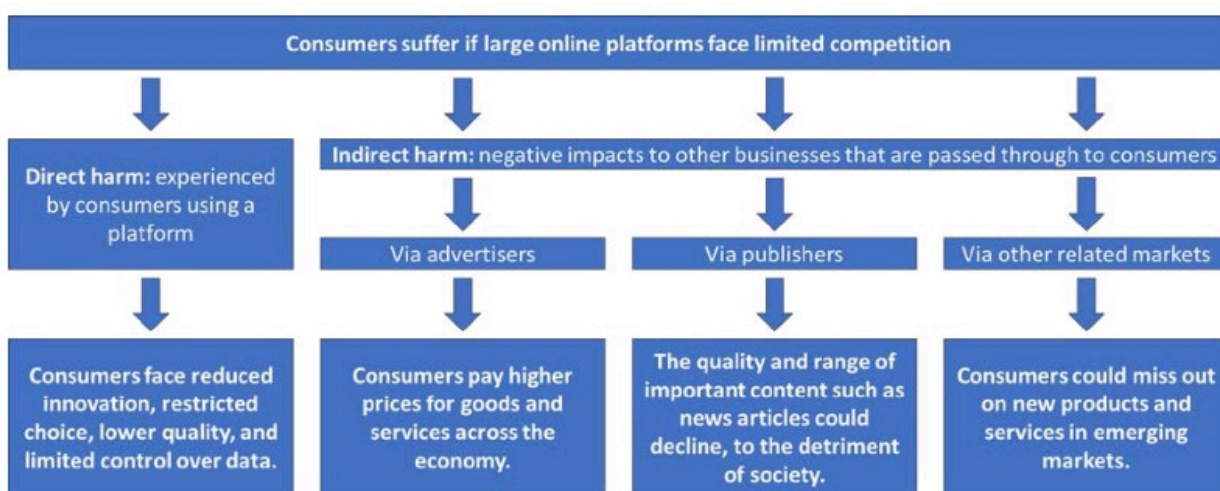
²⁰³ *Id.* at 9; 92.

²⁰⁴ *Id.* at 97.

downstream market²⁰⁵—were not developed considering the particularities of digital markets. The report defends that antitrust authorities may intervene in cases where a very dominant company controls a database that is a key competitive differential to connected markets.²⁰⁶ However, a regulatory system that is focused on understanding the particularities of data sharing may be more efficient and more responsive than antitrust intervention.²⁰⁷

The image below, prepared by the CMA, summarizes the many types of potential consumer harm that may take place in digital markets:

Image 6: Potential types of consumer harm from lack of competition in online markets



Source: CMA simplified assessment of consumer harm.

Source: CMA (n 14) at 69.

V. ASSESSING SPECIFIC DIGITAL MARKETS

Many reports assessed competitive conditions in specific digital markets. This section summarizes their conclusions, addressing the findings regarding competitive dynamics in price comparison markets, marketplaces/app stores, and markets based on online advertising (including search and social networks). All in all, the findings are aligned with the general views summarized above.

²⁰⁵ *Id.* at 98. AdC and Bundeskartellamt (n 5) at 18.

²⁰⁶ Crémer, de Montjoye and Schweitzer (n 6) at 99.

²⁰⁷ *Id.* at 100.

A. Price comparison tools, MFNs, and NBBSs

Digital Comparison Tools (“DCTs”) are important players in segments such as car sales and rentals, insurance, credit cards, shows and entertainment, and travel. They usually benefit consumers by diminishing search and switching costs, increasing competition among suppliers, and diminishing the costs of acquiring new clients—in doing so they help diminish barriers to entry and expansion.²⁰⁸ For these benefits to accrue, though, it is important to have inter-platform competition that pressures companies to lower fees, increase transparency, and improve service quality.²⁰⁹

The CMA prepared a study focused on DCTs’ impact on consumer welfare. This study concluded that while DCTs positively impacted competition and consumers, it is important for those platforms to treat consumers fairly and be more clear, more precise, more responsible, and easier to use.²¹⁰ In particular, the CMA stressed the need to properly inform consumers about the collection, access, and processing of personal data, to do a better job to not discriminate against minorities, vulnerable consumers and those with special needs, and to improve the transparency regarding fees and other forms of indirect remuneration that these DCTs charge/receive (for example, rebates for recommending a given service/product).²¹¹ Transparency regarding search results is essential—DCTs need to better inform consumers about potential conflicts of interests in sponsored links or other forms of awards the companies receive to show specific results, how much of the market they actually cover, and how they order search results.²¹² The study also recommended that regulators in sectors such as energy, telecom, insurance, and financial services increase DCTs’ access to data, allowing these platforms to better compare the quality of different services.²¹³ Data access is key because, without it, DCTs’ exclusive focus on price may prevent consumers from properly comparing the cost-benefit of different goods/services.

The CMA found that, in general, DCTs operate in markets that are concentrated (a lead supplier accounts for 40-60% of sales and the four lead suppliers for almost all of the market), but competitive.²¹⁴ Nonetheless, the study also expressed concerns about some specific practices, such as most favored nation clauses and non-brand bidding agreements. These have also

²⁰⁸ CMA (n 12) at 32.

²⁰⁹ *Id.* at 6.

²¹⁰ *Id.* at 9; 71.

²¹¹ *Id.* at 11; 38.

²¹² *Id.* at 39.

²¹³ *Id.* at 9.

²¹⁴ *Id.* at 54; E33.

been subject to other specific studies and are addressed in more detail below.

1. MFNs

Most-Favored Nation clauses (“MFNs”) guarantee that a given agent will receive the best terms of trade a player can offer. The impacts of MFNs over competitive dynamics depend on the specific characteristics of each market.²¹⁵ In general, MFNs can be used to protect investments in distribution networks and/or other assets/services that can be expropriated by third-parties without proper payment (free riding). In the case of online markets, this expropriation may take place when companies use a platform to help consumers find them, but refuse to pay the platform for the intermediation (e.g., charge a lower price on their websites that discounts the platform fee). When the MFNs relate to the entire market (e.g., best terms in relation to all other platforms), these clauses are called “*wide MFNs*.” When they relate solely to the sales channel controlled by the supplier (e.g., the hotel’s website), these clauses are called “*narrow MFNs*.”²¹⁶

Strong network effects present in many online markets encourage single-homing, increase the market power of incumbent platforms, and may strengthen the anticompetitive impact of MFNs and other similar clauses.²¹⁷ That is why MFNs should be minimal and well-targeted.²¹⁸ When the market has strong inter-platform competition, limiting wide MFNs may be enough; when this is not the case, authorities need to protect intra-platform competition and should consider banning narrow MFNs that block intra-platform price differences.²¹⁹

A 2017 study by the European Commission together with the European Competition Network provides an overview of how different approaches to MFNs impact market dynamics. In summary, after a series of antitrust investigations, some European jurisdictions restricted only wide MFNs, while others outlawed both wide and narrow MFNs.²²⁰ The 2017 study then evaluated differences in prices and availability of hotel rooms between different sales channels as well as the fees charged by Online Travel Agencies (“OTAs”) in more than 16,000 hotels. A survey indicated that even after the imposition of legal restrictions, 79% of hotels did not differentiate prices among different OTAs, 69% did not differentiate room supply among OTAs, and 90% did not verify changes in the fees charged by OTAs.²²¹ Companies argued that it would be costly to differentiate prices, that they saw no reason

²¹⁵ Crémer, de Montjoye and Schweitzer (n 6) at 56.

²¹⁶ *Id.* at 56.

²¹⁷ *Id.* at 5; 57; Furman (chair) and others (n 18) at 48.

²¹⁸ Crémer, de Montjoye and Schweitzer (n 6) at 5; 57.

²¹⁹ *Id.* at 5-6; 57.

²²⁰ European Competition Network (n 11) at 4.

²²¹ *Id.* at 7-8.

to differentiate among OTAs, that they feared some form of punishment by the booking agent, and/or that they did not want their website to be more expensive than the OTA website. The survey also indicated that 40% of the hotels surveyed charged different prices between the OTA website and their own website, and 30% offered rooms on their websites not available on the OTA platform.²²² A meta price study, however, indicated that the changes to the MFN increased price differences between OTAs in eight out of the ten surveyed countries.²²³ These results would be predominantly driven by hotel chains, as the results are not statistically significant for small/independent hotels.²²⁴ Finally, the study challenged the efficiency defenses presented by OTAs to justify MFNs, as there was no evidence that the banning of the clauses affected conversion rates.²²⁵

A separate study by the CMA also expressed concerns regarding MFNs. The CMA banned wide MFNs, arguing that they can raise prices to consumers by diminishing competition among different DCTs and between DCTs and other sales channels.²²⁶ It argued that such clauses may hinder the expansion of competing companies even when adopted by a single firm and that there would be less restrictive ways for companies to protect investments—in particular when there is no evidence of free riding and/or when narrow MFNs are equally effective.²²⁷ A CMA study indicated that MFNs increased prices in insurance markets between 3% and 4% between 2010 and 2016.²²⁸

The CMA also expressed concerns that narrow MFNs may, in certain circumstances, lead to the same competitive loss as wide clauses. In particular, although narrow MFNs are better targeted and more likely to generate efficiencies, these would vary by sector and depend largely on consumer behavior. Moreover, DCTs may develop alternative, less restrictive means to ensure they are properly rewarded for their efforts—such as by charging referral fees. The CMA indicated that it will remain vigilant to see whether undertakings are expanding the use/scope of narrow MFNs, but that preliminary results did not indicate that these narrow clauses adversely impacted competition.²²⁹

2. NBBAs

Non-brand bidding agreements (“NBBAs”) are agreements between a

²²² *Id.* at 14; 17.

²²³ *Id.* at 12; 30; 34.

²²⁴ *Id.* at 12-13; 41.

²²⁵ *Id.* at 20.

²²⁶ CMA (n 12) at 58; E38.

²²⁷ *Id.* at 58; E40.

²²⁸ *Id.* at E41.

²²⁹ *Id.* at 60; E46-47; E53. See also JFTC (n 16) at 74.

company and a supplier/distributor through which the parties agree not to utilize the brand of the supplier/competitor when buying search advertising. For example, hotels and OTAs may negotiate that OTAs will not buy/sell advertising space based on the hotel's name, e.g., "Hilton." NBBAs may be *narrow* (the search is exactly the name) or *wide* (the search contains the name).²³⁰ This practice, which is common in many industries, has been analyzed by two independent reports, one from the British CMA and one from the Dutch ACM.²³¹

The ACM study is more recent and focuses not only on the impacts over online traffic but also prices. It focuses on NBBAs between hotels and OTAs regarding advertising on search engines (e.g., Booking.com may not bid on "Hilton" Google search). Theoretically, the study finds that these clauses may have both positive and negative effects on welfare. By segmenting markets, NBBAs theoretically enable price increases by raising consumers' search costs. However, they also protect companies from free-riding effects on their trademark investments and diminish marketing costs, a potential efficiency.²³² In particular, the theory of harm indicates that some firms may be in a prisoner's dilemma where all companies are better off if none of them bid on another's name, but they all do so to protect their own brands.²³³ The econometric studies by the ACM indicate that wide NBBAs led to a 2% average price increase between the values charged on the hotel's website and on those on the OTAs. For a subgroup of the 25% of hotels that most commonly disregarded MFNs, the price increases were up to 5%.²³⁴ The study concludes that NBBAs probably increase the overall prices charged by hotels on their websites and that the lower marketing expenses are not shared with consumers.²³⁵

The CMA's study on DCTs, however, did not find evidence that NBBAs negatively impact consumers. The CMA stated it would closely monitor the use and impacts of NBBAs in the future.²³⁶

B. App Stores

The ACM and the House Majority Report are the main studies on the competitive dynamics of marketplaces/app stores, focusing on Google's Play

²³⁰ ACM (n 10) at 8. There is also *negative matching* when the company cannot compete in results that include the name of the firm. CMA (n 12) at E66.

²³¹ ACM (n 10). CMA (n 12).

²³² ACM (n 10) at 7. CMA (n 12) at E68-70.

²³³ ACM (n 10) at 7.

²³⁴ *Id.* at 20.

²³⁵ *Id.* at 4; 22.

²³⁶ CMA (n 12) at 64; E75.

Store and Apple's App Store.²³⁷ *Apps* are software that run on mobile operating systems with more limited functionalities than desktop programs.²³⁸ They are usually distributed through stores that enable users to discover, install, update, and remove apps from their devices. Developers monetize apps by charging subscriptions or purchase fees, selling ads or data, charging fees for services outside of the apps (e.g., banks) or by intra-app acquisitions (the freemium model). The ACM reports that apps are central for consumers—of the sixty-one monthly hours Dutch consumers spent on their cellphones, fifty-five are spent in apps and only six on browsers.²³⁹ Although Facebook may be an important distribution channel for many app developers, browser and internet apps would not be good substitutes for mobile apps, as their functionalities and distribution channels are limited.²⁴⁰

For the ACM, Google and Apple control the smartphone operating system markets, with a 99% world share (86% for Google's Android and 13% for Apple's iOS)—the same conclusions reached by the House Majority Report.²⁴¹ In the Netherlands, between 30% and 45% of users had iOS and the Apple App Store is the sole store available. For the 55% to 70% of users that relied on Android, the Google Play Store is the main alternative, though some rivals exist (such as Samsung Galaxy Store for Samsung phones).²⁴² While Apple has a smaller user base, iOS users spend more per capita, so the App Store's turnover is twice that of the Play Store.²⁴³

Both Apple and Google maintain full control over their ecosystems, establishing terms of use and conditions to access functionalities and interoperability obligations, forcing or restricting data access, pre-installing or blocking certain applications, ranking apps in their stores, controlling

²³⁷ ACM (n 9)

²³⁸ *Id.* at 20.

²³⁹ *Id.* at 15; 20.

²⁴⁰ *Id.* at 24. See also House Majority Report (n 24) at 94.

²⁴¹ House Majority Report (n 24) at 100; 335. The Report hosts a section that analyses in slightly more detail competition in mobile operating systems. It concludes that Google's and Apple's dominant position in that market are durable and persistent, but that high switching costs and lack of on-device competition mean that both firms do not compete directly (*Id.* at 102). Both positions are protected by high barriers to entry, as consumers normally do not switch operating systems due high costs in buying a new phone, changes in interfaces and the hassle of porting data, among others, as well as high fixed costs and network effects for app development (*Id.* at 103-105). It also finds that Google used its control over Android to gain access to real time market data and to privilege its own apps and search engine, potentially in violation of antitrust laws (*Id.* at 211-222). As many of the competitive concerns around mobile operating systems are similar to those around App Stores, we decided to condense the analysis in a single section and focus on App Stores.

²⁴² ACM (n 9) at 4; 15; 21. See JFTC (n 16) at 19 for similar data.

²⁴³ ACM (n 9) at 27; 52.

payment methods, and more.²⁴⁴ As both the Play Store and the App Store contain millions of apps, the power to control discovery/search results can shape competitive outcomes in these markets. The report indicates that 44% of users click on the first search result within app stores, and 87% of users click on the first five results displayed.²⁴⁵ Apple and Google also control advertisement and other functionalities such as “discover” or “tip of the day.” Developers normally rely on paid advertising to gain popularity, since algorithms usually privilege the most-downloaded apps.²⁴⁶ Indeed, 0.1% of the apps in the App Store accounted for 85% of all downloads, and 3.3% in the Play Store.²⁴⁷

The ACM stresses how the multi-sided nature of app stores generates strong network effects: A larger number of apps encourages more users and vice-versa—both are essential to a vibrant ecosystem.²⁴⁸ In particular, these network effects tend to “tip” the markets to concentration, so that only one or a few players become dominant.²⁴⁹ The need to attract complements creates a dynamic where platforms have incentives to lower barriers to entry while competition is still taking place and then raise switching costs and use their market power to extract rents when the market tips towards a dominant player. Lower complexity and easier user interfaces, combined with different business models (in particular Android’s free distribution) and less ecosystem fragmentation were key for the iOS and the Android to trigger the sort of bandwagon effect that allowed them to overcome Nokia’s Symbian ecosystem and Microsoft’s Windows Phone.²⁵⁰ Indirect network effects then protect Apple’s and Google’s dominant position, making it very hard for alternative platforms to enter the market.²⁵¹

The report also stresses how platforms are rightly concerned about congestion effects that increase search costs and diminish the welfare of consumers and app developers.²⁵² In order to avoid this, companies control access to the store by requiring prior authorization to list apps, retaining the power to remove them and controlling search results.²⁵³ By controlling the ecosystem, Apple and Google may both encourage the development of network effects and profit from them to protect their market position.

On the one hand, both Apple and Google provide a great service to

²⁴⁴ *Id.* at 15.

²⁴⁵ *Id.* at 22.

²⁴⁶ *Id.* at 24.

²⁴⁷ *Id.*

²⁴⁸ *Id.* at 34.

²⁴⁹ *Id.* at 21.

²⁵⁰ *Id.* at 34-35.

²⁵¹ *Id.* at 39.

²⁵² *Id.* at 21.

²⁵³ *Id.* at 22.

consumers and app developers. App stores have significantly lowered barriers to entry and expansion and enabled new companies to access consumers.²⁵⁴ The control that Apple and Google maintain over their ecosystems also enables them to police the ecosystem and promote innovation, restrict undue data collection/sharing, and protect consumers from fraud and/or low quality products.²⁵⁵ By requiring that app stores only use their pre-approved methods, these companies also protect users from fraud, increase convenience, speed up payment, and reduce developers' costs with billing, etc.²⁵⁶ All of these are important innovations that generate significant gains in consumer welfare.

On the other hand, Google's and Apple's dominant position in the mobile operating systems' market put them in a gatekeeper position to control the interaction between companies and app developers—in particular given their power to control the discovery of apps.²⁵⁷ Consumers are forbidden (by Apple) or highly discouraged (by Google) from downloading competing app stores.²⁵⁸ These companies also pre-install their own apps and restrict functionalities such as auto-updates.²⁵⁹ The report argues that browsers and other online apps are not good replacements for mobile apps—indeed, one of the main criteria used by Apple and Google to approve an app is that it has better functionalities and interfaces than online webpages.²⁶⁰ Web apps also have more limited access to the cellphones' systems/functionalities such as camera or GPS, have lower performance, are less responsive, cannot collect as much data, and in many cases are not available offline.²⁶¹

The control over access and interoperability conditions is key for the business models developed by Google and Apple. Regarding Apple, the report stresses the company's ability to direct consumers to its own services, creating a closed, insulated ecosystem that enables the company to charge higher prices.²⁶² Regarding Google, the control over access and interoperability enables the company not only to protect its position in search and online advertising, but also to expand in connected markets, ensuring a constant flow of personal data that supplies its business model.²⁶³

For the ACM, the control these companies keep over their app stores, when combined with the lack of real alternatives for app developers wishing

²⁵⁴ *Id.* at 6. House Majority Report (n 24) at 94.

²⁵⁵ ACM (n 9) at 7; 30.

²⁵⁶ *Id.* at 29.

²⁵⁷ *Id.* at 3; 15. House Majority Report (n 24) at 219; 335.

²⁵⁸ ACM (n 9). at 45. House Majority Report (n 24) at 335-336.

²⁵⁹ ACM (n 9) at 5; 50-51

²⁶⁰ *Id.* at 42-43. House Majority Report (n 24) at 96-97.

²⁶¹ ACM (n 9) at 42-43.

²⁶² *Id.* at 59-60

²⁶³ *Id.* at 65.

to access consumers, grant Apple and Google bottleneck power.²⁶⁴ The closed nature of these ecosystems significantly increases switching costs—in particular for app developers who need to code on two different systems.²⁶⁵ Indeed, the ACM concludes that switching costs and user characteristics (e.g., expenditures per capita) are so high that the Apple App Store and the Google Play Store can be seen as two separate relevant markets that must be analyzed independently.²⁶⁶

This consumer lock-in grants Google and Apple strong bargaining power vis-à-vis app developers and consumers themselves. Indeed, the ACM argues that these companies structure their platforms to continually strengthen their bargaining power over developers and consumers.²⁶⁷ For most developers, terms of use are imposed by the platforms on a take-it-or-leave-it basis—only very large developers, those with capacity to directly access consumers, can negotiate better terms.²⁶⁸ This control over the ecosystem also enables companies to leverage their dominant position to adjacent markets, protecting the platform from potential entrants.²⁶⁹

The study reports many concerns around the business practices of both companies. For example, the ACM concludes that the terms of use for both app stores are purposefully vague, something that grants Apple and, to a lesser extent, Google great power to freely interpret them.²⁷⁰ The lack of responsiveness was also seen as a problem, as companies rely on these general terms to deny new apps, block new functionalities in apps that are already in the stores and, often, refuse to comply with developers' requests for further explanations on the reasons for the denials.²⁷¹ Both companies also fail to notify developers about changes in terms of use or functionalities, which leads to app malfunctioning or even the suspension of apps for a long period of time, damaging developers' brands and leading to losses in revenue.²⁷²

This policy may be necessary to ensure the high quality of the app stores, in particular because the companies receive a large number of submissions—

²⁶⁴ *Id.* at 40. A bottleneck is defined by the ACM as “platform that controls access to the market for content providers, product providers or service suppliers, as well as access to content, products or services for consumers, when no realistic alternatives are available outside of the platform, and when this platform becomes indispensable for businesses to compete or enter a market”. See also, House Majority Report (n 24) at 98; 219, arguing the same but defining these companies as “gateways”.

²⁶⁵ ACM (n 9) at 53.

²⁶⁶ *Id.* at 52. House Majority Report (n 24) at 95.

²⁶⁷ ACM (n 9) at 68. JFTC (n 16) at 23.

²⁶⁸ ACM (n 9) at 69.

²⁶⁹ *Id.* at 5; 41; 52; 58; 73. House Majority Report (n 24) at 99.

²⁷⁰ ACM (n 9) at 76-77. House Majority Report (n 24) at 221-222; 368-372.

²⁷¹ ACM (n 9) at 5; 97.

²⁷² *Id.* at 98-99. JFTC (n 16) at 27.

Apple strives to answer its 100,000 weekly new app requests in forty-eight hours.²⁷³ That notwithstanding, such policies may also raise barriers to entry and, particularly worrisome, enable Google and Apple to copy the products/services offered by developers without any form of compensation, expropriating their investments.²⁷⁴ The study presents several different such instances that may have negatively impacted competition. For example, a large developer had had its app rejected in the App Store for alleged lack of demand, only to see a similar app being released by Apple months later;²⁷⁵ Apple also rejected Samsung Pay, an app that competed with Apple pay, and Google excluded all apps that blocked online advertising from the Play Store to protect its rents in the online advertising business.²⁷⁶ Finally, the House Majority Report finds that Apple rejected apps that allowed parents to control their kids' screen time on privacy protection grounds, only to launch a similar application later and then reinstating the removed apps without modification after public scrutiny.²⁷⁷

Developers also reported to the ACM many potential abuses connected to access conditions and interoperability within these ecosystems—in particular in relation to pre-installation and fees—stating how these would put them at a position of disadvantage vis-à-vis apps from the platforms.²⁷⁸ The companies block developers from steering clients to payment methods outside of the stores, forcing these developers to pay a 30% fee on all intra-app transactions (15% for the second-year of subscriptions).²⁷⁹ In the case of Apple, this would be on top of a USD 99 per year annual fee paid by developers for enrollment in Apple's App Developer Program, something that would have led to almost USD 3 billion in revenues for Apple in 2020.²⁸⁰ Also in the case of Apple, app developers have limited access to consumer data, preventing them from improving their products or organizing better marketing campaigns, and Apple might be using its access to competitively sensitive information when building competing apps—potentially in violation of antitrust laws.²⁸¹ There are also restrictions relating to the Wi-Fi Application Programming Interfaces (“APIs”), voice assistants like Siri or

²⁷³ ACM (n 9) at 76.

²⁷⁴ *Id.* at 99. JFTC (n 16) at 70. House Majority Report (n 24) at 221-222.

²⁷⁵ ACM (n 9) at 77. House Majority Report (n 24) at 365-368.

²⁷⁶ ACM (n 9) at 79.

²⁷⁷ House Majority Report (n 24) at 366-368.

²⁷⁸ ACM (n 9) at 5; 86; 88. JFTC (n 16) at 68.

²⁷⁹ ACM (n 9) at 29; 86; 89-91. See also the House Majority Report (n 24) at 99; 342-343; 349-350, stressing that the high commissions charged by Apple and Google in their App Stores demonstrates “the lack of competition in the software distribution markets” and has led to higher prices for consumers and less innovation.

²⁸⁰ *Id.* at 346.

²⁸¹ ACM (n 9) at 93. JFTC (n 16) at 63. House Majority Report (n 24) at 362-365.

Google Assistant, and Apple’s near-field communications (“NFC”) chip that controls short-distance communication between devices or screen control.²⁸² Other concerns arise when companies prevent (Apple) or restrict (Google) competing developers from pre-installing apps on their devices or make their own apps sticky defaults.²⁸³ Finally, companies might use their control over search results/rankings to privilege their own products, preventing competing firms from obtaining the critical mass necessary to establish themselves on the market or putting them at a position of competitive disadvantage.²⁸⁴

In general, these policies place developers in a condition of economic disadvantage when they compete with Apple/Google, may harm innovation and may lead to higher prices.²⁸⁵

To conclude, the ACM highlights three types of conduct that require specific analysis: (i) Google and Apple privileging their own apps over those of competitors; (ii) Google and Apple treating third-party apps in a discriminatory manner; and (iii) Google and Apple not being transparent in their communications with developers.²⁸⁶ The ACM opened an investigation against Apple for a potential abuse of dominant position in 2019.²⁸⁷

C. Online Commerce

The House Majority Report, a study by the JFTC and a study by the Competition Commission of India are the main reports focused on online commerce.²⁸⁸ As House Majority Report is the most detailed, we will use it as the backbone for this section.

The House Majority Report defines *online commerce* as “the activity of buying and selling services using the internet”.²⁸⁹ It separates online commerce between fully-integrated, multi-category marketplaces such as Amazon and eBay and vertical, and single-category marketplaces such as Newegg.com (focused on computer hardware).²⁹⁰ It also states that marketplaces may present different combinations of first and third-party sellers, and may offer services to these third-party sellers such as advertising and fulfillment services, among others. Marketplaces make money in three

²⁸² ACM (n 9) at 81-82. House Majority Report (n 24) at 355-356.

²⁸³ ACM (n 9). at 84. House Majority Report (n 24) at 356-357.

²⁸⁴ ACM (n 9) at 85. JFTC (n 16) at 88. House Majority Report (n 24) at 353-355; 360-362.

²⁸⁵ House Majority Report (n 24) at 351-352.

²⁸⁶ ACM (n 9) at 7; 106.

²⁸⁷ Autoriteit Consument & Markt, *ACM launches investigation into abuse of dominance by Apple in its App Store* (2019), /en/publications/acm-launches-investigation-abuse-dominance-apple-its-app-store.

²⁸⁸ House Majority Report (n 24), JFTC (n 16) and Competition Commission of India (n 23).

²⁸⁹ House Majority Report (n 24) at 85.

²⁹⁰ *Id.*

different ways: from a fee charge in exchange for services to third-parties, regular profits margins in the sale of their own private label products or in the resale of third-party products and by charging membership and other consumer-targeting fees.²⁹¹

The House Majority Report finds that Amazon is a clear leader and has significant and durable market power in the US e-commerce industry, being at least eight times larger than eBay and Walmart.²⁹² The Report estimates that Amazon's share in US e-commerce is above 50%, though it lacks very reliable data.²⁹³ Amazon would also respond for 65-70% of all e-commerce on online marketplaces—yielding significant influence over the business strategies of smaller sellers and of suppliers.²⁹⁴ It concludes that even very large retailers such as Walmart are incapable to compete with Amazon in terms of cost and speed of delivery—though it sees this as proof of Amazon's market power, it is not clear from the report whether it also sees this as a positive feature or a competitive problem.²⁹⁵

The Report also stresses the importance of sellers landing in the default Buy Box, as this would respond for almost 80% of all Amazon sales and a potentially higher percentage on mobile.²⁹⁶ It also affirms the importance of Amazon's growing logistical services, as 85% of the top 10,000 Amazon marketplace sellers rely on Amazon for fulfilment and delivery.²⁹⁷

The House Majority Report finds, generally, that Amazon's dominant position is protected by economies of scale in building a logistics network, investing in brand, etc.; direct and indirect network effects; and generally high switching costs for consumers (in particular Prime Members).²⁹⁸ It also finds that this dominant position is protected by Amazon's history of strategic acquisitions that enabled it to expand into new segments, obtain better access

²⁹¹ *Id.* at 86.

²⁹² *Id.* at 86; 254.

²⁹³ *Id.* at 254. The Report cites data from research company eMarketer estimating that Amazon controls 38.7% of US e-commerce. It warns, however, that this definition may be overly broad because it includes all e-commerce, including segments that are relevant and where Amazon is not present, such as online cars and insurance. On the other hand, another company, Jumpshot, estimates that Amazon controls an average of 74% of digital transactions in many segments where it is present—but this may be an overestimate because it focuses solely on well-known market participants such as Walmart and Target and not smaller retailers.

²⁹⁴ *Id.* at 255-258. The Report cites other data to back its view that Amazon is dominant in the US e-commerce market, such as the fact that Amazon Prime covers 44% of the US adult population, has 2.3 million active sellers in its worldwide marketplace (versus 54,000 from Walmart) and the company would be the start for 60% of US online product searches

²⁹⁵ *Id.* at 260.

²⁹⁶ *Id.* at 262-264.

²⁹⁷ *Id.* at 264.

²⁹⁸ *Id.* at 261.

to customer data and to neutralize threats by acquiring potential or actual rivals.²⁹⁹ The Report finds that Amazon engaged in strategic price wars to weaken competitors and induce acquisitions, such as when it started a price war against competing company Diapers.com where it would be willing to lose up to USD 200 million per month as a way to induce the company to sell itself to Amazon.³⁰⁰ Amazon then shut down the company in 2017.

The Report finds that Amazon engaged in a series of what it calls “bullying tactics” against sellers in its own marketplace, such as tying the access to Amazon’s marketplace to selling through Amazon retail, threatening to remove a company from the Buy button or to list the company as out-of-stock as a way to obtain better commercial terms.³⁰¹ Other problems would be in relation to Amazon’s terms of use, that enable the company to suspend accounts for any reasons and without Amazon providing effective dispute resolution channels.³⁰² For the Report, Amazon’s system of requiring forced arbitration clauses would prevent companies from litigating these problems in Court, as shown by the fact that between 2014 and 2019 only 163 and 16 vendors initiated arbitration proceedings.³⁰³ It also finds that as Amazon’s market dominance grew, it started raising its prices and fees for third-party sellers (increasing from an average of 19% in 2015 to 30% in 2020) and appropriating more sellers’ data, which it then uses to promote its own sales.³⁰⁴ In particular, the Report finds that Amazon is using this seller data to strengthen its first-party sales in many different categories, even as the overall number of third-party sales increase on the overall platform.³⁰⁵

²⁹⁹ *Id.* at 261, 267.

³⁰⁰ *Id.*

³⁰¹ *Id.* at 269-271.

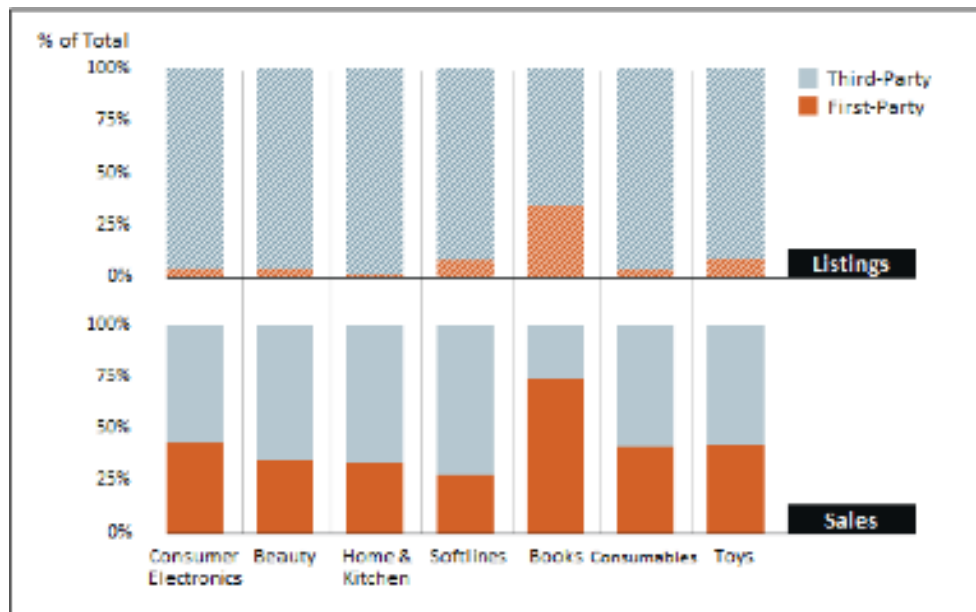
³⁰² *Id.* at 270-272.

³⁰³ *Id.* at 273.

³⁰⁴ *Id.* at 273-275.

³⁰⁵ *Id.* at 275-280.

Image 7: Third-Party vs. First-Party Listings and Sales on Amazon



Source: House Majority Report (n 24) at 276.

All in all, the Report concluded that Amazon's use of third-party data to instruct its own sales is not comparable to that of a traditional brick-and-mortar retailer, as Amazon has much more detailed data on both user and seller behavior and is in a position to reverse engineers cost structures.³⁰⁶ It also finds that Amazon self-preferences its own products by providing itself better access to user reviews and better access to search advertising within the platform (and even blocking competitors from accessing it).³⁰⁷ The Report also finds that Amazon uses its control over the Buy box to push companies to hire its fulfilment services and may require companies to buy advertising if they want to have access to organic search results or to fight counterfeits that are listed on the Amazon Marketplace.³⁰⁸ Finally, it also finds that Amazon makes uses of MFN clauses and predatory pricing strategies to obtain or maintain its dominant position—potentially raising prices once customers are locked-in.³⁰⁹ In particular, Amazon would potentially leverage Amazon Prime to ensure customer lock-in.³¹⁰

The reports by the JFTC and the Indian Competition Authority express many similar concerns. However, they address potential imbalances in

³⁰⁶ *Id.* at 280-283.

³⁰⁷ *Id.* at 284-285.

³⁰⁸ *Id.* at 288-295.

³⁰⁹ *Id.* at 296-302.

³¹⁰ *Id.* at 298-299.

marketplaces in a broad manner and do not focus specifically on the behavior of Amazon or other particular companies.³¹¹

D. Digital Mapping

The House Majority Report is the main study focused on *digital mapping services* that it deems as a critical service to users and businesses alike.³¹² Maps rely on a digital maps database that can be build based on satellite and street imagery, Global Positioning Systems (GPS) traces and public domain mapping data. The leading provider for digital mapping data is Google, but smaller companies include HERE, TomTom and OpenStreetMap.³¹³ Google is also the leading provider of mapping services through its Google Maps and Waze products, but smaller providers include Bing Maps and Apple Maps.³¹⁴ There is also a separate market for business-to-business mapping services, much with the same players.

The House Majority Report states that Google's dominant position in the markets for digital maps is protected by several market characteristics that include: (i) the high fixed costs and Google's willingness to invest heavily in its mapping database without needing to turn a profit (at least in early stages of competition for the market); (ii) economies of scope in the collection of data associated with product portfolio; (iii) integration of mapping services with other products, such as Google and Apple's default placement for Android and iOS devices; and (iv) lack of restrictions on the accurate collection of location data, something that has changed with the passage of new data protection laws.³¹⁵ It also finds that Google's acquisition of Waze in 2013 solidified Google's dominant position and eliminated its only meaningful threat.³¹⁶ It is worth noting that the CMA hired a consultancy to review its approval of the Google/Waze transaction. The associated report found important flaws in the analysis (described in Section IV.F.2. below), a conclusion that is broadly shared by the House Majority Report.³¹⁷

³¹¹ The JFTC report finds potential problems with the high fees/commissions charged by marketplaces. It also reported potential competitive concerns with other conduct, such as withholding payments to suppliers, charging joint commissions for different services, charging potentially abusive fees (in particular for product returns, damaged goods, delivery conditions, etc.), and imposing advertising fees. These would all be connected with platforms' strong bargaining powers. See JFTC (n 16) at 29; 34; 43; 46; 49; 52 and 85. Competition Commission of India (n 23) at 31 (expressing similar concerns regarding bargaining power).

³¹² *Id.* at 107.

³¹³ *Id.*

³¹⁴ *Id.* at 107-108.

³¹⁵ *Id.* at 108-109; 230-232; 234-235.

³¹⁶ *Id.* at 223.

³¹⁷ *Id.* at 237-238.

The Report finds that as Google gained market share and strengthened its dominant position, it introduced greater licensing restrictions.³¹⁸ In addition, it allowed Google to significantly raise prices for access to the Maps API, to require the sharing of more user data and to prevent competitors from using any features of Google's Maps Core Service—forcing companies to either only use Google Maps or not use it at all and raising barriers to entry to smaller providers.³¹⁹ The report also finds that Google may restrict access to some Maps functionalities (such as caching) in a way that privileges its own services.³²⁰

E. Cloud Services

The House Majority Report is also the main study focused on *cloud computing*, or the remote storage and software programs on demand through the internet.³²¹ It stresses the strategic and fast-growing nature of these services, that enabled the rise of enterprise business such as Netflix, Airbnb, Lyft and others.³²² As such, it has become a critical infrastructure for most digital services.

The Report separates between three models of cloud computing services: (i) *Service as a Service* (SaaS), where user accesses applications from various different devices by relying on a client or a program interface; (ii) *Platform as a Service* (PaaS), where users build new applications by accessing programming languages and tools supplied or supported by the cloud provider; and (iii) *Infrastructure as a Service* (IaaS), where users (e.g. engineers) run software on the storage and processing capacity supplied by the cloud provider.³²³ Major providers such as Amazon Web Services (AWS), Microsoft Azure and Google Cloud Platform provide all three models. Many times, cloud providers charge a subscription fee for access to their infrastructure and services.³²⁴ AWS is the market leader, responding for 24% of U.S. spending on cloud computing in 2018. AWS is also a leader in the IaaS market, with a 50% share versus 15% of Microsoft and even less by other suppliers.³²⁵

The Report also finds that market leaders benefit from first mover advantages, as shown by the fact that Amazon, Microsoft and Google all released their products between 2006 and 2008 and by internal documents of

³¹⁸ *Id.* at 235.

³¹⁹ *Id.* at 239-242.

³²⁰ *Id.* at 242-243.

³²¹ *Id.* at 109.

³²² *Id.* at 110.

³²³ *Id.* at 111.

³²⁴ *Id.* at 112.

³²⁵ *Id.* at 114.

these companies.³²⁶ Other market characteristics that may increase entry barriers include compliance certifications, reputation—as many services hold key customer data and provide key services—and network effects associated with product integration and partner networks.³²⁷ All of these lead to customer lock-in, which is aggravated by long-term contracts, a complex and not transparent pricing structure and differences in technical design between providers.³²⁸ That notwithstanding, IaaS prices have been decreasing over time, as companies gain economies of scale and scope associated with the high-costs for data centers and competition commoditizes offerings.³²⁹

All in all, the House Majority Report affirms that Amazon and AWS have a dominant position in cloud computing—Amazon is the largest provider and AWS is highly profitable.³³⁰ Amazon is enjoying its first mover advantage, its ability to explore economies of scale and scope, market network effects and a general push by Amazon to lock-in consumers by requiring long contracts, minimum volume and the use of high egress fees to export data.³³¹ For the Report, Amazon’s dual role as a dominant provider of cloud infrastructure and a dominant firm in other markets also creates conflicts of interest that Amazon has the incentive and ability to explore.³³² This particularly include access to sensitive data and its appropriation of open-source software in a way that harm market innovation.³³³

The House Majority Report stresses the need to diminish switching costs through standards and data portability/interoperability to ensure that competition is maintained as the market matures and further concentrates.³³⁴ In addition, it expresses some concerns that current market participants may leverage on strategic acquisitions and potentially illegal behavior such as tying services to obtain and solidify dominant positions.³³⁵

F. Voice Assistants

The House Majority Report also discusses voice assistants, or user interfaces that enable exchanges between computing services based on voice commands.³³⁶ The report distinguishes between general and specialized

³²⁶ *Id.*

³²⁷ *Id.* at 116-117.

³²⁸ *Id.* at 118.

³²⁹ *Id.* at 115-116.

³³⁰ *Id.* at 318-319.

³³¹ *Id.* at 318-321.

³³² *Id.* at 322.

³³³ *Id.* at 326-329.

³³⁴ *Id.* at 119.

³³⁵ *Id.* at 246.

³³⁶ *Id.* at 120.

voice assistants, the former respond to multiple queries while the latter specializes in specific commands for specific devices.³³⁷

Companies can monetize voice assistants either by using them to drive revenue in complementary lines of business such as search or e-commerce, by charging fees (e.g. on payments) or by bundling software and hardware or by charging other fees.³³⁸ The market is divided between Apple (35% share), Google (9%) and Amazon (4% share) as counted in shipped devices in 2019. If smart speakers are considered independently, Amazon leads the market with a 61% share, followed by Google (24% share), Apple (2.7% share) and Sonos (2.2% share).³³⁹ The market is bound to grow as the Internet of Things also expands and as companies look for new ways to obtain personal customer data.

The Report places Alexa and the Amazon Echo at the core of Amazon's strategy to lead in an Internet of Things ecosystem.³⁴⁰ It generally finds that Amazon is a leading player in this market, though it does not find Amazon as having a dominant position given the growing competition from Google and Apple.³⁴¹ The Report finds, however, that Amazon has been leveraging on strategic acquisitions to strengthen its position in this market and to reinforce its dominant position in e-commerce, in particular by self-preferencing its own.³⁴² It also finds that Amazon is pricing devices below cost, using its power as a gatekeeper to e-commerce, force companies to share data and use strategic investments in startups to increase Alexa's market penetration.³⁴³ Some similar concerns with regards to strategic acquisitions and self-preferencing were also reported for Apple's Siri.³⁴⁴

New entrants face important barriers to entry and expansion. These include direct and indirect network effects associated with userbases and application developments; the high fixed costs associated with investments in hardware, infrastructure and, in particular, software associated with Natural Language Processing ("NLP") required to understand voice commands; and potentially high user switching costs as voice assistants learn user preferences over time.³⁴⁵ The verticalization in cloud services and incumbents' willingness to sell voice assistants at a loss were also considered

³³⁷ *Id.* at 121.

³³⁸ *Id.* at 121-122.

³³⁹ *Id.* at 122.

³⁴⁰ *Id.* at 306.

³⁴¹ *Id.* at 307-308.

³⁴² *Id.* at 307-311.

³⁴³ *Id.* at 312-315.

³⁴⁴ *Id.* at 375-377.

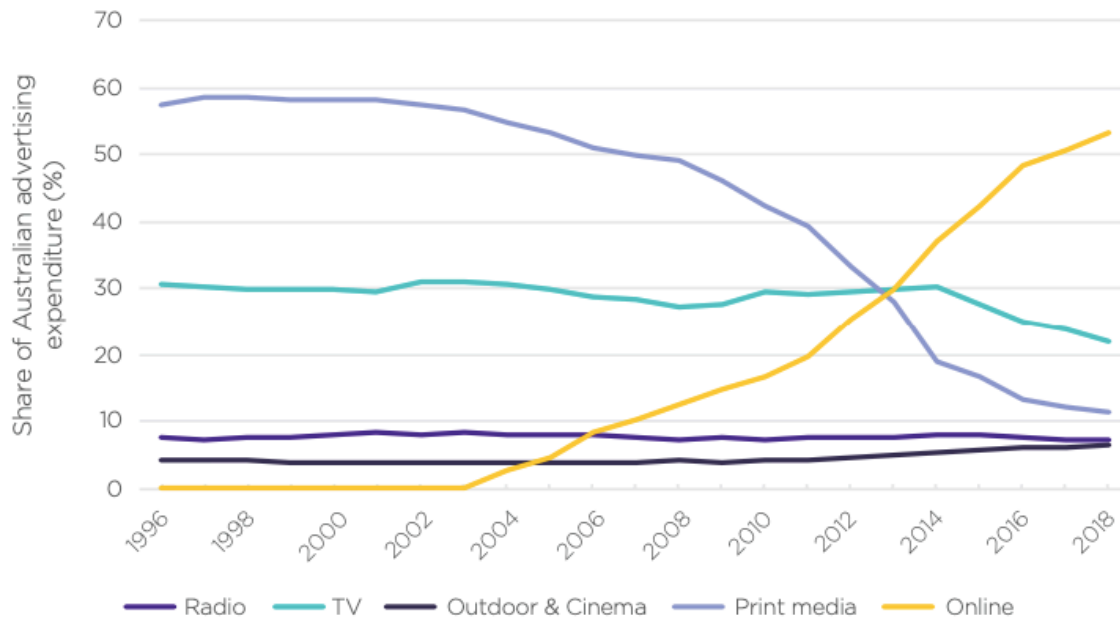
³⁴⁵ *Id.* at 123; 308. NLP is a machine learning process that is heavily reliant on user data, something that also benefits incumbents.

barriers to the development of smaller competitors.³⁴⁶ Users may also be locked-in as voice assistants are designed to learn and adapt to specific users. Potential future concerns in this market would be associated with self-preferencing by platforms or by misuse of user data to harm users or, in particular, to harm competitors as platforms leverage this information to glean competitive insights.³⁴⁷

G. Markets based on online advertisement

Online advertising markets are the most studied of all. The nominally free nature of many digital services reinforces the need for adequate competition in online advertising markets as a way to enable an ecosystem that welcomes innovation.³⁴⁸ Online advertisement markets are also important to ensure a vibrant journalism market, which is essential to democracy. In addition, estimates indicate that in 2019 online advertising markets started accounting for more than 51% of all advertising expenditures around the world, a percentage that will only grow with time. The image below, from the ACCC report, showcases the impressive shift in advertisement markets in Australia:

Image 8: Share of Australian advertising expenditure



Source: CEASA, ACCC analysis based on stakeholder data.

³⁴⁶ *Id.* at 124.

³⁴⁷ *Id.* at 125.

³⁴⁸ Furman (chair) and others (n 18) at 112.

Source: ACCC (n 7) at 121.

The reports find, however, that notwithstanding their importance, online advertisement markets are very opaque: Not even large players are able to adequately comprehend the real success of their advertisement campaigns.³⁴⁹ This opacity is a by-product of the market power of digital platforms, which use this lack of transparency to extract rents and increase switching costs.³⁵⁰ According to the Stigler report, increases in advertising prices do not necessarily translate into higher welfare, as more competition in this area may lead to companies wasting resources that would be better spent in other areas. In particular, companies may be in a prisoner's dilemma where they invest in a zero return advertisement just because not investing would be even worse.³⁵¹

In July 2020, the CMA published the conclusions of a broad market study on markets based on online advertising.³⁵² It finds that the UK markets for general search, social networks, search advertisement, display advertisement, and open display advertisement are tightly controlled by Google and Facebook.³⁵³ These findings are corroborated by three other reports analyzing digital advertisements markets in Australia, France and the US.³⁵⁴ The subsections below summarize these reports, using the CMA's finding as guidance and complementing it with data from the three other reports.

1. Online advertisement markets

Online advertisement markets are key to innovation and competition—many startups and companies depend on them to grow. They are also important to the economy as a whole, as markups in online advertisement are a cost that can be passed on to consumers. Less competition in these markets would lead to more collection of personal data (as platforms offer consumers disadvantageous take-it-or-leave-it terms) and to diminished consumer returns for their data and attention.³⁵⁵

The reports find low levels of substitution between online advertisement and advertising through legacy channels such as TV, radio, and newspapers.³⁵⁶ First, the role of data and the personalization capacity differentiate these mediums. Second, many online advertisers are small

³⁴⁹ Stigler Committee on Digital Platforms (n 3) at 61.

³⁵⁰ *Id.*

³⁵¹ *Id.* at 68; See also Furman (chair) and others (n 18) at 15; 114-117, discussing other potential negative impacts on consumers.

³⁵² CMA (n 14)

³⁵³ *Id.* at 11-12; 211.

³⁵⁴ ACCC (n 7), AdC (n 13) and House Majority Report (n 24).

³⁵⁵ CMA (n 14) at 69-70.

³⁵⁶ *Id.* at 217. AdC (n 13) at 8-9; 70. ACCC (n 7) at 91.

companies that do not have the resources to reach legacy channels.

The CMA divides online advertisement into four segments:³⁵⁷

- i. *general search*, focused on obtaining direct consumer responses (such as clicks on certain links). Companies normally pay a cost-per-click;
- ii. *display*, where videos and static content such as banners are shown next to a content of interest to the user. In display, the advertising inventory is owned and controlled by the platforms. Display may also be segmented between video and non-video display. Companies use display both to obtain a direct consumer response or to promote their brands. Companies normally pay a *cost-per-click* (“CPC”) or *cost-per-mille impressions* (“CPM”);
- iii. *open display*, where smaller publishers such as websites, blogs, etc. use intermediaries such as Google to sell their advertising inventory to third-party advertisers. These markets are highly automatized (also known as programmatic advertisement) and the goals and remunerations methods are similar to display; and
- iv. *classified ads*, where companies pay a fee to list certain goods/services in a website (e.g., car, travel).

According to the CMA, there would not be much substitution between *search advertisement* and *display advertisement*. While the former focuses on directing a consumer who already expressed some interest in something (“*in-market consumer*”), the latter focuses on brand recognition (“*out-of-market consumer*”).³⁵⁸ However, there is some substitutability between display and open display. In terms of dimensions, search would account for 51% of the roughly GBP fourteen billion spent in online advertisement in the UK in 2019, with display accounting for 39% and classified for 10%.³⁵⁹ The CMA finds that Google dominates the search and open display market, while Facebook dominates the display market. Both companies also captured the majority of the growth that took place in these markets over the past years. These findings are backed by the ACCC, who found that Facebook and Google controlled 84% of the growth in search and display advertisement (there is no open display segment) over the past years.³⁶⁰

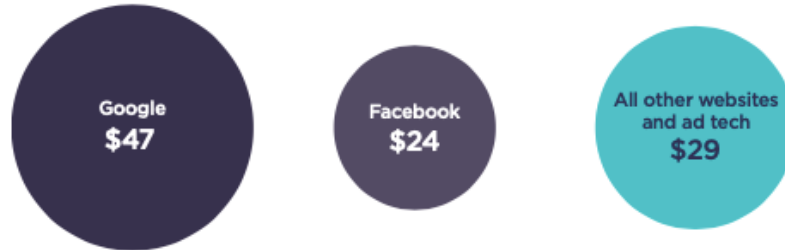
³⁵⁷ CMA (n 14) at 59-60; 213.

³⁵⁸ *Id.* at 218. AdC (n 13) at 9; 72. ACCC (n 7) at 93.

³⁵⁹ CMA (n 14) at 62. AdC (n 13) at 16-17.

³⁶⁰ ACCC (n 7) at 46; 119. The AdC also found similar numbers. AdC (n 13) at 63.

Image 9: Breakdown of AU\$100 spent by an advertiser in online advertising (excluding classifieds)



Source: ACCC estimates, based on information provided to the ACCC.

Source: ACCC (n 7) at 122.

The two main competitive variables in online advertisement markets would be: (i) the platform's ability to capture consumer attention; and (ii) how much the platform can comprehend consumers' preferences/buying intentions (*personalization*).³⁶¹ While the first variable depends largely on the products offered by the platforms, the second depends mostly on the amount and complexity of the database the platforms hold, including data on insertions and conversion.³⁶²

In particular, four types of data would impact platforms' ability to personalize services: (i) data voluntarily supplied by a consumer (name, e-mail, etc.); (ii) observed contextual information, such as location or device; (iii) tracking information obtained while a consumer navigates online (accessed websites, time spent in each page); and (iv) conclusions on consumers' characteristics and preferences, which are inferred from clicks, videos watched, etc.³⁶³ These data are collected directly from browsers through cookies (which anonymize users to a certain extent) and log-in information (which directly identifies users).³⁶⁴ They are also collected from websites through third-party cookies, ad tags, web tags, etc. The combination of these data would be highly valuable to companies and creates a natural tension with data protection legislation.

The CMA Report argues that size by itself is not a competitive problem. However, markets based on online advertising are also characterized by important barriers to the entry and expansion of competitors in terms of: (i) network effects and economies of scale; (ii) consumer behavior and the power of defaults; (iii) unequal access to consumer data; (iv) lack of

³⁶¹ CMA (n 14) at 46. AdC (n 13) at 18.

³⁶² CMA (n 14) at 46. AdC (n 13) at 31-33.

³⁶³ CMA (n 14) at 49.

³⁶⁴ AdC (n 13) at 29.

transparency; (v) the growing importance of ecosystems; and (vi) vertical integration and conflicts of interest.³⁶⁵

When put together, these barriers to entry and expansion reinforce the dominant position held by Google and Facebook in online advertisement markets.³⁶⁶ Neither smaller search engines (like Bing or others) nor new social networks (like SnapChat, Pinterest, or TikTok) have enough scale to really threaten this dominance.³⁶⁷ In addition, certain practices like distribution agreements (e.g., Google's payments to Apple to be the default search engine on Safari) or interoperability restrictions (e.g., Facebook limiting third-party access to APIs) restrict competitors' access to the consumer and stop competitors from generating the type of virtuous cycle that would increase competition in these markets.³⁶⁸

The report describes how personalized advertising provides value. According to a CMA evaluation of Google data, UK companies would lose between 50% and 70% of their revenues if they are forbidden from personalizing ads and must compete with companies that can do so.³⁶⁹ In addition, online advertisement can also better measure the reach and effectiveness. However, these markets would also be characterized by lack of transparency and problems around the independent assessment of the real impact of ads.³⁷⁰

Google and Facebook gain market power by being present in many different parts of the digital advertising vertical chain, which also allows them to leverage this power to control adjacent markets. The CMA report finds that Google has tags to track users in 80% of websites and 85% of apps on the Play Store, while Facebook has between 40% and 50%—both companies being significantly ahead of their competitors. Google's control over the Android operating system also allows it to track even offline users.³⁷¹ The general view is that this verticalization is an important barrier to entry in this market—in particular because new data protection laws can be used to restrict access to consumer data as smaller companies cannot easily obtain consent to collect and process personal data.³⁷²

The CMA calculates the Earnings Before Interest and Taxes (EBIT) and Return on Capital Employed (ROCE) as measures of Google's and Facebook's profitability in their core markets (see images 10-12 below), finding that Google's annual returns were around 44% and Facebook's were

³⁶⁵ CMA (n 14) at 11.

³⁶⁶ AdC (n 13) at 6.

³⁶⁷ CMA (n 14) at 73; 112; 146.

³⁶⁸ *Id.* at 113; 147.

³⁶⁹ *Id.* at 15; 295.

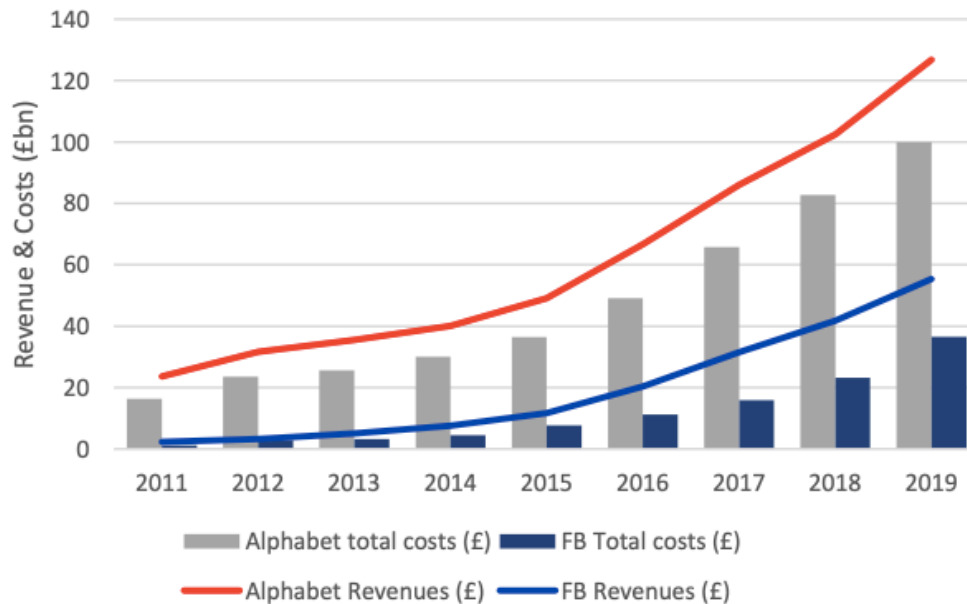
³⁷⁰ *Id.* at 290. AdC (n 13) at 40. ACCC (n 7) at 138.

³⁷¹ CMA (n 14) at 15; 228.

³⁷² *Id.* at 293-296. AdC (n 13) at 6.

51%. Both are significantly above the CMA's estimated Weighed Average Cost of Capital (WACC) for both companies of 9%, even when taking into account both firms' high levels of R&D expenditure and the creation of intangible assets.³⁷³ The report considers such high profit margins above any reasonable benchmark for many years and would be consistent with exploitation of market power.³⁷⁴

Image 10: Alphabet Group and Facebook Revenues and Costs 2011 to 2019

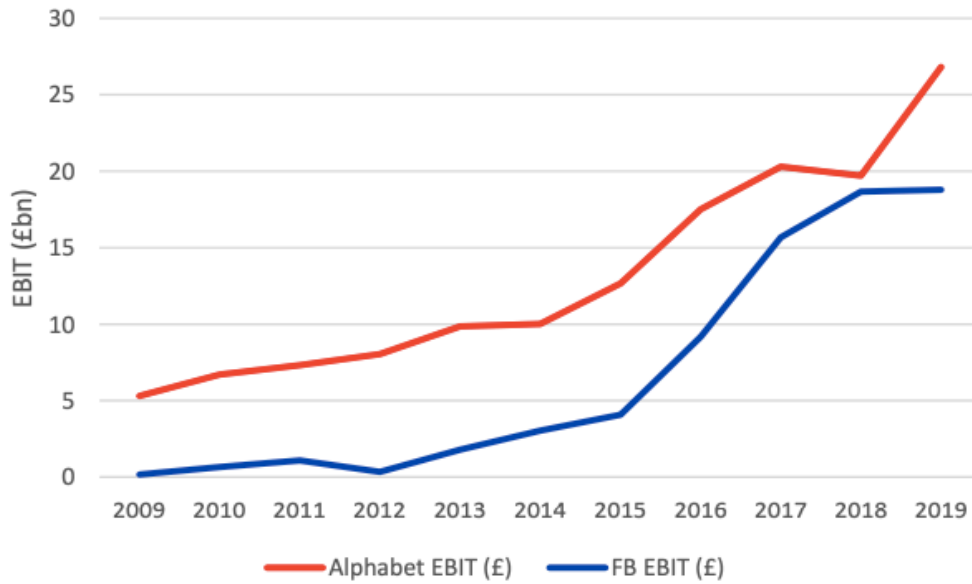


Source: CMA analysis of Alphabet Group and Facebook filed 10-K reports.
Source: CMA (n 14) at 66

³⁷³ CMA (n 14) at 67-68; D8; D33. EBIT, also known as operating profits, is a general indicator of a company's profitability. ROCE measures a company profitability in relation to the capital it is employing. WACC calculates the firm's cost of capital in a way that considers the costs of different forms of capital.

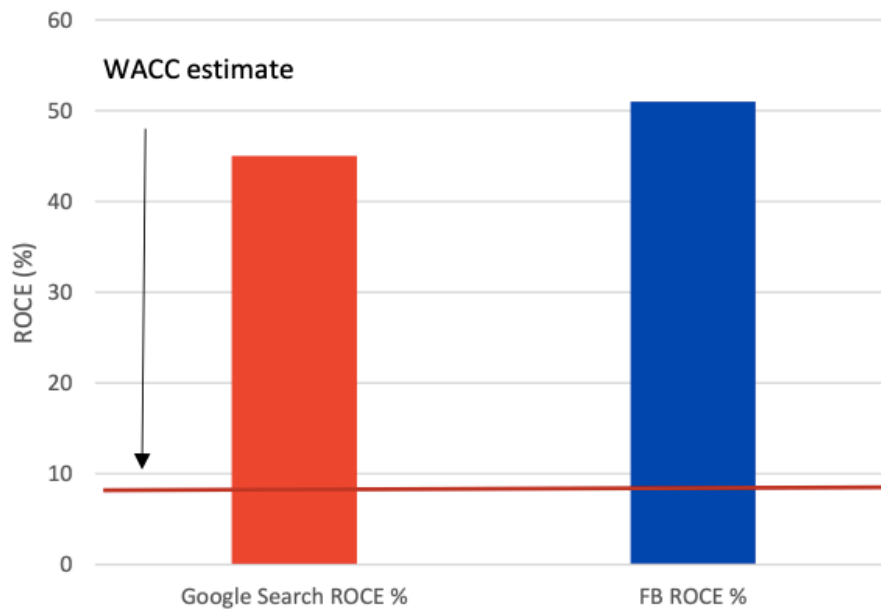
³⁷⁴ *Id.* at 67.

Image 11: Alphabet Group and Facebook EBIT 2009 to 2019



Source: CMA analysis of Alphabet Group and Facebook filed 10-K reports.
 Source: CMA (n 14) at 67

Image 12: Google Search and Facebook ROCE vs WACC estimates, 2018



Source: CMA analysis of Alphabet Group and Facebook financial data submissions.
 Source: CMA (n 14) at 67

The CMA expresses concerns with the lack of competition in many markets where Google and Facebook operate. This lack of competition may harm consumers through higher prices for goods/services, less innovation, more data collection and erosion of privacy, lower product quality, and lower quality in complementary/adjacent markets (including markets for information/journalism).³⁷⁵ These concerns are addressed in more detail below.

i. Search advertising

Search advertising markets are usually characterized by second-price and quality auctions in which advertisers normally buy clicks.³⁷⁶ To maximize revenue, the search engine has to trade off the number of ads against the quality of the ads shown. Advertisers must consider a range of variables such as keywords, flexibility, targeted audience, and the value of the bid. The complex interaction between these variables forces many advertisers to hire Google itself to manage their campaign.³⁷⁷ The available supply in the search advertisement market is directly linked to consumers' demand for search and also to the quantity of ads a search engine shows in each search result. Google controls both the search market and the search advertisement market, with a share above 90% in both over the past ten years.³⁷⁸

The CMA concludes that, with the potential exception of Amazon, vertical/specialized search engines such as OTAs (booking.com, Expedia) or FinTechs are not relevant competitive threats to Google.³⁷⁹ These companies would compete mostly in the online classified ads market. Indeed, advertisers that participated in CMA's consultation indicated that these are distinct and non-substitutable markets. This distinction is also aligned with the European Commission's view in antitrust cases against Google that general search is a way for consumers to reach specialized search engines.³⁸⁰

Data collected by the CMA indicated not only that Google is the main source of traffic to most of these companies—accounting for at least 40% of the total traffic of many leading suppliers—but also that Google's five main

³⁷⁵ *Id.* at 309-310. This review will not address in detail the potential harms to journalism markets, as they can be understood as a subset of the harms imposed by concentration in digital advertising markets in general. Those interested in this topic should look at the CMA (n 14), the ACCC (n 7) and the House Majority Report (n 24), as they address the interconnection between digital advertising and journalism in more detail.

³⁷⁶ CMA (n 14) at 222; Q2.

³⁷⁷ *Id.* at 227; Q3 ; Q7.

³⁷⁸ *Id.* at 81, 224, C36; AdC (n 13) at 83-85. ACCC (n 7) at 89.

³⁷⁹ CMA (n 14) at 87; 225. ACCC (n 7) at 64; 89; 94. House Majority Report (n 24) at 83-84; 196.

³⁸⁰ CMA (n 14) at 87.

clients are specialized search engines.³⁸¹ Specialized search providers spent around 25% of their 2019 revenues and 55% of their 2019 advertising budgets on Google.³⁸² There were also concerns that Google would adopt demoting strategies to its organic search results as a way to influence traffic and block competition from specialized search engines.³⁸³ For the CMA, the only potential exception would be Amazon. On the one hand, evidence indicated Amazon is the initial destination for many consumers; on the other, Amazon remains one of Google's main clients, and only 19% of Google's revenue comes from retail areas where Amazon is active—so even if Amazon becomes a dominant force in retail search advertisement, ~80% of Google's revenue comes from highly protected markets.³⁸⁴ The ACCC reached similar conclusions, also reporting that Australian users spend 25x more time on Google than on Amazon and 250x more time on Google than on Expedia.³⁸⁵

These reports indicate that Google's dominant position in search advertisement is protected by high barriers to the entry and expansion of competitors in the general search market (which are addressed in more detail below). That is because they force advertisers to use Google's services to reach exclusive, single-homing clients and also encourage them to concentrate all their demand on Google alone.³⁸⁶ In addition, some barriers specific to the search advertisement market that are also important would include: (i) behavior to stop multi-homing and increase transaction costs by limiting or blocking integration with third-party software; (ii) Google's data advantages; and (iii) the vertical integration in the chain, which enables Google to influence advertisers' strategy against non-vertically integrated companies.³⁸⁷ The ACCC also notes the role played by user data, indicating that 70% of all websites accessed by Australians and 88% of all apps in the Google Play Store send user data to Google.³⁸⁸

According to the CMA, Google can leverage market opacity and its market power to increase the price paid for ads. These higher costs would then be passed on to consumers both through higher prices for goods/services and through higher fixed costs to enter certain markets.³⁸⁹ In particular, Google has the ability to:

- i. restrict supply of ads;

³⁸¹ CMA (n 14) at P6; P11.

³⁸² *Id.* at P8.

³⁸³ *Id.* at 88; P51.

³⁸⁴ *Id.* at 88-89. AdC (n 13) at 90. ACCC (n 7) at 96.

³⁸⁵ ACCC (n 7) at 65.

³⁸⁶ *Id.* at 95. CMA (n 14) at 227.

³⁸⁷ CMA (n 14) at 227-229; 240-241. ACCC (n 7) at 96.

³⁸⁸ *Id.* at 8; 11; 159.

³⁸⁹ CMA (n 14) at 228.

- ii. diminish search quality (e.g., by making the distinction between ads and organic search results harder to identify);
- iii. increase the importance of price in the determination of auction winners for ads;
- iv. increase minimum reserve prices for searches to display ads;
- v. modify algorithms to expand when companies automatically join biddings; or
- vi. leverage its market power in general search to specialized search or in the open display market.³⁹⁰

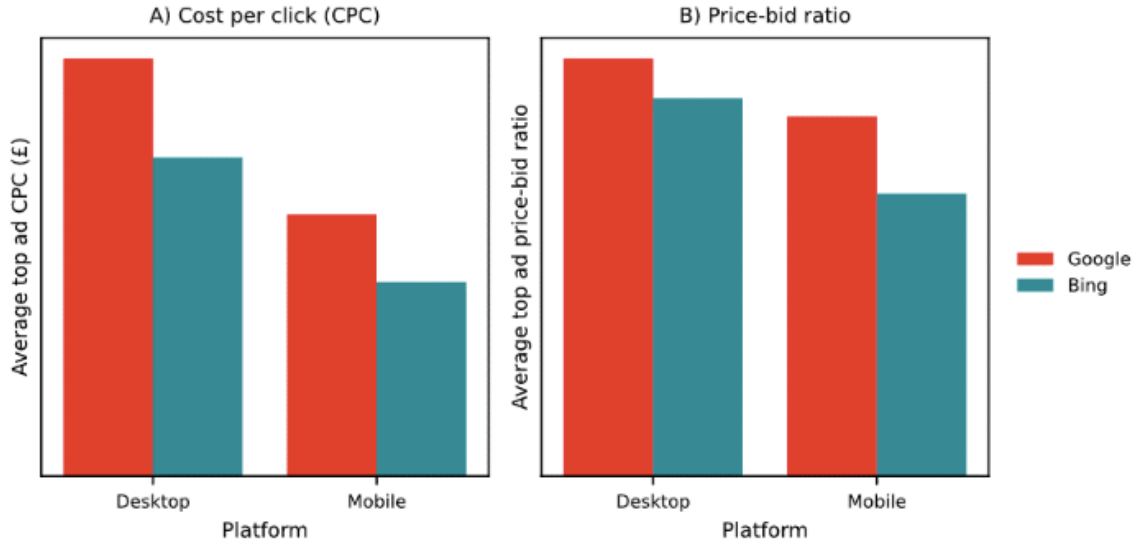
The CMA presented what it saw as evidence of Google's exploitation of market power. First, it indicated how Google has been decreasing the percentage of searches where it presents ads, but has been increasing the amount of advertising impressions per search that displays impressions by adding more ads, adding more text per ads, and altering visual elements—leading to a 300% increase in clicks between 2010 and 2019 and to almost double the revenue per search between 2011 and 2019.³⁹¹ In addition, Google charged prices 30-40% higher for clicks in comparable searches than did Bing in both mobile and desktop, indicating its pricing power. The CMA also finds that Google has a 10-20% higher price-bid ratio than does Bing on desktop and a 20-30% higher ratio on mobile—evidence that it can extract more advertiser surplus than can Bing.³⁹² These last findings could be evidence of exercise of market power or of greater bidder density.

³⁹⁰ *Id.* at 228-230; Q4-Q8; Q11. House Majority Report (n 24) at 202-204.

³⁹¹ CMA (n 14) . at 232; C39; Q13.

³⁹² *Id.* at 235-236; Q24. The House Majority Report (n 24) also indicates that Google has been constantly increasing the number of ads per page, the price charged for these ads and blurring ads and organic search results, *Id.* at 196-205.

Image 13: Average cost-per-click and price-bid ratio for top ad cost per click on Google and Bing



Source: CMA analysis of parties' data.

Source: CMA (n 14) at C54; Q24.

The CMA and the House Majority also heard from many advertisers and third parties that Google was exploiting its market power.³⁹³ All in all, the reports' conclusion is that Google would be insulated from competitive pressures and can use its market power to extract economic rents.³⁹⁴

ii. Display advertisement

The reports also address the market for display advertisement, where videos or static content like banners are displayed next to a content of interest to the user. The CMA sub-divides this market into two groups: display, where the inventory is owned and operated by the platforms or channels that distribute the content; and open display, where websites such as blogs, newspapers, etc. sell their inventory through intermediaries. These markets include mostly programmatic ads, where personal data is used to personalize the content.³⁹⁵

The display market is focused on increasing brand awareness, so that campaigns are normally judged according to impressions. This increases the role played by personal data and personalization vis-à-vis the search market, where contextual ads based on keywords are the norm.³⁹⁶ Companies that

³⁹³ CMA (n 14) at 237. House Majority Report (n 24) at 202.

³⁹⁴ ACCC (n 7) at 8; 11; 119; 136; 162. House Majority Report (n 24) at 202.

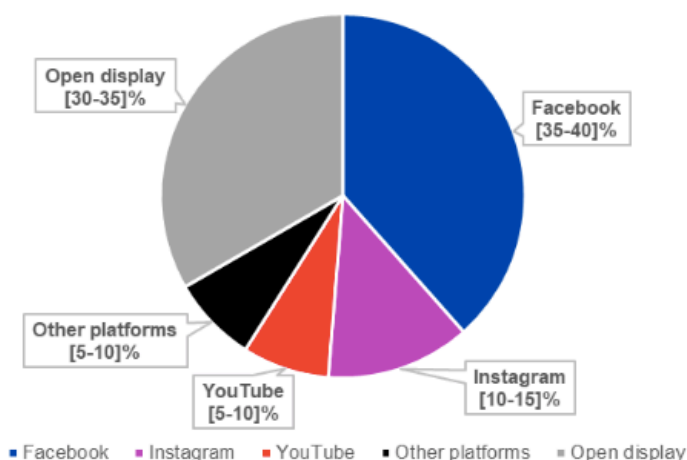
³⁹⁵ CMA (n 14) at 60. House Majority Report (n 24) at 129.

³⁹⁶ CMA (n 14) at 245.

supply advertisement inventory normally control how many ads are accepted per page. An increase in the number of ads can be a decrease in the quality as users typically do not want these ads.³⁹⁷

According to the CMA, the UK display market is dominated by Facebook, which accounts for 50-60% of all expenditures and is many times larger than second place Google.³⁹⁸ The ACCC found Facebook holding a 51% share.³⁹⁹ This privileged position would grant Facebook significant market power.

Image 14: Shares of expenditure in the UK display advertising (2019)



Source: CMA analysis based on parties' data.

Note: Segments shown in the chart are illustrative, based on mid-points of the stated ranges rather than actual revenue figures. The 'other platforms' segment includes: Amazon, LinkedIn, Pinterest, Snapchat, TikTok and Twitter, each of which have shares in the range [0-5%].

Source: CMA (n 14) at 246; C60.

The CMA indicates that some advertisers may not be able to switch between video and non-video ads.⁴⁰⁰ Facebook's share in video advertising would still be 50-60%, while in non-video it would fall to 40-50%.⁴⁰¹

The CMA analyzed to what extent different platforms compete among themselves in this market. Larger advertisers would use different platforms to organize their campaigns: Facebook and Google being the most commonly used, but a fringe includes Twitter, Amazon, SnapChat, and other companies.⁴⁰² This fringe, however, is at a disadvantage against the main players in terms of quantity supplied as well as ability to better target specific

³⁹⁷ *Id.* at 245; Q32.

³⁹⁸ *Id.* at 245.

³⁹⁹ ACCC (n 7) at 9; 98.

⁴⁰⁰ CMA (n 14) at 246.

⁴⁰¹ *Id.* at 246.

⁴⁰² *Id.* at 248.

audiences.⁴⁰³

The display market would also be characterized by important barriers to the entry and expansion of competitors. The reports identify:⁴⁰⁴

- i. economies of scale and scope associated with the development of platforms, sales teams, technologies, etc.;
- ii. network effects and the role of ecosystems in retaining consumer attention on the user side; and
- iii. access to the data necessary to personalize advertisement campaigns and measure their reach/effectiveness.

The ACCC describes the role played by strategic acquisitions in protecting Facebook's dominant position and explains how the company can use market opacity to distort competition and privilege its own services.⁴⁰⁵

According to the CMA, Facebook is able to exploit its market power in ways similar to Google, notably by (i) increasing the quantity of ads and the way ads are presented; (ii) increasing the importance of price over quality in selecting auction winners; and (iii) charging higher ad prices.⁴⁰⁶ The CMA found that Facebook's revenue per user is not only much higher than competitors' but has been increasing significantly over the years, jumping from GBP 0-5 in 2011 to GBP 50-60 in 2019, indicating this exercise of market power. Facebook would have also significantly increased its ad load over the years, jumping from 40-50 ad impressions served per hour to users in 2016 to 50-60 in 2019.⁴⁰⁷

⁴⁰³ *Id.*

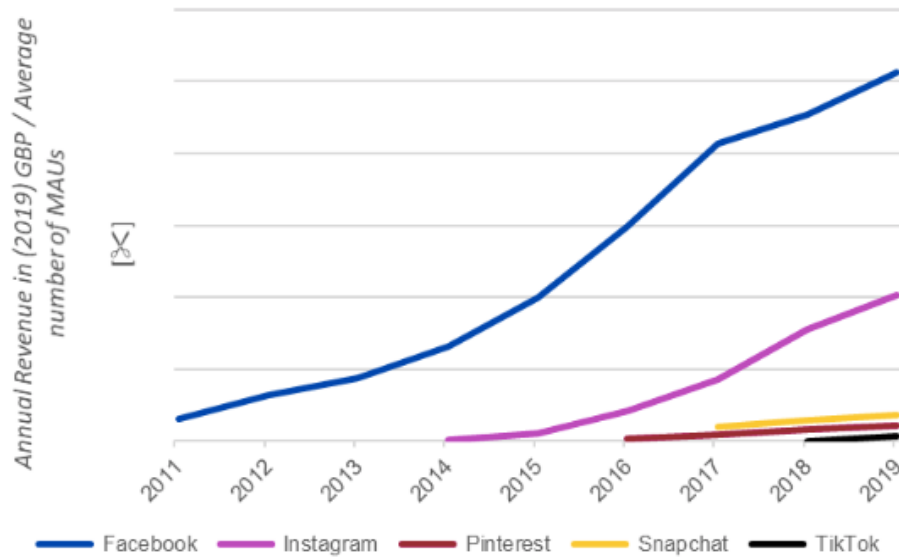
⁴⁰⁴ *Id.* at 252; Q36; E3. ACCC (n 7) at 9; 99; AdC (n 13) at 53.

⁴⁰⁵ ACCC (n 7) at 12; 80.

⁴⁰⁶ CMA (n 14) at 256; Q37.

⁴⁰⁷ *Id.* at Q40.

Image 15: Average annual revenue per user in the UK for selected social media platforms (2011-2019)



Source: CMA analysis based on parties' data.

Source: CMA (n 14) at 258; C68; Q39.

These higher costs would be ultimately borne by consumers as companies pass on charges. All in all, Facebook would be largely insulated from any competitive pressures, allowing it to extract economic rents associated with its dominant position.⁴⁰⁸

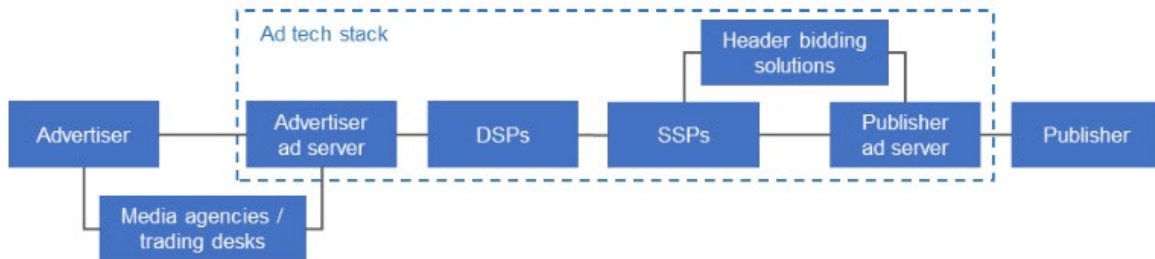
iii. Open display advertisement

Open display advertisement markets can be generally understood as a series of vertically related markets that allow publishers (e.g., website or app) to sell ad inventory to advertisers through a series of intermediaries.⁴⁰⁹ The chain is summarized below:

⁴⁰⁸ ACCC (n 7) at 9; 162.

⁴⁰⁹ CMA (n 14) at 263-264.

Image 16: Simplified scheme of the open display advertising intermediation chain



Source: CMA.

Source: CMA (n 14) at 265

On the demand side, the participants of this ecosystem are *advertiser ad servers*, which allow advertisers and media agencies to store and deliver ads and assess the impact of campaigns; and *demand-side platforms* (“*DSPs*”), which are platforms or software that help advertisers acquire slots from multiple publishers. On the supply side, the main participants are *supply-side platforms* (“*SSPs*”), which help publishers place their slots; *header bidding solutions*, which allow publishers to connect multiple *SSPs*; and *publisher ad servers*, which are companies that connect the publisher’s website with the intermediation chain. The ecosystem also hosts data suppliers and *data management platforms* (“*DMPs*”) that help advertisers integrate multiple sources of data and facilitate the personalization of the ads; and *media agencies/trading desks*—advertisement agencies that support advertisers with campaign design, ad measurement, and verification providers.⁴¹⁰

In summary, whenever a user opens a webpage, the website connects to a single ad server, which then connects multiple *SSPs* that offer to multiple *DSPs* the opportunity to place an ad. The *DSPs* evaluate the offers based on the information they received/gathered (including information from *DMPs*) and place bids on *SSPs*. The *SSPs* rank these offers and send them to the publisher ad server, which chooses the winning bid and places the ad on the webpage.⁴¹¹ This entire process takes fractions of a second and is automated and heavily data reliant.

Different agents in this chain are paid in different ways. They include *cost-per-mille* (CPM) or the display of 1000 insertions; *cost-per-click* (CPC) or cost per double-click (that is, a click on the webpage and a click on the destination page as a way to control for misclicks); *cost-per-acquisition* (CPA), or the cost for a given behavior (e.g., a “like”); or *cost-per-view* of a given video.⁴¹² In addition, many players charge fees (e.g., a percentage of

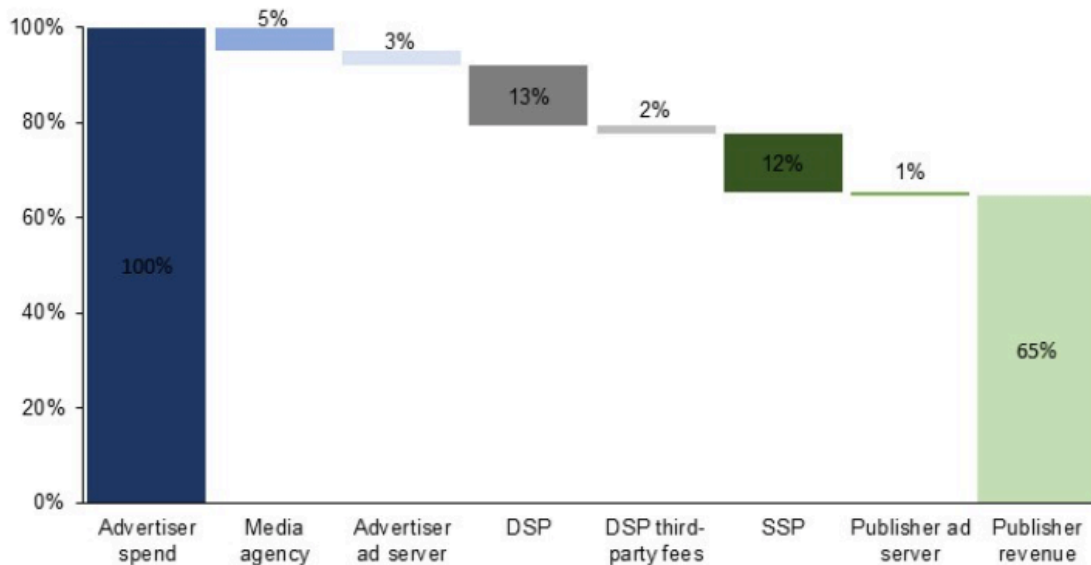
⁴¹⁰ *Id.* at 263; M17-34.

⁴¹¹ *Id.* at 265.

⁴¹² AdC (n 13) at 23.

the value of the bid) in exchange for services. All in all, the CMA concludes that the whole intermediation chain charges around 35% of the value of the ads in fees—a high value that calls into question whether the chain is operating efficiently.

Image 17: CMA analysis of take rates across the open display supply chain



Source: CMA analysis of intermediary data.

Source: CMA (n 14) at 274; R19.

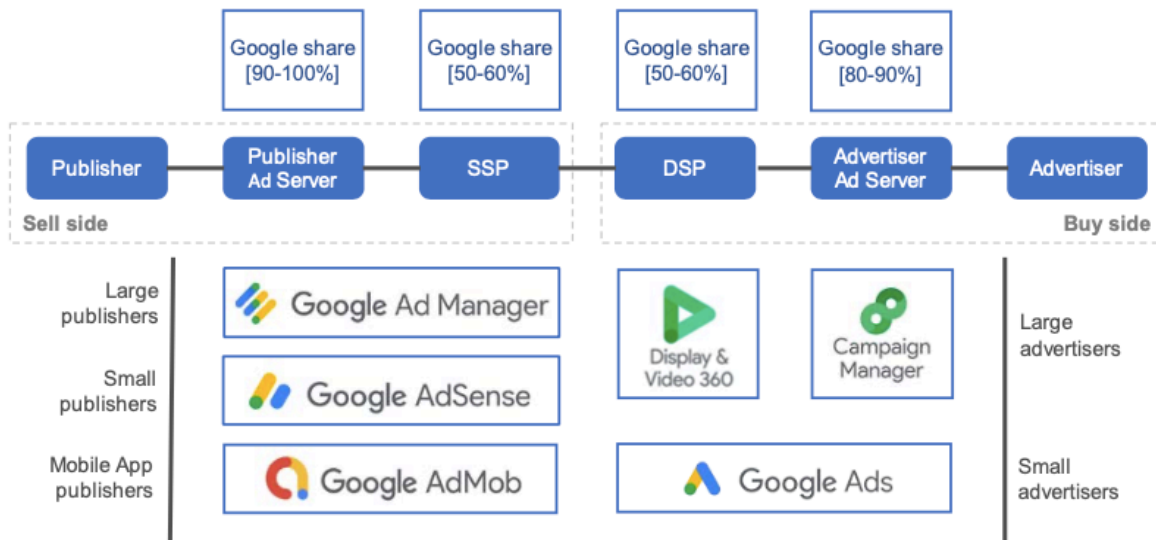
This market has been undergoing a consolidation and verticalization process, partly because companies want to better explore efficiencies in data integration, partly as an answer to Google's own verticalization, and partly because new data protection laws are hindering the transfer of data between different parties.⁴¹³ The reports have found that the market is controlled by Google, which holds a 90% share in the publisher ad server market and an 80-90% share in the advertiser ad server market, leveraging this position to expand in other links of the intermediation chain.⁴¹⁴ The CMA estimates that Google controls between 50% and 60% of the SSP and DSP markets—a market position it built after a series of high-profile acquisitions such as DoubleClick (2007), AdMob (2009), Invite Media (today DV360, 2010), AdMeld (integrated into Google AdX, 2011), and Adometry (integrated into Google Analytics, 2014).⁴¹⁵ The image below summarizes Google's widespread presence in this market.

⁴¹³ CMA (n 14) at 266; AdC (n 13) at 109.

⁴¹⁴ CMA (n 14) at 266, 272, 279; AdC (n 13) at 86.

⁴¹⁵ CMA (n 14) at 272.

Image 18: Google's roles in advertising intermediation



Source: CMA.

Note: We include Google AdX, Google Ad Sense and Google AdMob in our definition of SSPs and Google DV360 and Google Ads in our definition of DSPs. Share estimates at SSP and DSP levels have been computed based on data from the intermediaries we received information from.

Source: CMA (n 14) at 271.

Competition between DSPs is mostly a function of access to advertisement inventory, size and sophistication of databases, user interface, and the technical support offered to customers. The reports stress how data (including personal data) are key to the entire market because they enable personalization, analytics data on insertions, and campaign optimization.⁴¹⁶ Competition between SSPs was made easier with the introduction of header bidding, something that allows publishers to send ad requests to multiple SSPs—so that they have much of the same inventory.⁴¹⁷ Finally, Google Ad Manager (formerly DoubleClick) all but monopolizes the publisher ad server market with a more than 90% share. Websites typically select only one ad server because the integration process is complex and switching costs are high.⁴¹⁸

For the report, the overall open display market is opaque and characterized by potential conflicts of interest. Market participants cannot evaluate the fees charged, which hinders negotiations between advertisers and publishers and diminishes competitive pressures over intermediaries.⁴¹⁹ In addition, the lack of transparency associated with verticalization enables

⁴¹⁶ AdC (n 13) at 28.

⁴¹⁷ CMA (n 14) at 268; M8.

⁴¹⁸ *Id.* at 270, M65; AdC (n 13) at 26.

⁴¹⁹ CMA (n 14) at 276-277.

agents to privilege their own services in ways that may be anticompetitive.⁴²⁰

Google's dominant position is protected by significant barriers to the entry and expansion of competitors.⁴²¹ These start with the unmatched database held by Google and the penetration of its tags and other tracking technologies, which enable Google to both track users with a single ID and better identify the placement of ads, visualizations, etc.⁴²² Google's strong position in search advertising and its exclusive access to YouTube inventory also allows it to leverage this market power to other links of the chain (e.g., by providing a one-stop shop solution that encourages centralization), further strengthening its dominant position in open display.⁴²³

The report states that this combination of opacity, market power, and verticalization enables Google to leverage its market power and to self-preference its services to other parts of the chain, excluding potential competitors.⁴²⁴ The CMA expressed concerns about two areas in particular: (i) Google potentially self-preferencing its DSP and SSP, extending market power from DSP to SSP; and (ii) Google restricting the connection between ad servers and other parts of the chain, increasing power at the ad server level.⁴²⁵ Opacity also diminishes competition, creates opportunities for rent seeking behavior, and creates inefficiencies along the supply chain.⁴²⁶

The CMA's analysis found no evidence that Google is systematically charging higher prices than its competitors or extracting significant hidden fees in open display.⁴²⁷ Yet, it found that lack of transparency over fees and other areas makes it very difficult to audit outcomes, and also found that the 35% "ad tech tax" could be lowered by more competition.⁴²⁸ It raised three main concerns around Google's market power: (i) Google may be capable of raising prices once its position in all segments is further consolidated; (ii) the reduction of competition may also have dynamic effects, leading to less innovation; and (iii) Google may use this power to protect its dominant position in search.⁴²⁹

2. General search markets

Search engines are companies that catalog the web and return results to user search queries. They do so by crawling the web, indexing the data

⁴²⁰ *Id.* at 278.

⁴²¹ AdC (n 13) at 59.

⁴²² CMA (n 14) at 281. AdC (n 13) at 56-57.

⁴²³ CMA (n 14) at 280-281; M107.

⁴²⁴ *Id.* at 282, M100. AdC (n 13) at 61; 93.

⁴²⁵ CMA (n 14) at 283-285, M123, M143.

⁴²⁶ *Id.* at 297.

⁴²⁷ *Id.* at 289; R5; R9.

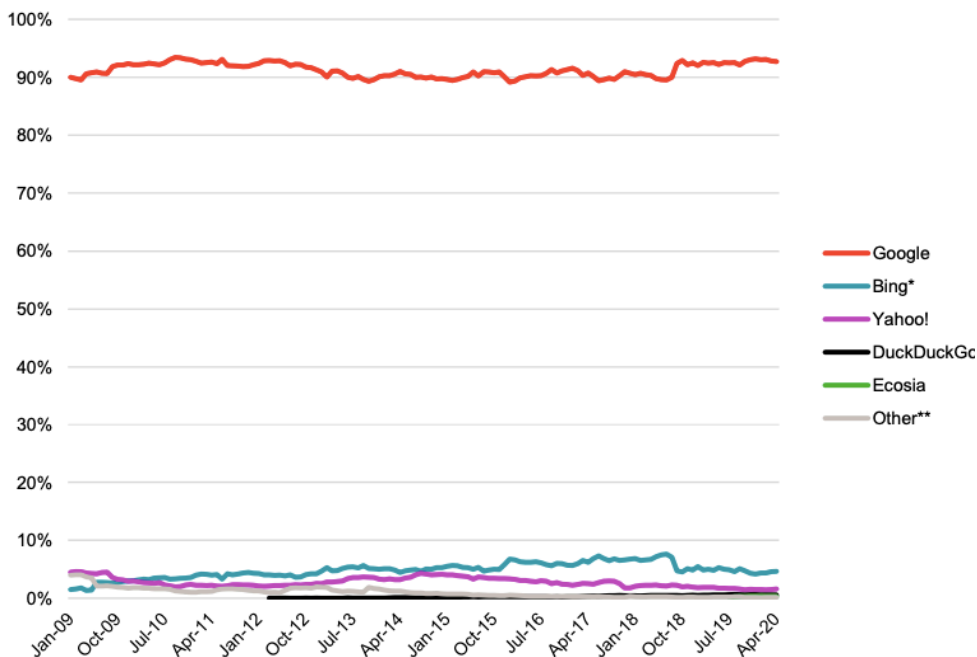
⁴²⁸ *Id.* at 308.

⁴²⁹ *Id.* at 290.

collected and then ranking and returning results to search queries.⁴³⁰ The CMA's report indicates that search engines compete on five main dimensions: (i) the relevance of search results (the most important feature); (ii) ease of use; (iii) attractiveness of interface; (iv) data protection and trust in the search engine; and (v) incentives to user/rewards.⁴³¹ As mentioned above, the reports see general search and vertical/specialized search as distinct markets.

The reports find that the general search market is controlled by Google, with an average share around 90% and significant market power.⁴³² The CMA finds that Google's share of supply considering page referrals was around 90% in the last ten years. When using the number of searches made on search engines, a more accurate data set because it considers searches with direct results, Google's share was 93% in 2019, versus 5% for Bing and 1% for Yahoo. Importantly, Google's share in mobile, the fastest growing segment, was 97%.⁴³³

Image 19: UK Shares of supply by page referrals from January 2009 to April 2020



Source: [Statcounter Global Stats](#).

Notes: UK data.

* Bing's share represents that of Bing and MSN Search. MSN Search was rebranded as Bing in 1998.

** 'Other' consists of: AlotSearch; AOL; AskJeeves; AVGSearch; Babylon; Baidu; Conduit; NortonSafeSearch; Snapdo; Webcrawler; WindowsLive; Yandex; and 'other'.

⁴³⁰ *Id.* at 75.

⁴³¹ *Id.* at 78-79.

⁴³² AdC (n 13) at 51. ACCC (n 7) at 65. House Majority Report (n 24) at 176; 179-180.

⁴³³ CMA (n 14) at 82; C13; C20.

Source: CMA (n 14) at 81

Many reports claim that Google's privileged market position is protected by significant barriers to entry and expansion of competitors, in particular:⁴³⁴

- i. large economies of scale and scope in the development of a web index (crawling, indexing, and returning results) and of a sales platform to sell search results;
- ii. access to a large scale of data about searches and clicks, something that generates direct network effects (the more users a search engine has, the better the results);⁴³⁵ and
- iii. the large number of default positions held by Google in cellphones.

In particular, the reports find that the large sunk and fixed costs involved in the development and maintenance of a web index, combined with the almost zero marginal costs of supplying a new search result, generate large economies of scale and scope and are a significant barrier to the entry and expansion of competitors.⁴³⁶ In relation to scale, the CMA indicates that only Google and Microsoft maintain English indexing services. Smaller companies such as DuckDuckGo, Ecosia, and Qwant celebrate syndication agreements with Microsoft to buy wholesale search results, as Google refuses to supply search services to third-parties.⁴³⁷ These agreements normally establish a fixed price for 1,000 searches as well as the sharing of the revenues these companies obtain with advertisement.⁴³⁸ While they enable the creation of fringe competition, these syndication agreements also prevent companies from expanding in a way that truly challenges Google.⁴³⁹ The CMA describes how both Google and Microsoft started their web index in the 1990s, with Google becoming a market leader in 2000—the same year that Yahoo started acquiring syndicated results from Google to complement its manual index. Currently, Google's index hosts something between [500-600] billion pages, while Microsoft's hosts [100-200] billion. Both companies spend hundreds of millions of dollars every year in crawling services—costs that are increased because of the need to implement manual interventions to circumvent crawling blocking by some websites that are also more efficient at scale.⁴⁴⁰ The conclusion is that even Bing does not provide a strong

⁴³⁴ *Id.* at 89, 17; AdC (n 13) at 89. ACCC (n 7) at 66. House Majority Report (n 24) at 177.

⁴³⁵ CMA (n 14) at 89; AdC (n 13) at 52. ACCC (n 7) at 66.

⁴³⁶ ACCC (n 7) at 73. House Majority Report (n 24) at 78-79.

⁴³⁷ CMA (n 14) at 76; 98.

⁴³⁸ *Id.* at 97.

⁴³⁹ *Id.* at 86; I19-I20. .

⁴⁴⁰ *Id.* at 76; 89. House Majority Report (n 24) at 79.

constraint on Google.⁴⁴¹

Data perform a similarly important role in the development of a search engine, being an important barrier to the entry and expansion of competitors.⁴⁴² Companies use different strategies to improve their search results, many based on access to a constant stream of quality click-and-query user data. This need for user click-and-query data creates same-side network effects for search that are an important barrier to entry.⁴⁴³ Search engines use both real time experiments (supplying different users with different results and seeing which generates more click—search volume being crucial to the success of this strategy) as well as dedicated qualitative panels in which human reviewers are hired to evaluate the quality of search results.⁴⁴⁴ Click-and-query data are particularly relevant for uncommon or new (‘tail’) searches, such as those for political/sports or daily events. The CMA data found that 31% of queries that Bing only saw once or twice were in Google’s dataset, while only 1% of Google’s unusual queries were in Bing’s, indicating that Google receives many more distinct queries than Bing. In addition, ‘tail’ queries represent around 15% of Google’s daily searches and 36% of Microsoft’s Bing.⁴⁴⁵ For the CMA, these non-usual queries are particularly salient to users as they compare the relative quality of search engines. This would create a chicken-and-egg effect where search engines need user click-and-query data to improve their offering, but users concentrate all their searches in the dominant, higher quality agent.⁴⁴⁶

Default positions play a key role in the competition between search engines. The CMA confirms that most search engines have preferred distribution agreements with companies through which the search engines pay the device manufacturer or access point a percentage of the advertising revenue generated by the search engine through the access point to become either a primary default or a secondary option—Microsoft focused on desktops and on mobile and Google focused on mobile.⁴⁴⁷ The report finds a positive correlation between these agreements and share of supply, in particular on mobile, and also that they are a significant barrier for the expansion of rival search engines.⁴⁴⁸ The CMA points to case studies and to the fact that Google paid between 40 and 50 companies, including Apple and Samsung, a percentage of its search revenue in exchange for being the default search engine on their devices as evidence of the power of defaults—in 2019,

⁴⁴¹ CMA (n 14) at 87.

⁴⁴² ACCC (n 7) at 73. House Majority Report (n 24) at 80.

⁴⁴³ CMA (n 14) at 92. House Majority Report (n 24) at 80-81.

⁴⁴⁴ CMA (n 14) at 79.

⁴⁴⁵ *Id.* at 93-94.

⁴⁴⁶ *Id.* at 95. ACCC (n 7) at 73. House Majority Report (n 24) at 81.

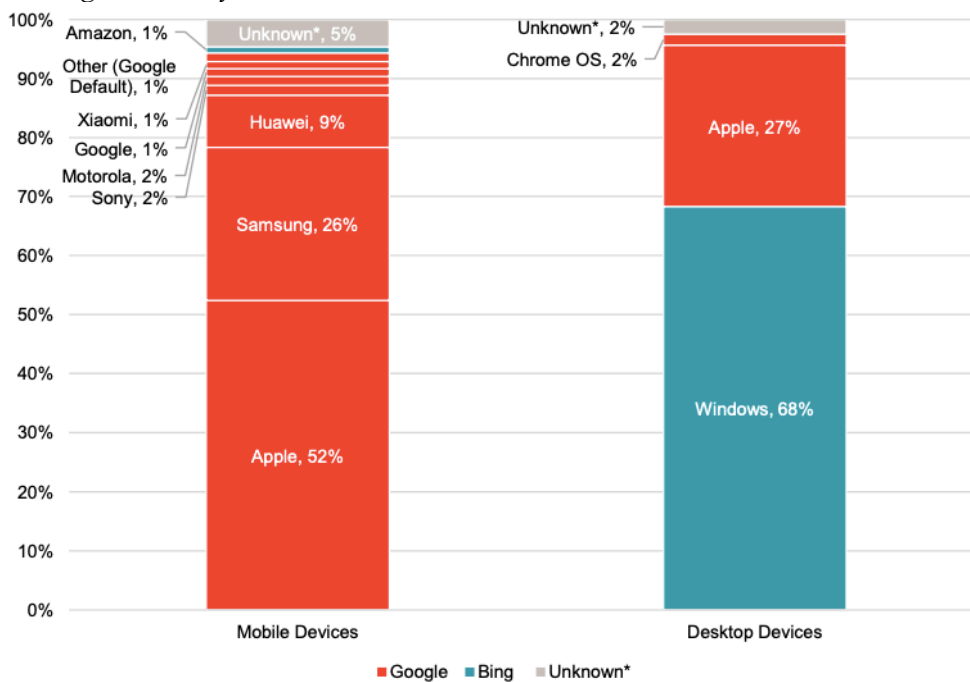
⁴⁴⁷ CMA (n 14) at 100; H6. House Majority Report (n 24) at 81.

⁴⁴⁸ CMA (n 14). at 102; 113; H22.

Google paid these companies 17% of its UK revenues, or USD 1.3 billion.

The House Majority Report indicates that internal Google documents corroborate the importance of these default positions, as Google was initially concerned with not being the default positions for search on Internet Explorer when it was still “jostling for market share”.⁴⁴⁹ It also finds that Google’s investments in Android and its push to have it as a dominant mobile operating system were connected to its need to ensure a steady access to user data and to control search access points—potentially in an illegal way.⁴⁵⁰ All in all, this generates another chicken-and-egg problem because Google’s preferred position on devices increase its profitability, enabling it to pay Apple and other companies more than its competitors could to keep this key access.⁴⁵¹

Image 20: Search default positions on mobile and desktop devices, based on device usage, February 2020



Source: CMA analysis of [Statcounter Global Stats data](#).

Notes: The data for mobile devices represents shares amongst mobile device manufacturers (including tablet devices), calculated on the basis of ‘page referrals’. The data for desktop devices represents shares amongst desktop operating systems (including laptop devices). ‘Unknown’ consists of all device manufacturers and operating systems that accounted for a share of less than 1% and for which we were unable to identify the default search engine. Google or Bing may hold additional default positions on these devices and browsers. See Appendix H for further details.

⁴⁴⁹ House Majority Report (n 24) at 82; 181.

⁴⁵⁰ House Majority Report (n 24) at 213-216. Similarly, for Chrome, where the Report affirms that Google used its dominant position in the search market to promote Chrome as a browser and then used its control over Android to maintain that dominant position (*Id.* at 224-227). Both Android and Chrome, however, were not the focus of other reports.

⁴⁵¹ CMA (n 14). at 103-108; H6-H9. ACCC (n 7) at 69.

Source: CMA (n 14) at 101; H21.

Finally, the House Majority Report indicates that the growing number of features and services that a search engine must provide to be competitive (maps, local business answers, news, images, etc.) also raises the cost of entry in this market.⁴⁵²

All in all, the reports conclude that the general search market is currently dominated by Google. Its market power is protected by important barriers to the entry and expansion of competitors—some of which may be a violation of antitrust laws.⁴⁵³ The same barriers also protect Google from potential competition in search.⁴⁵⁴ The reports also find that Google has been leveraging this control over search to enter related markets as a way to both expand its product offering and potentially to prevent competitive threats, possibly in violation of antitrust laws.⁴⁵⁵ For example, the House Majority Report affirms that Google used its control over general search to force companies like Yelp, Celebrity Net Worth and Genius to provide content to Google, boosting Google's business and harming these third-party providers; as well as to demote the products of competing providers⁴⁵⁶. This dominant position may harm consumers through less innovation, lower quality, more collection of personal data, and higher prices as companies pass on high advertisement markups in online advertisement to their goods/services.⁴⁵⁷

3. Social media

Social media are generally defined as online platforms that allow consumers to communicate with one another and to discover and share engaging content.⁴⁵⁸ For the CMA, social media compete for consumers' attention in seven dimensions: (i) innovative features: offering innovative ways for consumers to communicate or engage with content; (ii) size and type of user network; (iii) available content; (iv) number and quality of ads displayed; (v) price; (vi) privacy/data collection; and (vii) *governance*: moderation policies and definition/removal of negative content.⁴⁵⁹

Different platforms offer different combinations of these variables. The CMA finds that competition among platforms depends on whether consumers consider them substitutes, not on the functionalities available:

⁴⁵² House Majority Report (n 24) at 83.

⁴⁵³ CMA (n 14) at 112. ACCC (n 7). at 76. House Majority Report (n 24) at 179-180.

⁴⁵⁴ CMA (n 14) at 66.

⁴⁵⁵ CMA (n 14) at 109-111. House Majority Report (n 24) at 183-184.

⁴⁵⁶ House Majority Report (n 24) at 184-187; 188-191

⁴⁵⁷ CMA (n 14) at 113. House Majority Report (n 24) at 193.

⁴⁵⁸ CMA (n 14) at 53.

⁴⁵⁹ *Id.* at 116.

Image 21: Social media platforms' functionalities

	Profile/ Account	Curated/ Personalised Feed	Friends/ Contacts/ Connections	Followers/ Subscribers	Photo Sharing	Video Sharing	Comments	Messaging
YouTube	✓	Recommended	✓	✓	✓	✓	✓	✓
Facebook	✓	News Feed	✓	✓	✓	✓	✓	✓
Snapchat	✓	Discover	✓	✓	✓	✓		✓
WhatsApp	✓		✓		✓	✓		✓
Instagram	✓	Explore	✓	✓	✓	✓	✓	✓
Twitter	✓	Timeline		✓	✓	✓	Replies	✓
LinkedIn	✓	✓	✓	✓	✓	✓	✓	✓
TikTok	✓	For You	✓	✓		✓	✓	✓
Pinterest	✓	✓		✓	✓	✓*	✓	✓
Reddit	✓	Front Page	✓	✓	✓	✓	✓	✓
Tumblr	✓	Dashboard		✓	✓	✓	✓	✓

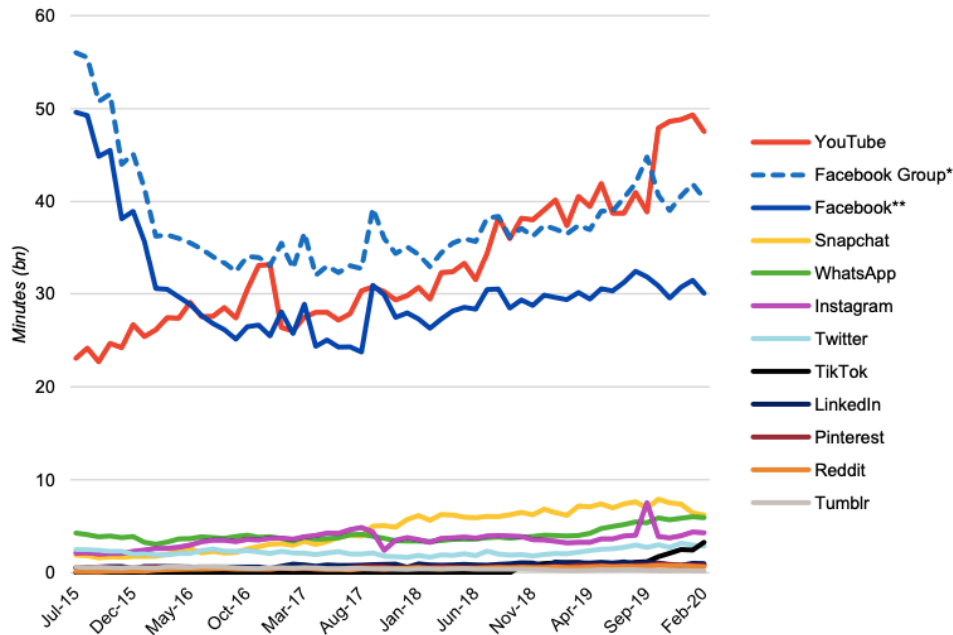
Source: Adapted from Ofcom (2019), [Online Nation](#).

* Available on iOS only

Source: CMA (n 14) at 117

The CMA sees platforms differentiating in part according to a focus on communication (interaction amongst different networks) or content. The image below shows time spent in different platforms in the UK.

Image 22: Total user time spent on social media platforms in the UK from July 2015 to February 2020 (including YouTube)



Source: Comscore MMX Multi-Platform, Total Digital Population, Desktop aged 6+, Mobile aged 13+, July 2015 – February 2020, UK Notes: In November 2018, Comscore altered its methodology which contributes to the discontinuities in the data around this date.

*Including Facebook, Messenger, Instagram and WhatsApp.

** Including Messenger

Source: CMA (n 14) at 120; C24

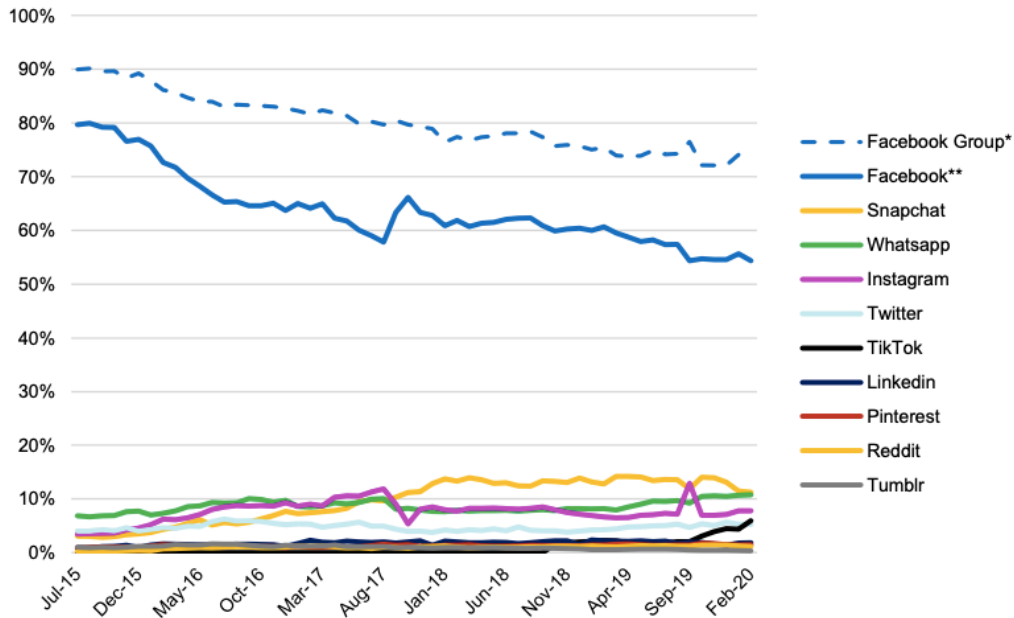
The CMA stresses, however, that YouTube is closer to an audiovisual content provider such as television or video streaming companies than to a social media company. This leads the agency to conclude that YouTube is not a strong competitive constraint on Facebook and other social media—a conclusion that reflects Google’s internal documents obtained by the CMA.⁴⁶⁰ Without YouTube, Facebook’s share is significantly ahead of its competitors—it offers the widest portfolio of products and caters to a wide range of user needs across a communication-content spectrum, as shown by the fact that most users of other social-media cross-visit with Facebook, but not the other way around.⁴⁶¹ Only Instagram, WhatsApp, SnapChat, and TikTok have entered the British market over the past 10 years and succeeded in obtaining a share of at least 5% when measured according to time spent in the platform. Yet, Facebook acquired Instagram and WhatsApp, and SnapChat (11% share) and TikTok (6%) remain significantly smaller than

⁴⁶⁰ *Id.* at 120; 126-128. See also House Majority Report (n 24) at 91, 139.

⁴⁶¹ CMA (n 14) at 118; 129. House Majority Report (n 24) at 136-137.

Facebook (73%) in the UK.⁴⁶²

Image 23: Share of supply by user time spent in the UK from July 2015 to February 2020 (excluding YouTube)



Source: Comscore MMX Multi-Platform, Total Digital Population, Desktop aged 6+, Mobile aged 13+, July 2015 – February 2020, UK.

Notes: In November 2018, Comscore altered its methodology which contributes to the discontinuities in the data around this date.

*Including Facebook, Messenger, Instagram and WhatsApp.

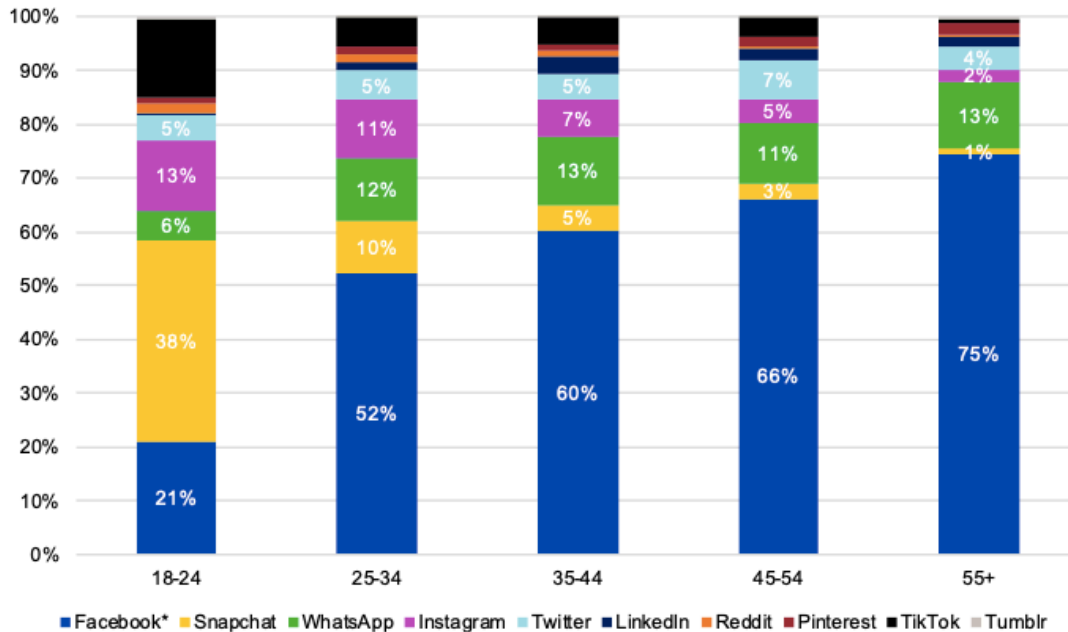
** Including Messenger

Source: CMA (n 14) at 122; C29

Interestingly, the CMA data also shows that SnapChat is a better competitor to Facebook in the age groups 18-24, where shares were 40% for Facebook and 38% for SnapChat in February 2020.

⁴⁶² CMA (n 14) at 121; 134.

Image 24: Share of supply by age segment by user time spent in the UK in February 2020



Source: Comscore MMX Multi-Platform, Total Digital Population, Desktop aged 6+, Mobile aged 13+, February 2020, UK. *Including Messenger.

Source: CMA (n 14) at C30

All in all, different reports have concluded that other social media platforms offer only some fringe competition to Facebook.com and the Facebook family of products—so that Facebook is a ‘must have’ platform that holds significant market power in the social media market.⁴⁶³ In particular, Facebook’s family of apps enables the company to build an extensive social graph, to access data from many different sources, and to create some portfolio effects that keep users within the company’s ecosystem.⁴⁶⁴ The House Majority Report finds that this conclusion is supported by internal Facebook analysis and data.⁴⁶⁵

Many reports also sustain that Facebook’s market power is protected by important barriers to the entry and expansion of competitors, including:⁴⁶⁶

⁴⁶³ *Id.* at 130. AdC (n 13) at 51. ACCC (n 7) at 77. House Majority Report (n 24) at 90; 133; 140.

⁴⁶⁴ ACCC (n 7) at 80. CMA (n 14) at 130. House Majority Report (n 24) at 133.

⁴⁶⁵ *Id.* at 133, 136.

⁴⁶⁶ AdC (n 13) at 89. ACCC (n 7) at 79; CMA (n 14) at 131. House Majority Report (n 24) at 133-134.

- i. direct (users) and indirect (content providers, third-party developers) network effects;⁴⁶⁷
- ii. access to user data and user-generated content; and
- iii. Facebook’s control over interoperability protocols and its capacity to degrade access to competing and complementary apps/services.⁴⁶⁸

Although the market has seen some new entry over the last decade, these new entrants have been mostly characterized by services that are different from those offered by Facebook, and they have not materially restricted Facebook’s market power.⁴⁶⁹ The House Majority Report finds that part of Facebook history of acquisitions aimed to protect it from competition, neutralizing threats before they developed into meaningful competitors—a conclusion it indicates is backed by internal company data and analysis.⁴⁷⁰ These would include in particular Instagram and WhatsApp, despite the Instagram acquisition being approved by the Federal Trade Commission and by British authorities and the WhatsApp acquisition being approved by the FTC and the European Commission.⁴⁷¹ As seen in Section IV.F.2 below, a review by the CMA found important gaps in the approval of the Facebook/Instagram transaction.

Facebook’s incumbent advantages—access to non-public data on market behavior and its power to quickly copy smaller competitor’s innovations—further hinder market entry and enable Facebook to expand in related markets in a way that may harm competition and innovation.⁴⁷² The lack of interoperability also diminishes competitive pressures and increases users’ switching costs.⁴⁷³ While APIs are essential for services to access Facebook’s rich database, Facebook’s tight control over access conditions and over single

⁴⁶⁷ CMA (n 14) at 131; 138; AdC (n 13) at 52. ACCC (n 7) at 79. House Majority Report (n 24) at 89; 140-141 (stressing how these conclusions would be supported by internal Facebook documents).

⁴⁶⁸ CMA (n 14) at 140; J17. House Majority Report (n 24) at 144-145; 148 (also referencing internal Facebook documents).

⁴⁶⁹ CMA (n 14) at 134; 144.

⁴⁷⁰ House Majority Report (n 24) at 149.

⁴⁷¹ *Id.* at 150-160. According to internal Facebook data, the goals to acquire Instagram would include to “neutralize a potential competitor” and to “integrate Instagram’s products with Facebook’s to improve its services.” And buying time to ensure that the company could gain scale before other competitors could challenge its position. *Id.* at 152. The Report also concluded that Facebook saw WhatsApp as a maverick competitor and that acquiring it was a way to address a competitive threat and shore-up its dominant position. *Id.* at 160.

⁴⁷² CMA (n 14) at 135. House Majority Report (n 24) at 160-161; 163. The House Majority Report describes how Facebook used a threat of copy to encourage Instagram to sell itself to Facebook. *Id.* at 163-164.

⁴⁷³ *Id.* at 136; 140. AdC (n 13) at 95. House Majority Report (n 24) at 145-146.

sign-on functionalities create a situation of market dependency. The reports affirm that Facebook has already leveraged its control over interoperability protocols to prevent competing/complementary services from expanding, as shown by the cases of Twitter’s Vine video app or the Dialogue litigation in Australia.⁴⁷⁴ Finally, Facebook’s large database and its constant access to users allow it to explore economies of scale and scope and better personalize experiences and ads—increasing the profitability of the platform.⁴⁷⁵

The reports conclude that the social media market is dominated by Facebook and that the company does not face material competitive threats either from existing platforms or from potential entrants.⁴⁷⁶ This dominance may harm consumers through less innovation and quality, the collection of more consumer data, and higher prices as companies pass on higher markups in online ads.⁴⁷⁷

VI. POTENTIAL SOLUTIONS

The reports generally conclude that many digital markets face limited competition and that antitrust authorities must be more proactive in promoting and maintaining market rivalry.⁴⁷⁸ Certain characteristics of digital markets significantly increase barriers to entry and expansion, preventing new competitors from correcting market distortions.⁴⁷⁹ This does not mean that competition is impossible—antitrust and regulatory remedies may address some of the sources of market power and ensure a better competitive dynamic that benefits consumers.⁴⁸⁰ The studies suggest a range of policies that can increase competition and consumer welfare. In particular, it would be up to authorities to strengthen competition:

- i. for the market, preventing dominant companies from hindering the growth of potential competitors; and
- ii. intra-platform, in particular in secondary/after-markets, preventing platforms from constantly strengthening their control over ecosystems.⁴⁸¹

While some studies focus on the use of antitrust tools, others discuss the use of regulatory policy to complement antitrust. This paper (and this part)

⁴⁷⁴ CMA (n 14) at 141; J11. ACCC (n 7) at 134. House Majority Report (n 24) at 166-169.

⁴⁷⁵ CMA (n 14) at 144. House Majority Report (n 24) at 147-148.

⁴⁷⁶ CMA (n 14) at 146. ACCC (n 7) at 78; 84. House Majority Report (n 24) at 140.

⁴⁷⁷ CMA (n 14) at 147.

⁴⁷⁸ Stigler Committee on Digital Platforms (n 3) at 80. Furman (chair) and others (n 18). at 103. Crémer, de Montjoye and Schweitzer (n 6) at 5; 42.

⁴⁷⁹ Stigler Committee on Digital Platforms (n 3) at 81.

⁴⁸⁰ Furman (chair) and others (n 18) at 54.

⁴⁸¹ Crémer, de Montjoye and Schweitzer (n 6) at 5.

focuses on antitrust tools, mentioning regulatory interventions when they would complement antitrust policy as potential solutions.

A. Abandon the consumer welfare standard?

Most studies agree that the consumer welfare standard should continue to drive antitrust enforcement.⁴⁸² This conclusion, however, reflects a much broader understanding of the consumer welfare standard than a simple focus on price and output effects. Indeed, the idea is that the standard is flexible enough to incorporate eventual changes in competitive dynamics that take place in digital markets—including concerns around price, quantity, quality, or innovation.⁴⁸³ This, however, does not mean that authorities should simply maintain the status quo. Rather, it is important to rethink standards of proof as the innovations brought about in digital markets often hinder the precise measuring of consumer harm as required by a strict interpretation of the consumer welfare standard.⁴⁸⁴ It is particularly important to protect potential competition in these markets.⁴⁸⁵

An exception is the House Majority Report, that recommends that Congress reasserts “the original intent and broad goals of the antitrust laws, by clarifying that they are design to protect not just consumers, but also workers, entrepreneurs, independent businesses, open markets, a fair economy and democratic ideals”.⁴⁸⁶ This proposal is significantly broader than the expansion of the consumer welfare standard to incorporate concerns around quality and innovation that is addressed by other reports.

B. Increase the use of interim measures

Many reports suggest that antitrust authorities should increase their use of interim measures as a way to stop anticompetitive measures from ensuring that markets tip in favor of a dominant provider.⁴⁸⁷ Concerns here are that many types of conduct that increase market efficiency may also lead to anticompetitive effects. One way to address certain concerns is to establish that certain practices (e.g., those that prevent multi-homing whenever platforms enter adjacent markets) are presumptively anti-competitive when

⁴⁸² *Id.* at 3; 39; 41. Stigler Committee on Digital Platforms (n 3) at 66. Furman (chair) and others (n 18) at 87.

⁴⁸³ Crémer, de Montjoye and Schweitzer (n 6) at 41.

⁴⁸⁴ *Id.* at 3; 40.

⁴⁸⁵ *Id.* at 3; 42.

⁴⁸⁶ House Majority Report (n 24) at 392.

⁴⁸⁷ Furman (chair) and others (n 18) at 14. 104; Commission Competition Law 4.0 (n 21) at 71. Stigler Committee on Digital Platforms (n 3) at 87; 94-95.

adopted by dominant companies.⁴⁸⁸ Companies then need to show that efficiencies outweigh potential harms to competition.

C. Changes in burdens of proof

Different reports discuss how changes in burdens of proof may be an interesting solution to elicit information sharing and enable antitrust intervention in an environment of high uncertainty. The Stigler report, for example, discusses how in highly uncertain environments authorities may invert burdens of proof, create rebuttable presumptions that certain conduct harms competition, or become stricter in their assessment of whether potential efficiencies arising from given conduct will be shared with consumers as a way to elicit information sharing.⁴⁸⁹ The Special Advisers report defends that authorities balance error-costs in antitrust by modifying legal standards and presumptions and by inverting burdens of proof so that dominant companies are required to prove the procompetitive effects of their conduct, not when they are considering a given, specific case.⁴⁹⁰ This inversion is deemed particularly important when dominant companies enter adjacent markets, strengthen their ecosystems, and increase consumers' switching costs; or when they leverage strategies to impede multi-homing, data transfer, or interoperability.⁴⁹¹ It is up to companies to prove that their practices would lead to efficiencies. The German report is against changes to the standards to prove a violation. However, it stresses the need for authorities to intervene based on theories of potential competition as a way to protect markets before they consolidate.⁴⁹²

The Stigler report lists certain areas/practices that require special attention by competition authorities:⁴⁹³

- i. current antitrust doctrines grant dominant companies too much leeway in refusing to deal with entrants and potential competitors;
- ii. authorities must expand what they see as potential recoupment strategies in digital markets, in particular to reflect how predatory pricing may be used to prevent smaller competitors from developing economies of scale and scope;

⁴⁸⁸ Crémer, de Montjoye and Schweitzer (n 6) at 4; 51.

⁴⁸⁹ Stigler Committee on Digital Platforms (n 3) at 98. Furman (chair) and others (n 18) at 103.

⁴⁹⁰ Crémer, de Montjoye and Schweitzer (n 6) at 4-6; 51.

⁴⁹¹ *Id.*

⁴⁹² Schweitzer and others (n 20) at 1-2.

⁴⁹³ Stigler Committee on Digital Platforms (n 3) at 96-99.

- iii. conditional rebates and exclusivity contracts must be better analyzed, in particular when they force consumers to single-home;
- iv. when there is clear evidence of harm to competition, authorities should not require harm in artificially defined relevant markets;
- v. authorities must consider when product design negatively impacts competition;
- vi. dominant companies should no longer have safe-harbors for exclusivity contracts or other vertical restrictions. Authorities should require parties to prove efficiencies in mergers, acquisitions, and vertical relations; and
- vii. authorities must accept qualitative and circumstantial evidence in the opening of investigations and in condemnations, in particular when the dominant companies hold all the information required to precisely calculate harm.

There are, however, different approaches. For example, in addition to shifts in burdens of proof and the creation of rebuttable presumptions, the Competition 4.0 report defends the need for authorities to develop, through rulemaking, clear rules for platforms regarding excluding behavior.⁴⁹⁴ These rules would apply solely to platforms with significant market power or bottleneck power and would limit self-preferencing, encourage/force data interoperability, and promote alternative dispute resolution tools for intra-platform conflicts.⁴⁹⁵

The House Majority Report also makes a series of recommendations to generally strengthen antitrust laws that would apply to both digital and non-digital markets. These include: (i) modifying the Sherman Act to prohibit abuses of dominance, and to create statutory rebuttable presumptions that any sellers with 30% or more market share or buyers with 25% or more market share are dominant; (ii) remove proof of recoupment requirements to qualify a conduct as predatory; (iii) revive the essential facilities doctrine; and (iv) facilitate tying claims, among others.⁴⁹⁶ It also proposes facilitating private enforcement by outlawing forced arbitration clauses and eliminating limits on class formation and lowering pleading requirements, among others.⁴⁹⁷

⁴⁹⁴ Commission Competition Law 4.0 (n 21) at 49.

⁴⁹⁵ *Id.* at 50-54.

⁴⁹⁶ House Majority Report (n 24) at 396-400. Some of these suggestions, however, are not bi-partisan, as the House Minority Report (n 24) report recommends further studies on changes to predatory pricing, the essential facilities doctrine, product improvement, presumptions against mergers and acquisitions by all companies, including vertical acquisitions (*Id.* at 12-16)

⁴⁹⁷ House Majority Report (n 24) at 405.

These latter proposals, however, have been rejected by the House Minority Report.⁴⁹⁸

D. Non-discrimination/fair treatment obligations

The reports discuss to what extent platforms have an obligation to be fair with their complements. As explained by the Special Advisers report, the design of intra-platform markets impacts competition within the ecosystem because, among other things, platforms.⁴⁹⁹

- i. regulate access rules;
- ii. design interfaces;
- iii. determine which APIs can be accessed;
- iv. design review systems;
- v. determine how companies access data;
- vi. define minimum quality levels;
- vii. establish standard contractual terms and moderate/rule on conflicts;
- viii. control prices and impose MFNs;
- ix. rank products; and
- x. control payment methods.

In doing so, platforms become de facto regulators of their ecosystems, which may require them not to distort competition.

Many reports discuss the importance of imposing fair treatment/non-discrimination obligations on companies holding market power or some similar status. The Stigler report qualifies this power as bottleneck power,⁵⁰⁰ a concept also present in the Special Advisers report (intermediation power),⁵⁰¹ the German report (intermediation power),⁵⁰² the ACM report (bottleneck power),⁵⁰³ the House Majority Report (gatekeeper)⁵⁰⁴ and both the Furman and the CMA reports (strategic market status or competitive gateway).⁵⁰⁵

The Furman and the CMA reports go into the most detail on what this

⁴⁹⁸ House Minority Report (n 24) at 17.

⁴⁹⁹ Crémer, de Montjoye and Schweitzer (n 6) at 4; 60-61.

⁵⁰⁰ Stigler Committee on Digital Platforms (n 3) at 105.

⁵⁰¹ Crémer, de Montjoye and Schweitzer (n 6) at 4; 49.

⁵⁰² Schweitzer and others (n 20) at 2.

⁵⁰³ ACM (n 9) at 40.

⁵⁰⁴ House Majority Report (n 24) at 39.

⁵⁰⁵ Furman (chair) and others (n 18) at 10; 55; 59. CMA (n 14) at 22; 335.

power would entail. The Furman report stresses three main variables: i) the power to control access to certain goods and services and charge high access fees; (ii) the power to manipulate rankings or the prominence of a given good/service; and (iii) the power to control reputations.⁵⁰⁶ They also indicate that the concept of “Significant Market Power” that exists in telecom markets provides some references on how to think about strategic market status in digital markets.⁵⁰⁷ The CMA complements the Furman report by suggesting that, for platforms funded by digital advertising, some of the criteria should include measures of shares of supply in consumer-facing markets, reach across consumers, share of digital advertising revenues, control over the rules or standards which apply in the market, and the ability to obtain and control unique datasets.⁵⁰⁸ It argues that this strategic status should apply to the corporate group as a whole, and concludes that both Google and Facebook should likely be deemed as holding strategic market status in digital advertisement markets.⁵⁰⁹

The Stigler report argues against using antitrust as a tool to control intra-platform discrimination, as it sees competition policy being primarily focused on abuses of market power, not controlling prices or imposing fairness.⁵¹⁰ In particular, a potential antitrust intervention could be based on either a duty to deal or the concept of “essential facilities,” both of which are not well-defined in US antitrust law. A specific regulator, however, could have the power to ensure that companies and consumers are not discriminated against by dominant companies. The Furman report follows a somewhat similar approach when it argues that dominant platforms must publish binding and non-discriminatory codes of conduct that will regulate how companies that rely on the platforms can access markets and consumers.⁵¹¹ It also recommends that a dedicated regulator should oversee the implementation of these binding codes and prevent platforms from illegally self-preferencing their own products/services in adjacent markets.⁵¹² Some practices that would be particularly worrisome would include: (i) marketplaces excluding or suspending competitors to privilege their own products; (ii) a platform preferencing its own goods/services in rankings or search results; and (iii) online platforms penalizing companies for offering better terms to other sites.⁵¹³

Other reports suggest that antitrust plays a key role in ensuring fair

⁵⁰⁶ Furman (chair) and others (n 18) at 41.

⁵⁰⁷ *Id.* at 81.

⁵⁰⁸ CMA (n 14) at 336.

⁵⁰⁹ *Id.* at 23; 336.

⁵¹⁰ Stigler Committee on Digital Platforms (n 3) at 89-91; 100.

⁵¹¹ Furman (chair) and others (n 18) at 57.

⁵¹² *Id.* at 58.

⁵¹³ *Id.* at 61.

treatment and preventing self-preferencing.⁵¹⁴ That is because general prohibitions against self-preferencing may negatively impact innovation and force market uniformity—so that antitrust is a better targeted tool against specific abuses.⁵¹⁵ According to the Special Advisers report, dominant companies may have an obligation to establish interoperability with regards to complementary services,⁵¹⁶ especially when there is no inter-platform competition.⁵¹⁷ In particular, companies should not use their umpire powers to pre-determine the results of a competitive process; rules that distort intra-platform competition must be carefully assessed and documented.⁵¹⁸ All in all, self-preferencing is not seen as abusive per se, but rather as a practice that should be subject to an analysis on its impacts on markets.⁵¹⁹ In markets with high barriers to entry and where platforms hold enough market power so that they are essential to competition, it will be up to platforms to prove that their rules/behavior do not harm the market in the long-run.⁵²⁰

On the other hand, the House Majority Report recommends the establishment of structural separations and line of business restrictions as the best solution to address concerns around self-preferencing and non-discrimination principles.⁵²¹ Structural separations prohibit a dominant intermediary from operating in adjacent markets when other firms depend on this intermediary, while line of business restrictions generally limit markets in which this dominant firm can engage.⁵²² These could be implemented either as ownership separations that require separate ownership for each businesses or functional separations, that allow companies from the same owner from operating in adjacent markets but requires formal, organizational distinctions.⁵²³ These rules would be complemented by a broad non-discrimination obligation that would require dominant platforms to offer equal terms for equal service, both in terms of price and access.⁵²⁴ These proposed changes, however, were rejected by the House Minority Report as too intrusive.⁵²⁵

⁵¹⁴ Schweitzer and others (n 20) at 2. ACCC (n 7) at 10; 110. Competition Commission of India (n 23) at 29.

⁵¹⁵ Crémer, de Montjoye and Schweitzer (n 6) at 69.

⁵¹⁶ *Id.* at 71.

⁵¹⁷ *Id.* at 61.

⁵¹⁸ *Id.* at 61-62.

⁵¹⁹ *Id.* at 7; 66.

⁵²⁰ *Id.* at 66.

⁵²¹ House Majority Report (n 24) at 380.

⁵²² *Id.*

⁵²³ *Id.* at 381.

⁵²⁴ *Id.* at 383.

⁵²⁵ House Minority Report (n 24) at 16-18.

E. Data portability and interoperability

Many different reports discuss the role of data portability and interoperability obligations as potential antitrust remedies that can help promote competition in digital markets⁵²⁶—the Special Advisers report goes as far as discussing whether there should be a presumption of interoperability whenever dominant platforms control key databases that cannot be replicated by competitors.⁵²⁷

Authorities should be careful when evaluating requests to port or impose data interoperability obligations, as in many cases data are not necessary to promote competition and these data transfers may lead to important violations of privacy rights.⁵²⁸ It is important to keep in mind that different types of data may justify different levels of access. Authorities must evaluate the size (number of lines) and the richness (number of columns) of databases to understand to what extent those databases protect dominant companies from competitive pressures.⁵²⁹ Authorities must also consider how these obligations will impact incentives to obtain data, especially behavioral data that is more costly to obtain and process and that is key to innovation.⁵³⁰

The Special Advisers report discusses how data portability obligations present in the General Data Protection Regulation (“GDPR”) were designed to reduce switching costs, but not to port data from an entire sector—something that requires either specific regulations or antitrust interventions (when the data are controlled by a single, dominant company).⁵³¹ When this is the case, authorities must consider the type of data being transferred, how frequent the access will be, the costs of access, etc.⁵³² The focus should always be on sharing that cannot be easily duplicated, such as volunteered and observed data, and that is directly connected to a company’s market power.⁵³³ All in all, the report defends that antitrust laws may not be the best instrument to impose a data access policy, in particular given the challenges in coordinating the behavior of different agents, establishing a clear access

⁵²⁶ Stigler Committee on Digital Platforms (n 3) at 117. Crémer, de Montjoye and Schweitzer (n 6) at 74. Furman (chair) and others (n 18) at 76. House Majority Report (n 24) at 385-386.

⁵²⁷ Crémer, de Montjoye and Schweitzer (n 6) at 4. Commission Competition Law 4.0 (n 21) at 38.

⁵²⁸ Crémer, de Montjoye and Schweitzer (n 6). at 99-101.

⁵²⁹ *Id.* at 103. Furman (chair) and others (n 18) at 75.

⁵³⁰ Crémer, de Montjoye and Schweitzer (n 6) at 106; Competition Bureau - Canada (n 4) at 9.

⁵³¹ Crémer, de Montjoye and Schweitzer (n 6) at 81. Commission Competition Law 4.0 (n 21) at 39.

⁵³² Crémer, de Montjoye and Schweitzer (n 6) at 82.

⁵³³ *Id.* at 9; 101; Schweitzer and others (n 20) at 4.

policy, and constantly evaluating the effectiveness of this policy.⁵³⁴ Antitrust interventions may be appropriate when the data are standardized, the access can be made at a low cost, and parties do not require constant access.⁵³⁵

The Furman report expands on this analysis and also discusses the importance of sharing private data with third-party researchers and with authorities as a way to diminish information asymmetries.⁵³⁶ A regulatory authority may be well-positioned to establish full interoperability or data interoperability standards—depending on the specific circumstances—as a way to promote competition in digital markets.⁵³⁷ It uses the UK’s *Open Banking* and the *Smart Data Review* as examples of how standardization and data mobility may increase competition.⁵³⁸ The report suggests some potential alternatives to enable access to private data, including the controlled access to anonymized databases or the development of data trusts where companies can securely share data.⁵³⁹ The Competition 4.0 report discusses how it may be necessary to create a specific notification system for companies that hope to design data pools or data exchanges as a way to share databases and promote innovation.⁵⁴⁰

F. Mergers: notification thresholds and review of past decisions.

1. Notification thresholds and standards of proof

According to the Furman Report, regulators must block anticompetitive mergers as a way to ensure that firms internalize antitrust costs when proposing such transactions.⁵⁴¹ It also points out, however, how Mergers and Acquisitions (“M&A”) can benefit consumers by diminishing costs or promoting innovation as companies share know-how and databases, incorporate new technologies, and access new capital sources. M&A is also an important exit strategy for venture capital/angel investors.⁵⁴² The Special Advisers report states that the acquisition of startups holding specific types of data may negatively impact competition through horizontal, vertical, or even conglomerate effects; but such acquisitions may also lead to efficiencies/synergies that can increase output and improve the quality of goods/services.⁵⁴³ There are particular concerns that acquisitions of startups

⁵³⁴ Crémer, de Montjoye and Schweitzer (n 6) at 9-10; 107.

⁵³⁵ *Id.* at 107

⁵³⁶ Furman (chair) and others (n 18) at 65; 72; 74; 108.

⁵³⁷ *Id.* at 9-10; 65. ACCC (n 7) at 11.

⁵³⁸ Furman (chair) and others (n 18) at 69.

⁵³⁹ *Id.* at 76. Commission Competition Law 4.0 (n 21) at 43-44.

⁵⁴⁰ Commission Competition Law 4.0 (n 21) at 60.

⁵⁴¹ Furman (chair) and others (n 18) at 89-90.

⁵⁴² *Id.* at 90. AdC and Bundeskartellamt (n 5) at 16-17.

⁵⁴³ Crémer, de Montjoye and Schweitzer (n 6) at 110.

may increase an incumbent's market power, enable a company to leverage its power from one market to the next, or even lead to market foreclosure.⁵⁴⁴ The House Majority Report, for example, affirms that digital platforms constantly acquire upstart competitors that are often data-rich but cash poor, a combination that allows them to evade antitrust scrutiny.⁵⁴⁵ It indicates that it would be unlikely that antitrust authorities would have taken action against Microsoft had it acquired Netscape, rather than adopted foreclosing tactics.⁵⁴⁶

A well-functioning merger review system must balance the risk of false positives with the risk of false negatives. However, the problem with merger review in digital markets is that one is not be able to point out a single "false positive" case over the past years as many transactions have not even been reported to antitrust regulators.⁵⁴⁷ The growing evidence of "stealth consolidation" in different sectors increases the importance of discussions around notification thresholds and intervention standards.⁵⁴⁸

The Stigler report argues that regulators should review transactions that do not meet formal notification thresholds when: (i) there is a pattern of recurrent acquisitions of startups by incumbents in a given sector; or (ii) the high price of the transaction indicates that the incumbent is sharing monopoly profits with the acquired company.⁵⁴⁹ In addition, the report recommends the creation of a regulator dedicated to digital markets that can review all M&A transactions done by "bottleneck companies" in parallel and under different criteria. That is because it would be unwise to revise all US merger policy only because of concerns with a given sector.⁵⁵⁰ Other reports also observe that, although "killer acquisitions" can be a concern in these markets, most M&A transactions aim to strengthen ecosystems and not to kill outright competitors.⁵⁵¹

There are challenges in separating pro- and anti-competitive acquisitions, as regulators struggle to properly grasp theories of harm based on potential competition or conglomerate effects that are associated with digital ecosystems.⁵⁵² It is crucial that authorities evaluate the potential overlap of all the products/services offered by the companies. In addition, authorities cannot limit their analysis to documents indicating potential entry into the core markets of digital platforms, as many startups do not have fully

⁵⁴⁴ *Id.* COFECE (n 17) at 70.

⁵⁴⁵ House Majority Report (n 24) at 44.

⁵⁴⁶ *Id.*

⁵⁴⁷ Furman (chair) and others (n 18) at 91.

⁵⁴⁸ Stigler Committee on Digital Platforms (n 3) at 88,

⁵⁴⁹ *Id.* at 88. Crémer, de Montjoye and Schweitzer (n 6) at 111.

⁵⁵⁰ Stigler Committee on Digital Platforms (n 3) at 90; 111.

⁵⁵¹ Crémer, de Montjoye and Schweitzer (n 6) at 117; 120. Furman (chair) and others (n 18) at 93.

⁵⁵² Crémer, de Montjoye and Schweitzer (n 6) at 112.

developed business plans.⁵⁵³ The Special Advisers report recommends that authorities restrict acquisitions made by dominant companies operating in their zones of strategic interest around the core products of the platform.⁵⁵⁴ The theory of harm concerns not only restrictions of an essential input, but also the strengthening of a dominant platform's ecosystem connected with increased economies of scale/scope and network effects.⁵⁵⁵ The standard of analysis should be how likely it is that the acquired company would have developed into an effective competitor to the platform in its core or adjacent markets.⁵⁵⁶ Whenever companies claim efficiencies, they must prove: (i) that these efficiencies are specific to the merger; (ii) that they will be shared with consumers; and (iii) that they could not be obtained in a manner less restrictive to competition—as through interoperability or access agreements.⁵⁵⁷ The Furman report stresses how authorities cannot focus solely on short-term harm but must also consider long-term impacts, potential competition, and how the acquisition may strengthen a dominant ecosystem. In particular, authorities must: (i) consider how interoperability and multi-homing impact competition; (ii) consider the role played by data on market dynamics; (iii) consider the role played by zero prices on market dynamics; (iv) consider losses to innovation/potential competition resulting from the transaction; (v) not simply assume that non-horizontal mergers are benign; (vi) clarify that the significant lessening of competition test, when applied to concentrated markets, may signify that even small losses to competition may be relevant; and (vii) consider whether there are other ways to obtain efficiencies.⁵⁵⁸

All in all, the reports are split on whether there must be changes to notification thresholds. Some European reports defend that it is too early to propose changes to EU notification thresholds to include market shares or transaction value.⁵⁵⁹ That is because some countries have already amended national antitrust laws to incorporate some of these criteria, so it is important to evaluate the impacts of those changes in notifications and in referral requests.⁵⁶⁰ In addition: (i) changes may impact legal certainty and increase costs; (ii) the number of problematic transactions seems small; and (iii) the EU may not have jurisdiction to review a lot of international M&A activities that do not directly impact the internal market.⁵⁶¹

⁵⁵³ *Id.* at 119.

⁵⁵⁴ *Id.* at 121.

⁵⁵⁵ *Id.* at 122.

⁵⁵⁶ *Id.* at 122.

⁵⁵⁷ *Id.* at 123.

⁵⁵⁸ Furman (chair) and others (n 18) at 96. See also, ACCC (n 7) at 30; 105.

⁵⁵⁹ Crémer, de Montjoye and Schweitzer (n 6) at 113; 124.

⁵⁶⁰ *Id.* at 10; 115; Commission Competition Law 4.0 (n 21) at 64.

⁵⁶¹ Crémer, de Montjoye and Schweitzer (n 6) at 114.

Other reports, however, point out the need to carefully evaluate all acquisitions by digital incumbents. As mentioned above, the Stigler report proposes the creation of a regulator to review all transactions by companies with “bottleneck power.” The Furman report also suggests that companies deemed as having “Strategic Market Status” should be required to notify all acquisitions to the CMA, and that the agency should give high priority in reviewing these transactions.⁵⁶² In particular, it notes that even the UK’s market-share threshold has failed to capture many of the acquisitions of startups by digital platforms over the past years.⁵⁶³ The CMA should therefore be given more powers to block mergers whenever it considers that the net results of a transaction will be negative, not only when it will significantly diminish competition in a well-defined relevant market.⁵⁶⁴ The House Majority Report proposes similar changes: dominant platforms would have to notify all acquisitions and these would be considered presumptively anticompetitive—it would be up for the parties to prove that the transaction was in the public interest.⁵⁶⁵ It also proposes the creation of rebuttable structural presumptions against any mergers or acquisitions that would lead to a control of 30% or more of a given market.⁵⁶⁶ It also recommends that Congress explore presumptions against acquisitions of startups by incumbents and against vertical acquisitions.⁵⁶⁷ This would apply to both digital and regular markets.

As in other areas, the Canadian report is an exception. It indicates that the review standards applicable to other markets should also be applicable to digital transactions, so that there are no significant reasons to modify regulatory practices.⁵⁶⁸

2. Review of past decisions

As authorities consider potential changes to merger review standards, they may wish to learn from their past practices. The CMA hired LEAR, an independent consultancy, to evaluate its decisions on five transactions that involved digital platforms: (i) Facebook/Instagram; (ii) Google/Waze; (iii) Priceline/Kayak; (iv) Expedia/Trivago; and (v) Amazon/The Book Depository. It granted LEAR access to the data available to the CMA at the time of the review and asked consultants to evaluate the theories of harm explored, the strength of the data/evidence collected, and the ways that

⁵⁶² Furman (chair) and others (n 18) at 12; 95.

⁵⁶³ *Id.* at 11.

⁵⁶⁴ *Id.* at 13; 101.

⁵⁶⁵ House Majority Report (n 24) at 388; 395.

⁵⁶⁶ *Id.* at 393-394.

⁵⁶⁷ *Id.* at 394-396.

⁵⁶⁸ Competition Bureau - Canada (n 4) at 5.

markets evolved vis-à-vis the authority's forecasts.⁵⁶⁹ The final report is interesting both due to its methodological approach and its conclusions.

The main theories of harm considered by the CMA in horizontal cases included: (i) the strengthening of network effects as a way to restrict market entry; (ii) increases in horizontal concentration and decreases in competition in online advertising markets; (iii) potential competition; and (iv) smaller incentives to innovate. In vertical cases, theories of harm included: (i) strengthening of network effects as barriers to entry; and (ii) increases in the value of databases and capacity to enter/leverage market position to new markets.⁵⁷⁰ The report stressed how authorities must always ensure that they obtain accurate data to evaluate the impacts of a transaction on current and potential competition. In particular, LEAR recommends that authorities: (i) consider using inspections/on-premises investigations to ensure that parties supplied all the relevant/correct information; (ii) use the value of the transaction as a proxy of the need to evaluate a transaction in detail; (iii) constantly follow the competitive conditions in key-sectors, such as online advertisement; (iv) extend the timeframe under which a company is considered to be a potential competitor beyond the two years usually employed in merger review; and (v) accept lower standards of proof and use qualitative evidence when they are evaluating potential negative effects in uncertain counterfactual scenarios.⁵⁷¹

i. Facebook/Instagram

In the case of Facebook/Instagram, British authorities considered and dismissed three theories of harm: (i) whether the acquisition would reduce competition between the companies on the photo app market (at the time, Instagram was not a social network); (ii) whether it would reduce potential competition in the online advertisement market; and (iii) whether it could diminish the quality of the services offered by Instagram to other social networks and vice-versa, strengthening Facebook's market position.⁵⁷² LEAR observes that authorities ignored data available at the time that indicated Instagram's high growth potential. In particular, a focus on the number of downloads ignored Instagram's highly engaged user base, something that is crucial for a social network and for online advertisement markets.⁵⁷³ Authorities also overestimated the costs for Instagram to expand its service offering and evolve into a social network. In particular, authorities failed to consider how the available evidence showed Instagram's evolution

⁵⁶⁹ LEAR (n 8) at i; 48.

⁵⁷⁰ *Id.* at iii; 44.

⁵⁷¹ *Id.* at ii; 44-46.

⁵⁷² *Id.* at v; 51.

⁵⁷³ *Id.* at vi; 52.

and fast growth, both indicating that it could potentially compete with Facebook.⁵⁷⁴ Authorities also ignored how the companies could integrate userbases and databases, strengthening the position of Facebook in online advertisement markets.⁵⁷⁵ Finally, authorities underestimated how Facebook could integrate Instagram functionalities to foreclose competition—for example, less than a year after the acquisition, Instagram diminished interoperability with Twitter. This foreclosure behavior would have helped Facebook increase its dominance over the UK markets for online advertisement.⁵⁷⁶

LEAR finds that Facebook must have contributed to Instagram's fast growth by helping the company develop new functionalities, granting it better access to data, reducing competitive pressures, allowing Instagram to leverage on the Facebook database, and granting it access to Facebook's ad-selling capabilities.⁵⁷⁷ It is up to authorities to evaluate to what extent these potential efficiencies would have outweighed the losses to competition a more careful analysis would have revealed.⁵⁷⁸

ii. Google/Waze

In the case of Google/Waze, British authorities considered and dismissed two potential theories of harm: (i) horizontal impacts over the competition for cellphone GPS navigation services; and (ii) whether Waze might develop into a disruptive market force. Waze's small UK market share prevented it from fully competing with Google in the UK.⁵⁷⁹ However, authorities overestimated the direct and indirect rivalry offered by Apple Maps, underestimated Waze's growth capacity (in particular given its ability to collect relevant data and to generate positive network effects), and underestimated barriers to entry and expansion in this market.⁵⁸⁰

LEAR stresses how Apple Maps was only available to iPhone owners (approximately 30% of UK cellphone users), so that the merger enabled Google to freely extract rents from Android users because the indirect competition channel (changing phones) was unlikely.⁵⁸¹ Authorities also ignored signs pointing towards Waze's high growth potential, overlooking internal documents from Apple and Waze that indicated the company as Google's main competitor.⁵⁸² Finally, they also ignored potential impacts on

⁵⁷⁴ *Id.* at 71.

⁵⁷⁵ *Id.* at 57.

⁵⁷⁶ *Id.* at 59.

⁵⁷⁷ *Id.* at vii; 58; 69.

⁵⁷⁸ *Id.* at vii; 71.

⁵⁷⁹ *Id.* at 73.

⁵⁸⁰ *Id.* at 73-74; 83.

⁵⁸¹ *Id.* at 84.

⁵⁸² *Id.* at 74.

the monetization side of the market, both through ads and through the sale of data and market intelligence.⁵⁸³

The report describes the efficiencies generated by the transaction—parties could share data and costs, and the services rendered by Google and Waze are complementary.⁵⁸⁴ That notwithstanding, authorities ignored how Waze’s acquisition strengthened Google’s dominant position in navigation services, location data, and online advertisement overall. Authorities should have considered whether the efficiencies outweighed these potential harms to competition that were largely ignored.⁵⁸⁵

iii. Priceline/Kayak and Expedia/Trivago

The report also analyzed the transactions between Priceline/Kayak and Expedia/Trivago in the OTA market. In the case of Priceline/Kayak, authorities evaluated questions relating to horizontal competition in the markets for OTAs and for hotel bookings/car rentals, and questions relating to vertical competition as Kayak is a meta-search site (“MSS”) that directs traffic to OTAs like Priceline. The theories of harm in this case considered: (i) potential increase in prices or diminished quality resulting from horizontal concentration; (ii) potential market foreclosure resulting from vertical relations; and (iii) conglomerate effects.⁵⁸⁶ These were dismissed based on a finding that there was enough competition and that Kayak responded for a small share of the market. Expedia/Trivago was not analyzed by the UK competition authorities because it did not meet merger notification thresholds.

LEAR indicates flaws in how authorities measured market shares. Authorities focused on three proxies: (i) net revenues; (ii) volume of bookings; and (iii) gross booking value, with net revenues being the main focus. This, however, is a poor proxy for market share because OTAs and MSSs have different business models. As OTAs conduct reservations, they require more infrastructure and have higher turnovers than MSSs that only charge a small fee for directed traffic. Therefore, the focus of the analysis should have been on consumer behavior/referred traffic, rather than on revenues.⁵⁸⁷

Authorities also dismissed potential vertical market foreclosure concerns by simply arguing that the market is characterized by multi-homing. However, authorities did not actually verify the existence of multi-homing, relying instead on theoretical arguments. The fact that consumers largely

⁵⁸³ *Id.* at viii; 77.

⁵⁸⁴ *Id.* at 78; 84.

⁵⁸⁵ *Id.* at viii; 85-86.

⁵⁸⁶ *Id.* at ix; 88.

⁵⁸⁷ *Id.* at ix; 90.

click on the first available link would show that even small changes in market behavior may have an important impact. In addition, most consumers are not aware that a single company controls a portfolio of brands.⁵⁸⁸ Bottlenecks and ecosystems may lead to higher prices.

The report stresses how Priceline and Expedia increased their market share over time, strengthening their market leadership.⁵⁸⁹ MSSs also grew in importance over time, so that these acquisitions may have contributed to this expansion as companies influence search results.⁵⁹⁰ There were also concerns that the market has been undergoing a consolidation process, as Priceline acquired four other MSSs in the period. LEAR presents some data indicating bias in MSS search results in favor of Priceline, potentially corroborating these concerns.⁵⁹¹

That notwithstanding, the report concludes that the approval of the merger appeared to have been correct, as there is still important competition in this market.⁵⁹²

iv. Amazon/The Book Depository

In Amazon/The Book Depository (“TBD”), authorities evaluated whether the acquisition of this online book shop would negatively impact horizontal competition through: (i) increases in book prices; (ii) decreases in incentives to improve consumer services; and (iii) potential competition from TBD’s expansion.⁵⁹³ Authorities found that TBD was not an important competitor to Amazon, dismissing all three theories.⁵⁹⁴

Authorities seemed to have properly evaluated the acquisition, ignoring only whether a potential vertical relation between Amazon and TBD through Amazon’s marketplace could increase foreclosure concerns. LEAR finds it unlikely that the merger negatively impacted prices and suspects that it may have led to efficiencies.⁵⁹⁵

All in all, LEAR’s conclusions are that authorities have consistently ignored important theories of harm in transactions involving digital markets. They have failed to fully grasp the multi-sided nature of these markets, how the transaction may negatively impact all these sides, and how market tendencies may impact the evolution of platforms (engagement, what drives

⁵⁸⁸ *Id.* at x; 91.

⁵⁸⁹ *Id.* at 98.

⁵⁹⁰ *Id.* at 91.

⁵⁹¹ *Id.* at 103.

⁵⁹² *Id.* at 106.

⁵⁹³ *Id.* at xi; 109.

⁵⁹⁴ *Id.* at 109.

⁵⁹⁵ *Id.* at 112; 116.

advertisers, how to steer demand, etc.).⁵⁹⁶ Authorities have also ignored important non-price effects.

It concludes by suggesting that authorities must accept higher levels of uncertainty when analyzing market tendencies and lower standards to intervene in digital markets, sometimes even testing legal limits to understand when/how they can intervene in uncertain scenarios.⁵⁹⁷

G. New regulator

The Stigler, Furman, ACCC, and CMA reports argue for the creation of a regulator with specific powers to oversee digital markets. The main reasoning behind the creation of this new agency is that antitrust policy cannot effectively respond to many of the challenges posed by digital markets—be it in terms of timely interventions, expertise, or capacity to monitor behavior in digital markets.⁵⁹⁸ The ACCC enumerates five key reasons why regulatory policy may be necessary to complement antitrust: (i) whenever markets are marked by low transparency, or conduct generates negative externalities; (ii) whenever investigations require constant monitoring and specific data that are not produced by the parties in their usual businesses; (iii) whenever interventions must be swift to prevent market tipping; (iv) whenever the market is so opaque that parties cannot report problems to the ACCC because they are unaware they exist; and (iv) whenever there are practices that do not negatively impact market competition but that negatively impact consumer welfare, such as cases involving monopsony power or user discrimination.⁵⁹⁹

This regulator would not be similar to utility commissions that establish maximum prices for companies operating natural monopolies. Rather, the goal is to ensure that markets remain open and competitive, diminishing the need for other regulatory interventions.⁶⁰⁰ In particular, the goal of a digital authority would be to facilitate market entry by diminishing barriers to entry and expansion of competitors, to oversee potentially abusive terms in Business-to-Business (“B2B”) and Business-to-Consumers (“B2C”) relations arising from platforms’ market power, to encourage innovation, and to direct markets to better address, through competition, concerns around data protection or discriminatory treatment.

The powers of this digital authority would complement those of antitrust regulators, and agencies should take joint action. For example, the digital

⁵⁹⁶ *Id.* at xii; 117.

⁵⁹⁷ *Id.* at xii; 118.

⁵⁹⁸ Furman (chair) and others (n 18) at 55. CMA (n 14) at 324, 329. ACCC (n 7) at 13; 141.

⁵⁹⁹ ACCC (n 7) at 139.

⁶⁰⁰ Furman (chair) and others (n 18) at 56.

authority may be responsible for implementing remedies imposed by antitrust authorities, or for coordinating data portability or interoperability.⁶⁰¹ This type of asymmetric regulation would apply to companies deemed as holding “bottleneck power” or “Strategic Market Status.” The Stigler report, for example, lists five main areas where a digital authority may be particularly important: (i) to ensure that market access conditions remain competitive; (ii) to collect and share databases; (iii) to ensure interoperability; (iv) to restrict sludges and other abuses of consumers’ behavioral tendencies; and (v) to establish open standards that can promote competition. The ACCC complements by stressing concerns around fraud, dispute resolution, and data security.⁶⁰²

H. Remedies for online advertisement markets

Finally, the reports propose remedies to address problems in online advertisement markets. The CMA, for example, defends the need for a regulatory regime to increase competition in these markets by lowering barriers to entry and to mitigate the negative effects of Google’s and Facebook’s market power.⁶⁰³ These regulatory interventions would be complemented by antitrust remedies to ensure that these markets become and remain competitive.

The remedies proposed by the CMA are divided into two broad areas: (i) an enforceable code of conduct to govern the behavior of platforms that have market power and act as bottlenecks; and (ii) pro-competitive interventions that can tackle sources of market power and promote competition and innovation.⁶⁰⁴

In relation to the first, the report stresses the importance of mandatory codes of conduct that would be applicable to a small number of platforms that are deemed to hold strategic market status, such as Google and Facebook in digital advertising.⁶⁰⁵ As mentioned above, some of the criteria should include measures of shares of supply in consumer-facing markets, extent of reach across consumers, share of digital advertising revenues, control over the rules or standards which apply in the market, and the ability to obtain and control unique datasets.⁶⁰⁶ While the strategic status should apply to the group as a whole, the code would only impact the platforms’ core businesses and adjacent businesses.⁶⁰⁷

⁶⁰¹ Stigler Committee on Digital Platforms (n 3) at 100.

⁶⁰² ACCC (n 7) at 25-27; 141.

⁶⁰³ CMA (n 14) at 322.

⁶⁰⁴ *Id.* at 326.

⁶⁰⁵ *Id.* at 335-336.

⁶⁰⁶ *Id.* at 336.

⁶⁰⁷ *Id.* at 338.

According to the report, these mandatory codes of conduct must address four main areas: (i) the relationship between advertisers and publishers in the buying/selling of online ads; (ii) the relationship between content providers and platforms whenever they control demand; (iii) the relationship between companies that both rely on the platforms and compete with them in a given market; and (iv) rules regarding the interaction between platforms and users.⁶⁰⁸ Each code of conduct should be particular to each platform, should be directly enforced by the regulator, and should be based on the principles of fair trading, open choices, and trust and transparency.⁶⁰⁹

Fair trading would ensure that platforms offer fair and reasonable terms to the companies/consumers that rely on them, preventing exploitative behavior. It would require that platforms trade on fair and reasonable terms; do not unduly apply discriminatory terms, conditions, or policies to certain customers; do not put unreasonable restrictions on how customers can use platforms; act in customers' best interests; and collect/process customer data only when reasonably linked to the services rendered.⁶¹⁰

Open choices would limit platforms' ability to self-preference/deny interoperability and impose abusive terms or prevent users' ability to access different platforms, preventing exclusionary behavior.⁶¹¹ The existence of open choices would generally prevent platforms from imposing undue restrictions on how customers use other providers that compete with platforms, influencing competitive processes/outcomes in ways that self-preferences the platform, bundling services in a way that has adverse effects on users, and withholding or deprecating APIs in a way that negatively impacts users, and it would require platforms to take reasonable steps to ensure that core services interoperate.⁶¹²

Trust and transparency would require dominant platforms to supply companies and users with enough data to understand the platform's decision-making processes (informed decisions). This would include obligations to explain algorithmic changes, data collection, and fees/prices; to set defaults in ways that facilitate informed choice; and to ensure that advertising is presented in a way that distinguishes it from organic content.⁶¹³

The CMA suggests that a regulator should also consider pro-competition interventions that can help limit sources of market power in digital advertising, complementing the more regulatory approach of the codes of conduct. In particular:

⁶⁰⁸ *Id.* at 340.

⁶⁰⁹ *Id.* at 23; 341.

⁶¹⁰ *Id.* at 342.

⁶¹¹ *Id.* at 23; 343.

⁶¹² *Id.* at 344.

⁶¹³ *Id.* at 345.

- i. In relation to Google in search: (i) restrict Google’s ability to secure default positions on large mobile device manufacturers, mandate the introduction of choice screens for default search engines, and/or restrict the ability to monetize these default positions; and (ii) require Google to provide click-and-query data to third-party search engines.⁶¹⁴
- ii. In relation to Google in open display: (i) separate the function of ad serving from DSP; (ii) prohibit a DSP from restricting access to its inventory when that inventory generates market power for the DSP, forcing Google to provide access to YouTube inventory in reasonable terms (these may be implemented as ownership separations or operational separations); (iii) increase transparency regarding fees and verification data; and (iv) impose data separation (data silos), data access/interoperability and data mobility/portability interventions.⁶¹⁵
- iii. In relation to Facebook, potential remedies were mostly aimed at imposing interoperability obligations to certain Facebook services. “Full Protocol” interoperability should not be required because such standardization might limit innovation. However, requirements could be applied to certain functionalities when interoperability would directly help to overcome network effects, in areas that are not highly innovative and where privacy concerns can be managed effectively (such as finding contacts and cross-posting).⁶¹⁶

Finally, the report also decided against opening a market investigation that would enable direct antitrust intervention, as it believes that changes in the regulatory regime would be a more efficient way to address concerns.⁶¹⁷

VII. GAPS FOR FURTHER RESEARCH

The reports summarized above touch upon the most diverse areas of competition in digital markets. Even so, many topics would benefit from better evaluation by future studies. Some that are particularly noteworthy include:

- i. **Impacts of price discrimination on consumer welfare:** The analyzed studies mostly ignore the topic of increased price discrimination as a result of personalization and how it may impact consumer welfare. Price discrimination may both reduce deadweight

⁶¹⁴ *Id.* at 25; 358; 362-367.

⁶¹⁵ *Id.* at 28-29; 400-418; M144.

⁶¹⁶ *Id.* at 26; 358; 374.

⁶¹⁷ *Id.* at 30; 426.

loss and allow for companies to appropriate consumer surplus. There is certainly a need to better understand how these dynamics can impact consumers in digital markets.

- ii. **How to characterize predation:** Many studies indicate the need to revise the criteria to determine anticompetitive predatory practices by dominant firms. While they generally defend the easing of recoupment requirements, they provide little guidance on what would replace the criteria currently in place.
- iii. **Competition between ecosystems:** Many reports discuss how competition is moving from specific markets to ecosystems. Still, analyses are still somewhat focused on specific markets. Further research can help us understand how to delimit the extent of different ecosystems and how to assess the levels of competition between them.
- iv. **Methods to analyze potential competition:** The reports consistently argue for the need to balance intervention standards to account for potential competition. However, they provide little guidance on what kind of quantitative and qualitative evidence authorities may rely on to analyze concrete cases.
- v. **How to account for investments in innovation:** Although the reports describe how lack of competition in many digital markets may negatively impact innovation, they do not directly address the fact that dominant digital platforms constantly lead charts of spending in R&D.⁶¹⁸ It would be important to better comprehend how innovation dynamics may be impacted by the proposed changes.
- vi. **Better comprehension of the downsides of regulatory regimes:** Many reports discuss the need to create some form of regulatory regime for digital markets. While the reasons behind such recommendations are consistent throughout the reports, more research is required on how regulators may negatively impact innovation and competition in different markets and how these negative downsides can be mitigated. In particular, future studies can better address how to design this regulator in a way that can help mitigate risks of regulatory capture.
- vii. **Better delimitation of the jurisdiction of this regulatory authority:** On a similar note, the reports do not establish the criteria that can determine which companies would be subject to this

⁶¹⁸ The appendix D of CMA (n 14) discusses how R&D investments impact ROCE calculations and measures of profitability. While this section is certainly enlightening, this topic merits a more detailed analysis.

asymmetric regulation. While concepts such as “bottleneck power” or “strategic market status” may provide general guidance, they must be better defined to prevent this digital authority from becoming a super-regulator with powers to oversee a major part of national economies.

- viii. **Practical guidance on how to structure this regulatory authority given countries’ specificities:** The reports do not address how countries can structure this regulatory authority in practice. Further research could focus on providing practical guidance on this matter, investigating resources and competencies required to structure this authority, institutional arrangements that favor coherent and coordinated policy making, as well as on how findings from studies on digital markets may or might not apply to countries in different stages of development.
- ix. **The tradeoffs in adopting broad line of business restrictions:** Finally, the House Majority Report (n 24) innovates in proposing line of business restrictions as a key solution to promote competition in the digital world. Before the enactment of such policies, however, it would be important to better understand how they may impact innovation and competition, in particular in dynamic markets where market frontiers are constantly changing—a key characteristic of the digital world.

CONCLUSION

Digital markets are at the forefront of competition policy and will certainly remain a key focus of antitrust authorities and scholars for years to come. From the US, to Europe to Australia to Brazil, competition authorities are increasingly being called to assess whether certain acquisitions or certain types of behavior are harming market competition and consumers. These analyses, however, must consider the complex, fast-changing dynamics of the multiple different markets that compose the digital world. Given their prominence to economic growth and to consumer welfare, all mistakes can be costly: underenforcement can lead to concentrated markets and consumer exploitation, and over-enforcement can produce chilling effects on innovation and lead to market fragmentation.

Luckily, over the past years the same authorities and scholars that are now being called to action have put together an impressive body of work aimed at better understanding how competition takes place in many of these digital markets, what challenges enforcers will face when handling different cases and what solutions are available to help remedy identified problems. It is our hope that this article will be useful to policymakers and scholars alike. To the

former, the ideas summarized herein can potentially help improve the enforcement of antitrust laws by providing a solid starting point on how to think about the many issues that they will face in any investigation. To the latter, we hope this literature review can both be used to help students better understand the fascinating world of competition policy in a digital society and to help steer the academic antitrust community to the many important issues that require further studies.

All in all, this review painted a snapshot of where our common knowledge stood at a given point in time. Given the extreme complexity of the issues at hand, it is from the combined efforts of academics and policymakers—so well exemplified by the different methodologies and focus of the multiple reports summarized above—that the most effective approaches to enforcing competition in digital markets will emerge.