COMPETITION IN DIGITAL MARKETS: A REVIEW OF EXPERT REPORTS

Filippo Lancieri
University of Chicago

Patricia Morita Sakowski
Administrative Council for Economic Defense (CADE)

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Filippo Lancieri*
Patricia Morita Sakowski**

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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 texts, figures and tables, have been scattered around the websites of different competition agencies.

This literature review consolidates the knowledge of 21 reports and studies on topics related to competition in digital markets issued by 17 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

* Fellow, Stigler Center for the Study of the Economy and the State, UChicago Booth. JSD Candidate, The University of Chicago Law School.
** Deputy Superintendent at the Administrative Council for Economic Defense (CADE)

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Competition in Digital Markets

Mendes Resende, Felipe Mundim, Camila Pereira Bastos and Maria Cristina Attayde for helpful comments. 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.

Table of Contents

Introduction ........................................................................................................ 3
I. Selection of reports.................................................................................. 4
II. General views on competition in digital markets ................................. 8
   A. The overall structure of digital markets .............................................. 8
   B. Defining relevant markets in an online world.................................... 14
   C. The role of data as input.................................................................... 15
   D. The impacts of zero prices ................................................................ 21
   E. The key role of behavioral economics in competitive dynamics ...... 22
   F. General views on market structure and platform market power ....... 25
III. Benefits generated by digital markets ................................................... 26
IV. What competitive problems can arise in digital markets ...................... 28
   A. Price effects ....................................................................................... 29
   B. Non-price effects ............................................................................... 29
      1. Quality and Innovation ................................................................. 29
      2. Privacy, personalization, and addiction ........................................ 32
      3. Price discrimination ...................................................................... 33
      4. Refusals to deal, essential facilities, and interoperability ............. 34
V. Assessing specific digital markets ......................................................... 36
   A. Price comparison tools, MFNs, and NBBSs ..................................... 36
      1. MFNs ............................................................................................ 37
      2. NBBSs ......................................................................................... 39
   B. Marketplaces/App-stores .................................................................. 40
   C. Markets based on online advertisement ............................................ 45
      1. Online advertisement markets ...................................................... 47
      2. General search markets ................................................................. 63
      3. Social media ................................................................................. 68
VI. Potential solutions .................................................................................. 72
   A. Abandon the consumer welfare standard? ........................................ 73
   B. Increase the use of interim measures ................................................ 73
   C. Changes in burdens of proof ............................................................. 74
   D. Non-discrimination/fair treatment obligations .................................. 75
   E. Data portability and interoperability ................................................. 78
   F. Mergers: notification thresholds and review of past decisions .......... 79
      1. Notification thresholds and standards of proof............................. 79
      2. Review of past decisions .............................................................. 82
   G. New regulator .................................................................................... 87
   H. Remedies for online advertisement markets ..................................... 88
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 in different websites and sometimes in different languages. As a result, we lack a comprehensive review of this literature that would allow us to understand areas of agreement and disagreement between different agencies and to know what topics require further academic research.

This paper helps fill this gap. It systematically analyses and summarizes 21 reports issued by 17 antitrust authorities and expert panels over the past five years. Given the many areas of overlap, it is not the goal of this review 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 literature review is divided into seven sections. Section I briefly describes the selection of the reports that have been included in the review. Section II addresses the reports’ general views on the competitive dynamics of digital markets. Section III discusses the benefits generated by digitalization. Section IV focuses on what potential competitive shortcoming these markets may face. Section V summarizes conclusions on specific relevant markets, such as price comparison tools, search, social media, online advertising, and online marketplaces/app stores. Section VI discusses potential solutions to the encountered problems. Section VII discusses what areas are in great need of 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. While the resulting collection of 47 documents is certainly not all-encompassing, it is probably 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 literature review. 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; 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 all-encompassing and issued by expert panels and/or on behalf of antitrust authorities. All in all, this literature review covers the following documents:

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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](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


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

vii. “Market Study – Mobile App Stores,” issued by the Dutch Authority for Consumers and Markets (“ACM”) in April 2019;⁹

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


⁹ Authority for Consumers and Markets, ‘Market Study into Mobile App Stores’
viii. “Price Effects of Non-brand Bidding Agreements in the Hotel Sector,” issued by the Dutch ACM in June 2019;¹⁰


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


xiv. “Report Regarding Trade Practices on Digital Platforms,” issued by the JFTC in October 2019;¹⁶


xv. “Rethinking Competition in the Digital Economy,” issued by the Mexican Comisión Federal de Competencia Económica in February 2018;17


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


xx. “Ecossistemas Digitais, Big Data e Algoritmos,” issued by the Portuguese Autoridade da Concorrência in July 2019;22


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 sometimes reflect compilations of contributions by authorities/third-parties—the goal was to focus on the work of antitrust authority and expert committees. It also excludes reports that mostly gathered information to subsidize future analysis, like the European Commission’s E-Commerce sector inquiry. Finally, it excludes the expert reports prepared by the BRICS Competition Law and Policy Center and by the BRICS Competition Authorities because those reports are apparently still in draft form and were the subject of another dedicated UNDP consultancy project to CADE.

As a final methodological notice, because of their overall all-encompassing nature, their prominent role in international discussion, and their largely similar conclusions, this literature review uses three documents—the Stigler report, the Special Advisers report, and the Furman report—as an initial backbone to structure different sections. 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 section 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 reports do not converge on a single definition of digital markets or digital platforms. 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.

23 Competition Commission of India, ‘Market Study on E-Commerce in India’


25 Bundeskartellamt (n 19) at 2-4.

26 Crémer, de Montjoye and Schweitzer (n 6) at 21.
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.\(^{27}\) In particular, markets with dominant digital platforms are normally characterized by strong network effects,\(^ {28}\) economies of scale, economies of scope connected to the role of data as an input, extremely low marginal costs, and global scope.\(^ {29}\) 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.\(^ {30}\) 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.\(^ {31}\) 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. The constant growth of platforms may also lead to network effects being exhausted or even lead to congestion effects, when there are diseconomies of scale.\(^ {32}\)

All in all, the reports indicate how markets that share these characteristics tend to “tip”—that is, these factors push these markets to concentrate around a single, ultra-dominant provider.\(^ {33}\) Markets with “tipping effects” normally witness strong competition for the market in the beginning, which then develops into a long period of weak competition where the winner/monopolist extracts rents associated with its market power.\(^ {34}\) 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

\(^{27}\) 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.

\(^{28}\) 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.

\(^{29}\) 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.

\(^{30}\) Crémer, de Montjoye and Schweitzer (n 6) at 2-3; 15.

\(^{31}\) Furman (chair) and others (n 18) at 32; 37.

\(^{32}\) Autoridade da Concorrência (n 22) at 12; 21.

\(^{33}\) 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.

\(^{34}\) 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.
personalization of the services/products offered, and the growing ecosystem competition. These barriers would also hinder the expansion of competing products, even when theoretically superior.\textsuperscript{35} 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.\textsuperscript{36} Indeed, companies would design their complex ecosystems to increase their data collection capabilities and, in doing so, protect their dominant position.\textsuperscript{37}

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) and some small fringe competition.\textsuperscript{38}

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

![Combined indicative market shares of leading two companies in selected UK digital markets](image)

\textit{Sources: StatCounter,\textsuperscript{31} Comscore,\textsuperscript{32} and eMarketer and company reports\textsuperscript{33}}

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

\textsuperscript{35} 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.

\textsuperscript{36} Crémer, de Montjoye and Schweitzer (n 6) at 24. Bundeskartellamt (n 19) at 17.

\textsuperscript{37} ACCC (n 7) at 8; CMA (n 14) at 19; E3.

\textsuperscript{38} Furman (chair) and others (n 18) at 25; 31; 39.
The CMA report on online advertising calculates that Google and Facebook reach 96% and 87% of UK internet users each month and account for almost 40% of all the time spent online (image II), a number similar to that found by the ACCC (image III).

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

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39 CMA (n 14) at 48.
40 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.41

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.42 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.43 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.44

Antitrust authorities must also consider the important role of multi-homing and how it impacts network effects.45 User multi-homing would be

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41 Furman (chair) and others (n 18) at 41.
42 Commission Competition Law 4.0 (n 21) at 21.
43 Stigler Committee on Digital Platforms (n 3) at 35.
44 ibid. at 35.
45 Furman (chair) and others (n 18) at 33-35
crucial for competition in these markets, as it facilitates the entry and expansion of competitors by allowing for product/service differentiation and access to user data. Platforms would not only be aware of this threat but would purposefully diminish multi-homing and limit interoperability whenever they reach a minimum level of critical mass that ensures them some market power. Specific strategies 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. 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. Dominant platforms would use this control over ecosystems to protect their most profitable services from competition, and they may harm competition when they diminish multi-homing as a way to solidify their market control. They also would use this influence over adjacent markets to control entry points and protect their core markets from present and future competition. 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—there is an important trade-off to be made by antitrust regulators.

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, Big Data is not a completely new phenomenon, given that firms have been using data for years. Competition policies must always be based on the view that markets, not regulators, lead to optimal outcomes and that a disproportional enforcement of antitrust laws may harm innovation. For the Canadian authorities, this view justifies the maintenance of the usually employed techniques for relevant market definition, the finding of market power, and the assessment of...

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46 AdC and Bundeskartellamt (n 5) at 29. COFECE (n 17) at 27.
47 Crémer, de Montjoye and Schweitzer (n 6) at 37-38. Autoridade da Concorrência (n 22) at 25.
48 Furman (chair) and others (n 18) at 36
49 Crémer, de Montjoye and Schweitzer (n 6) at 33-34; Commission Competition Law 4.0 (n 21) at 15-16.
50 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.
51 CMA (n 14) at 18, 56.
52 Crémer, de Montjoye and Schweitzer (n 6) at 37.
53 Competition Bureau - Canada (n 4) at 4-5.
potentially anti-competitive effects.\textsuperscript{54}

\textbf{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 would face important practical challenges in applying them in practice, leading to important challenges in relevant market definition.\textsuperscript{55} To start, many markets are multi-sided, so prices on one side do not fully reflect the platforms’ strategic choices, market frontiers are not clear, and there are important interdependences between undertakings operating on both sides.\textsuperscript{56} 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. A focus on functionalities may be an innovative proposition, but it would not have the methodological rigor of these more commonly used alternatives.\textsuperscript{57} 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 and/or may lead to false negatives or false positives. Finally, platforms would be increasingly trying to lock consumers in to their ecosystems by offering a wider range of integrated services and by using nudges, defaults, and other forms of user steering.\textsuperscript{58} In these cases, authorities may want to 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/or the identification of anticompetitive strategies—and less on thoroughly defining relevant markets.\textsuperscript{59} 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.\textsuperscript{60}

Some reports also discuss how to best measure market shares in online markets. The study by the AdC argues for the importance of using other metrics beyond turnover, such as number of registered users, monthly or

\textsuperscript{54} ibid. at 6.
\textsuperscript{55} Bundeskartellamt (n 19) at 5-6; Schweitzer and others (n 20) at 1.
\textsuperscript{56} Crémer, de Montjoye and Schweitzer (n 6) at 3; 43. COFECCE (n 17) at 66. Autoridade da Concorrência (n 22) at 19.
\textsuperscript{57} Crémer, de Montjoye and Schweitzer (n 6) at 45.
\textsuperscript{58} ibid. at 47-48.
\textsuperscript{59} ibid. at 3-4; 46.
\textsuperscript{60} ibid. at 4.
daily active users, page visits, logged-in users, number of uploaded/seen videos, and number of searches. It suggests that the time spent in the platforms 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 time spent in the platform as key metrics to assess market shares.

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. Authorities must critically evaluate the role of network effects and how these impact the economic incentives of the different agents using the platform. Defining relevant markets can serve as a means to evaluating market power. The report prepared for the JFTC follows similar lines, while arguing for the need to evaluate the existence of data markets that are related to traditional markets for products and services.

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 market power of digital platforms. 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 itself, and this finding is echoed by the ACCC. The AdC observes that the collection and processing of different types of data, including personal data, are essential to digital marketing. 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. The Portuguese report explains how data access may become a barrier to the entry and expansion of competitors in digital markets, so that data

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61 AdC (n 13) at 80-83.
62 CMA (n 14) at 80-81; 119-122; 246. See also LEAR (n 8) at 27.
63 Competition Bureau - Canada (n 4) at 6.
64 ibid. at 7.
65 ibid. at 8.
66 JFTC (n 15) at 31.
67 Schweitzer and others (n 20) at 4. AdC and Bundeskartellamt (n 5); Bundeskartellamt (n 19).
68 CMA (n 14) at 47.
69 ACCC (n 7) at 7-9; 73.
70 AdC (n 13) at 42.
71 AdC and Bundeskartellamt (n 5) at 48. COFECE (n 17) at 31.
restrictions may be a violation of antitrust laws.\textsuperscript{72}

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.\textsuperscript{73} The key role performed by data in these markets would create a system of mutual positive reinforcement in which access to more data would allow the better personalization of goods/services, increasing a company’s turnover. This would generate more user demand, enabling the company to collect more data.\textsuperscript{74} In particular, competitors would be restricted in their ability to obtain the type of data key to competition, whether because of problems in generation/accessing such data or because of the low substitutability of some forms of data (e.g., location data is temporarily sensitive).\textsuperscript{75} When present, these dynamics would grant incumbent companies a key and difficult to replicate competitive advantage.

The Stigler Report finds that economies of scale and scope are even more important in digital than in “offline” markets because for many digital products data is a key input. Larger companies with more widespread product offerings not only obtain more data, but these data are of better quality (they are more widespread and more actual), allowing these companies to develop better products.\textsuperscript{76} This creates some form of dynamic economies of scale: Companies with more data can improve their products at lower costs than their smaller competitors.\textsuperscript{77} As data are 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 entrants or even established players.\textsuperscript{78} This leads to a positive cycle where larger scale and data access strengthen the platform, which then gains even more scale and data. This would be a key barrier to entry and expansion in many digital markets, in particular because the unique nature and the exclusive access to some databases removes from

\begin{itemize}
\item \textsuperscript{72} Autoridade da Concorrência (n 22) at 34.
\item \textsuperscript{73} Furman (chair) and others (n 18) at 23. AdC and Bundeskartellamt (n 5) at 8-9.
\item \textsuperscript{74} Furman (chair) and others (n 18) at 33-34.
\item \textsuperscript{75} AdC and Bundeskartellamt (n 5) at 44-45.
\item \textsuperscript{76} Stigler Committee on Digital Platforms (n 3) at 36-37. AdC and Bundeskartellamt (n 5) at 38-39.
\item \textsuperscript{77} Stigler Committee on Digital Platforms (n 3) at 37. Commission Competition Law 4.0 (n 21) at 13.
\item \textsuperscript{78} Stigler Committee on Digital Platforms (n 3) at 37.
\end{itemize}
data their natural public goods characteristics. The competitive importance of data is expected to grow with the development of artificial intelligence and as new data protection laws restrict the collection and processing of personal data.

Data would present growing returns to scale for many key applications in online markets. Online platforms not only hold much more data than offline companies, but they are also much better at processing it. 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 would enable unprecedented personalization as well as accurate inferences about people not yet on the database. The growing returns to scale arise as this combination of both characteristics improves personalization, in particular for low probability events—many times the most valuable. In addition, data also generate important externalities as they enable inferences about the behavior of others. This encourages companies to collect as much data as possible.

Companies would 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. They normally would 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. Strategies to limit interoperability are particularly effective because they encourage single-homing, which tends to concentrate in dominant companies. 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

79 ibid. 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.
80 Stigler Committee on Digital Platforms (n 3) at 40-41. ACCC (n 7) at 11. AdC and Bundeskartellamt (n 5) at 41.
81 Stigler Committee on Digital Platforms (n 3) at 50.
82 ibid. at 48-51. 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.
83 Stigler Committee on Digital Platforms (n 3) at 52.
84 ibid. at 41.
85 ibid. at 54.
86 ibid. at 43. Schweitzer and others (n 20) at 2.
consolidate its dominant position. When this is the case, interoperability and data portability obligations would become particularly relevant.

The Special Advisers report relies on the World Economic Forum to separate 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 was automatically generated as a result of the behavior of a given user or machine; and (iii) inferred, that is, new data that transforms in a non-trivial manner the original voluntary or observed nature of the original data. 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 the 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, road network, or other types of data) can also be important. Finally, it is worth considering the use of data as a service, as an input to a service, as a product, etc. The report specifically discusses how monopolies/oligopolies may use their market power to collect data without free and independent user consent. That is, if users must accept 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.

The modern information economy would sometimes encourage 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. 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. In general, the richer the database and the more complex the algorithm, the less databases present decreasing returns to scale. In some

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87 Stigler Committee on Digital Platforms (n 3) at 41.
88 ibid. at 52.
89 Crémer, de Montjoye and Schweitzer (n 6) at 24-25. AdC and Bundeskartellamt (n 5) at 6-7.
90 Crémer, de Montjoye and Schweitzer (n 6) at 8; 25-26.
91 ibid. at 8.
92 ibid. at 79.
93 ibid. at 79-80.
94 ibid. at 27.
95 ibid. at 103.
markets where precision is key, the larger the database the better.\textsuperscript{96} 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.\textsuperscript{97} Data sharing agreements can be pro-competitive when they lead to the development of new goods/services.\textsuperscript{98} Nonetheless, these agreements may also be anticompetitive if they deliberately exclude a given player or involve the exchange of commercially sensitive data.\textsuperscript{99} A refusal to grant access to or supply essential data may be a violation of antitrust laws, leading to a “right of access” remedy. Data collection may also be abusive in certain circumstances.

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, 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\% on Microsoft’s Bing.\textsuperscript{100} 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.\textsuperscript{101}

For the CMA, companies like Google and Facebook that can offer a wide range of goods/services would 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).\textsuperscript{102} These data are collected from registered users as well as non-registered users through unique identifiers. The leading platforms would rely on four main strategies to collect data from third-parties:

\begin{itemize}
  \item \textsuperscript{96} ibid. at 103-104.
  \item \textsuperscript{97} ibid. at 29; 90.
  \item \textsuperscript{98} ibid. at 92-94.
  \item \textsuperscript{99} ibid.
  \item \textsuperscript{100} CMA (n 14) at 93-94; 116-118.
  \item \textsuperscript{101} ibid. at 95.
  \item \textsuperscript{102} ibid. at 155-156.
\end{itemize}
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.).

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

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

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). Even the controls that exist, however, would be mostly theoretical, as CMA data indicated that less than 5% of new Google and Facebook users

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103 ibid. at 49; 156.
104 ibid. at 14.
accessed the company’s privacy controls. Those few who did access Google’s page spent, on average, 47 seconds on the page, and 85% of users spent less than 10 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.105

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.”106 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 advantages.107 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.108 These characteristics diminish the strategic nature of data, decreasing the chances that refusals to share information would violate antitrust rules.109 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.110 Concerns about a refusal to grant access would be particularly important when the data is jointly collected by undertakings that have market power.111

D. The impacts of zero prices

Many different reports observe that zero prices are not a special zone where economic teachings or antitrust laws do not apply.112 Rather, zero is best understood as one number in a scale that includes both positive and negative prices (subsidies). Consumers would pay for many digital services

105 ibid. at 173-175.
106 Competition Bureau - Canada (n 4) at 4.
107 AdC and Bundeskartellamt (n 5) at 38-39.
108 JFTC (n 15) at 4.
109 ibid. at 22; 51.
110 ibid. at 10-11; 25; 52.
111 ibid. at 56.
112 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.
by bartering data and attention in exchange for services and ads.\textsuperscript{113} 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.\textsuperscript{114} 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.\textsuperscript{115}

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 characteristics that are hard to compare and that disproportionately favor incumbents.\textsuperscript{116} When combined with other market characteristics, such as low marginal costs, economies of scope, and network externalities, these zero price markets would 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 would reinforce the potential dominance of established incumbents.

\textit{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 would explore well-known behavioral biases to solidify their dominant position.\textsuperscript{117} 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.\textsuperscript{118} 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

\textsuperscript{113} 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.
\textsuperscript{114} Crémer, de Montjoye and Schweitzer (n 6) at 20.
\textsuperscript{115} Furman (chair) and others (n 18) at 42-43.
\textsuperscript{116} Stigler Committee on Digital Platforms (n 3) at 55. Furman (chair) and others (n 18) at 22.
\textsuperscript{117} 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.
\textsuperscript{118} Stigler Committee on Digital Platforms (n 3) at 42-43.
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 leads consumers to watch another movie even when they have other important deadlines.\footnote{ibid. at 43; 58. See also CMA (n 14) at 194.} 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 would be 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.\footnote{Stigler Committee on Digital Platforms (n 3) at 60.}

Indeed, asymmetries in information and analytical capabilities between companies and consumers reach unprecedented levels in many online markets, enabling 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.
## Psychological mechanisms and choice architecture

<table>
<thead>
<tr>
<th>Platforms’ choice architecture</th>
<th>Underlying Psychological Mechanisms</th>
<th>Examples of choice architecture with negative impact on consumers</th>
</tr>
</thead>
</table>
| **Information, complexity and choice overload**<br>Platforms present more information on privacy than other topics; in a more complex way, offering more choices than consumers can assess. | **Limited attention and cognitive capacity**<br>Volume and complexity of information can exceed consumers’ abilities to process information. 
<sup>5</sup>  
*filter out what is relevant* and weight large numbers of choices. 
<sup>6</sup> | • Privacy settings that mix relevant and less relevant information
• Dropping information
• Partitioning information so that it is hard to see the whole picture.
• Long and complex menus with multiple choice options. |
| **Prominence**<br>Some information is more prominent with a logical flow and links to some information are more obvious. | **Limited attention and cognitive capacity**<br>Consumers tend to be drawn to more prominent items 
<sup>7</sup>  
<sup>8</sup>  
<sup>9</sup>  
and miss less prominent items; and are more attracted to and influenced by fluently presented information. 
<sup>10</sup> | • Design features (e.g., layouts, fonts, and colour schemes) that draw attention away from key information.
• Ordering (e.g., placing key information at the end of a list).
• High reading age level of content. |
| **Obfuscation**<br>Information is provided in ways that discourage attention. | **Recognition and expectation**<br>Consumers allocate attention according to their expectations. 
<sup>11</sup>  
<sup>12</sup> | • Vague link titles; or titles not matching the content.
• Ordering and timing (e.g., key information is presented late or when not expected). |
| **Framing and wording**<br>Platforms describe information in terms of what consumers gain. | **Sensitivity to framing and wording**<br>When making a choice, consumers are likely to be influenced by how positive or negative options are worded and framed. 
<sup>13</sup>  
<sup>14</sup>  
<sup>15</sup>  
<sup>16</sup>  | • 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’. |
| **Control measures that do not provide control**<br>Choices within privacy settings appear to be easily controllable but do not offer actual or complete control. | **Illusion of control**<br>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. 
<sup>17</sup>  
<sup>18</sup>  | • 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 privacy browsing where data on what you look at and purchase is not used for personalised advertising. |
| **Defaults**<br>A default setting opting consumers into sharing data and receiving personal advertising is preselected, and implemented, by platforms. | **Default bias**<br>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). 
<sup>19</sup>  
<sup>20</sup>  
<sup>21</sup>  
This effect is increased when the default is completely integrated. 
<sup>22</sup>  | • Opting-out is only possible with significant effort. |
| **Presentation of inherent consequences**<br>Design focuses on immediate benefits to consumers rather than future consequences of sharing data. | **Psychological myopia**<br>Consumers naturally tend to consider immediate consequences more than future ones. 
<sup>23</sup>  
<sup>24</sup>  
<sup>25</sup>  
This is increased when future consequences are difficult to comprehend. 
<sup>26</sup>  | • Attention is guided towards direct benefits (e.g., through prominent presentation).
• Consequences are hidden (e.g., through information overload). |
| **Choice order**<br>Relevant information is not prominently offered until after key decision points for the consumer. | **Anchoring effect and commitment bias**<br>Information presented initially to consumers acts as a reference point to assess the value of a product and ‘anchor’ on. 
<sup>27</sup>  
<sup>28</sup>  
<sup>29</sup>  
Consumers interpret the effort and time they invest in creating an account as commitment to the platform. 
<sup>30</sup>  
<sup>31</sup>  | • With account creation, information on data sharing is available but obfuscated through information overload and lack of prominence. |
| **Friction related to information**<br>Information is not presented at the time or stage when it is relevant to the consumer (e.g., when receiving targeted advertising) and finding relevant information is difficult. | **Inertia and effort**<br>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. 
<sup>32</sup>  
<sup>33</sup>  
<sup>34</sup>  | • 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 would become ever more important in a world where competition is tilted towards product quality.\textsuperscript{121} 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” would be fallacious: While possible in theory, these changes are not verified in reality.\textsuperscript{122}

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.\textsuperscript{123} Companies themselves would recognize the high value of these biases: Google 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.\textsuperscript{124} 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.”\textsuperscript{125}

\textbf{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 digital platforms, enabling them to extract economic rents without facing much competitive threat.\textsuperscript{126} New competitors have faced important challenges when trying to enter

\textsuperscript{121} ibid. at 42. Autoridade da Concorrência (n 22) at 29.
\textsuperscript{122} Stigler Committee on Digital Platforms (n 3) at 41.
\textsuperscript{123} ibid. at 60.
\textsuperscript{124} CMA (n 14) at 102.
\textsuperscript{125} ACCC (n 7) at 10.
\textsuperscript{126} Stigler Committee on Digital Platforms (n 3) at 43; Furman (chair) and others (n 18) at 41-42,75; Crémer, de Montjoie and Schweitzer (n 6) at 112; ACCC (n 7) at 7-9; Schweitzer and others (n 20) at 2.
or expand in many digital markets—and that is despite the incentives to entry associated with incumbents’ very high profit margins. The lack of a competitive threat would allow 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.

Market share data would not be ideal proxies of market power in multisided markets, in particular when one side charges zero price. 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. 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. The same characteristics also enable platforms to enter adjacent markets, many times in an abusive manner.

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 protect certain digital platforms from competitive pressures.

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.

For example, the joint report by the Bundeskartellamt and the AdC suggests that increased transparency and the creation of search/comparison mechanisms can increase competition and benefit consumers. The JFTC

127 Stigler Committee on Digital Platforms (n 3) at 57
128 ibid., Furman (chair) and others (n 18) at 42;
129 Crémer, de Montjoye and Schweitzer (n 6) at 49. Bundeskartellamt (n 19) at 7.
130 Crémer, de Montjoye and Schweitzer (n 6) at 49-50.
131 ibid.
132 ibid.
133 ibid. at 12. Bundeskartellamt (n 19) at 1. COFECE (n 17) at 15; 35.
134 AdC and Bundeskartellamt (n 5) at 14.
predicts that data will be central to the next round of technological innovation in multiple different industries. The Portuguese authority finds that new goods/services based on big data increase market efficiency and consumer welfare. 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. 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. The average user values these companies’ services in thousands of pounds a year—something that generates major benefits in terms of consumer welfare—making the digital revolution an important driver of the economic growth of the UK and the global economy. The Stigler report affirms that larger databases allow for increases in personalization, leading to clear gains in efficiency as consumers are supplied a good/service that better reflects their needs.

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. 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. 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. 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. These advantages are particularly relevant to small and medium-size businesses who cannot access alternatives such as TV and radio because of complexity and high costs.

Digital platforms have benefited consumers in many different ways.

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135 JFTC (n 15) at 2.
136 Autoridade da Concorrência (n 22) at 7.
137 Furman (chair) and others (n 18) at 17. COFECE (n 17) at 15.
138 Furman (chair) and others (n 18) at 18.
139 ibid. at 19. ACCC (n 7) at 49.
140 Stigler Committee on Digital Platforms (n 3) at 48.
141 Furman (chair) and others (n 18) at 19. COFECE (n 17) at 16.
142 CMA (n 14) at 45.
143 ibid. at 61.
144 ACCC (n 7) at 131.
145 ibid. at 132.
They have increased competition among suppliers, improved the matching between suppliers and consumers, and increased information sources.\footnote{ibid. at 48.} They also increase allocational efficiency by better utilizing assets such as cars or real estate, among others.\footnote{COFECE (n 17) at 35.} Data from the UK also indicates how digital markets have grown 2.6x faster than the average British economy, generated five times more jobs, and been responsible for 16\% of the British output and 25\% of all exports.\footnote{Furman (chair) and others (n 18) at 19-20.} Digital economy companies are also drivers of innovation—Google, Amazon, Microsoft, Apple, and Facebook all list among the 15 biggest investors in innovation. New technologies like AI and machine learning techniques should increase efficiency in other markets: from health, to energy, to commerce, and many others.\footnote{ibid. at 21.} 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.\footnote{Competition Bureau - Canada (n 4) at 5.}

IV. WHAT COMPETITIVE PROBLEMS CAN 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.\footnote{Crèmer, de Montjoye and Schweitzer (n 6) at 35.} Despite the many benefits, 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 (iv) removing potential competitors from markets through acquisitions or other exclusionary behavior.\footnote{Furman (chair) and others (n 18) at 42-45.}

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. 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. 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.). Authorities must carefully analyze both potential price and non-price effects 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. 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. 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. 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. Multi-sided markets are structured so as to explore cross-subsidies to balance optimal participation levels on both sides of the platform. Authorities must be aware of these effects when performing analysis.

B. Non-price effects

1. Quality and Innovation

Markets with zero nominal prices, large economies of scale, etc. would

\[^{153}^{153}\] Stigler Committee on Digital Platforms (n 3) at 67.\[^{154}^{154}\] ibid.\[^{155}^{155}\] Furman (chair) and others (n 18) at 44. CMA (n 14) at 8. Stigler Committee on Digital Platforms (n 3) at 61.\[^{156}^{156}\] Furman (chair) and others (n 18) at 46-47.\[^{157}^{157}\] ibid. at 42; CMA (n 14) at 8.\[^{158}^{158}\] Competition Bureau - Canada (n 4) at 7.
tend to force companies to compete mostly or solely on quality, increasing the importance of non-price effects to the assessment of consumer welfare.159

Quality is a complex variable that may be measured in the most varied ways. For example, the CMA report on digital advertisement argues that general search engines normally compete in five dimensions: (i) the relevance of search results (the most important variable); (ii) ease of use; (iii) interfaces; (iv) data protection and trust in the search engine; and (v) incentives to use/rewards.160 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.161 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.162

Dominant players may negatively impact the competitive dynamics of digital markets not only through diminished quality but also through diminishing market innovation—probably the most important driver of long-term consumer welfare and a key source of consumer harm.163 The Special Advisers report describes the difference between innovation processes in digital markets versus those of more traditional industrial: 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 in more traditional intellectual property tools.164 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.165 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 complementary markets.

The former are the companies who 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

159 Stigler Committee on Digital Platforms (n 3) at 55.
160 CMA (n 14) at 78.
161 Furman (chair) and others (n 18) at 43.
162 ibid. at 44.
163 Crémer, de Montjoye and Schweitzer (n 6) at 35; Bundeskartellamt (n 19). at 17; CMA (n 14) at 7.
164 Crémer, de Montjoye and Schweitzer (n 6) at 35.
165 Stigler Committee on Digital Platforms (n 3) at 70.
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. 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.

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 way to attract demand and achieve a critical mass. However, as they become dominant, these platforms would start appropriating a larger share of their “partners’” profits. 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.

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. In addition, their privileged access to data and to consumers puts these companies in a privileged position 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 privilege their own versions. The lack of transparency and the complex nature of these companies usually prevents such conducts from being subject to strictly antitrust scrutiny—in particular because these complementors are dependent and fearful of the platforms and may be reluctant to antagonize them.

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

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166 ibid. at 70.
167 ibid.
168 ibid. at 72. Autoridade da Concorrência (n 22) at 39.
169 Stigler Committee on Digital Platforms (n 3) at 74.
170 ibid. at 72-74
cycle where less investment in innovation restricts entry and further strengthens the market power of dominant companies. 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.

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. Indeed, when platforms maintain prices but lower quality variables such as privacy protection, they would be effectively harming 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.

The Stigler report pays particular attention to online addiction as a threat to consumer welfare. In particular, the combination of market power, high 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. Low marginal costs would also encourage platforms to expand supply by focusing on “engagement” alone—that is, keeping users hooked to the platform for as long possible, even if this damages consumer welfare. The use of data and personalization capabilities would make these companies highly effective in generating engagement, as users themselves signal to the platforms what drives their behavior. 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 would be very profitable for the platforms.

171 ibid. at 76. Furman (chair) and others (n 18) at 37; Autoridade da Concorrência (n 22) at 39-40.
172 Competition Bureau - Canada (n 4) at 4-5; 8.
173 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.
174 AdC and Bundeskartellamt (n 5) at 24-25.
175 Stigler Committee on Digital Platforms (n 3) at 62-63.
176 ibid. at 64-65.
The Stigler report also challenges the view that marketing has a primarily positive impact on consumer welfare. This view would be founded on a perception that marketing campaigns help inform consumers and that competition in marketing is efficient.\textsuperscript{177} 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 equally 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 and/or antitrust laws and punish companies with higher fines for abuses.\textsuperscript{178}

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 over consumer welfare are illegal under EU Competition Law.\textsuperscript{179} The Furman report addresses generally how increases in price personalization may impact consumer welfare.\textsuperscript{180} The report prepared by the Portuguese authority explains how access to larger volumes of personal data, smaller menu costs, increased opacity, and the ability to prevent arbitrage enables companies to better price discriminate.\textsuperscript{181} This discrimination would be 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.\textsuperscript{182} 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 in general.\textsuperscript{183}

\textsuperscript{177} ibid. at 63.
\textsuperscript{178} Competition Bureau - Canada (n 4) at 14.
\textsuperscript{179} AdC and Bundeskartellamt (n 5) at 21-22.
\textsuperscript{180} Furman (chair) and others (n 18) at 111.
\textsuperscript{181} Autoridade da Concorrência (n 22) at 58.
\textsuperscript{182} ibid. at 59.
\textsuperscript{183} ibid. at 60.
The Furman report stresses the many potentially anticompetitive problems that may arise when platforms are both gatekeepers and competitors in certain markets.\textsuperscript{184} 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.\textsuperscript{185}

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.\textsuperscript{186} 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.\textsuperscript{187} 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.\textsuperscript{188}

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:

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).\textsuperscript{189}

All these interoperability protocols involve important trade-offs. For example, data interoperability may encourage competition in markets where

\textsuperscript{184} Furman (chair) and others (n 18) at 47-48.  
\textsuperscript{185} Autoridade da Concorrência (n 22) at 74.  
\textsuperscript{186} COFECE (n 17) at 27-28.  
\textsuperscript{187} Crémer, de Montjoye and Schweitzer (n 6) at 6-7. Competition 4.0 (n 21) at 36. AdC and Bundeskartellamt (n 5) at 19.  
\textsuperscript{188} Commission Competition Law 4.0 (n 21) at 36.  
\textsuperscript{189} Crémer, de Montjoye and Schweitzer (n 6) at 83-85.
data is a key input, but it may diminish incentives for companies to collect new data.\textsuperscript{190} Full interoperability protocols may weaken network effects, but the necessary standardization may diminish innovation.\textsuperscript{191}

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.\textsuperscript{192} 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 and/or to the survival of competitors.\textsuperscript{193} Under certain circumstances, the sharing of data under non-FRAND terms may also be an “exploitative abuse” under EU Competition laws.\textsuperscript{194} Of course, authorities must always consider the particularities of each market/contractual arrangements 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 downstream market\textsuperscript{195}—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.\textsuperscript{196} However, a regulatory system that is focused on understanding the particularities of data sharing may be more efficient and more responsive than antitrust intervention.\textsuperscript{197}

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

\textsuperscript{190} ibid. at 59; 85.
\textsuperscript{191} ibid.
\textsuperscript{192} ibid. at 88.
\textsuperscript{193} ibid. at 9; 92.
\textsuperscript{194} ibid. at 97.
\textsuperscript{195} ibid. at 98. AdC and Bundeskartellamt (n 5) at 18.
\textsuperscript{196} Crémer, de Montjoye and Schweitzer (n 6) at 99.
\textsuperscript{197} ibid. at 100.
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.

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.198 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.199

The CMA prepared a study focused on DCTs’ impact on consumer

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198 CMA (n 12) at 32.
199 ibid. at 6.
welfare. This study concluded that while DCTs positively impacted competition and consumers, it would be important for those platforms to treat consumers fairly and be more clear, more precise, more responsible, and easier to use.\footnote{ibid. at 9; 71.} 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).\footnote{ibid. at 11; 38.} Transparency regarding search results would also be essential—DCTs would 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.\footnote{ibid. at 39.} 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.\footnote{ibid. at 9.} 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 responds for 40-60% of sales and the four lead suppliers to almost all of the market), but competitive.\footnote{ibid. at 54; E33.} Nonetheless, the study also expressed concerns about some specific practices, such as most favored nation clauses (MFNs) and non-brand bidding agreements (NBBSs). These have been subject to other specific studies and are addressed in more detail below.

1. MFNs

MFNs are clauses that 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.\footnote{Crémer, de Montjoye and Schweitzer (n 6) at 56.} 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.”

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

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 narrow MFNs, while others outlawed wide-MFNS. 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. Companies argued that it would be costly to differentiate prices, that they saw no reason to differentiate among OTAs, that they feared some form of punishment by the booking agent, and/or that they 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 in their websites not available on the OTA platform. A meta price study, however, indicated that the changes to the MFN increased price differences between OTAs in 8 out of the 10 surveyed countries. These results would be predominantly driven by hotel chains,
as the results are not statistically significant for small/independent hotels.214 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.215

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 between different DCTs and between DCTs and other sales channels.216 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.217 A CMA study indicated that MFNs increased prices in insurance markets between 3% and 4% between 2010 and 2016.218

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 per 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.219

2. NBBAs

“Non-brand bidding agreements” are agreements between a 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 (“Hilton”). NBBAs may be narrow (the search is exactly the name) or wide (the search contains the name).220 This practice, which is common in many industries, has been analyzed by two independent reports, one from the British CMA and one

214 ibid. at 12-13; 41.
215 ibid. at 20.
216 CMA (n 12) at 58; E38.
217 ibid. at 58; E40.
218 ibid. at E41.
219 ibid. at 60; E46-47; E53. See also JFTC (n 16) at 74.
220 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.
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 would also protect companies from free-riding effects on their trademark investments and diminish marketing costs, a potential efficiency. In particular, the theory of harm would indicate that some firms may be in a prisoner’s dilemma where all companies would be better off if none of them would bid on another’s name, but they all do so to protect their own brands. 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 violate MFNs, the price increases were up to 5%. The study concludes that NBBAs probably increase the overall prices charged by hotels on their websites and that the lower marketing expenses would not be shared with consumers.

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

B. Marketplaces/App-stores

The ACM performed the main study on the competitive dynamics of marketplaces/app stores, focusing on Google’s Play Store and Apple’s App Store. Apps are software that run on mobile operating systems with more limited functionalities than desktop programs. 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 61

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221 ACM (n 10). CMA (n 12).
222 ACM (n 10) at 7. CMA (n 12) at E68-70.
223 ACM (n 10) at 7.
224 ibid. at 20.
225 ibid. at 4; 22.
226 CMA (n 12) at 64; E75.
227 ACM (n 9)
228 ibid. at 20.
monthly hours Dutch consumers spent on their cellphones, 55 are spent in apps and only 6 on browsers.\textsuperscript{229} 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.\textsuperscript{230}

Together, Google and Apple would control the smartphone operating system markets, with a 99% world share (86% for Google’s Android and 13% for Apple’s iOS). 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).\textsuperscript{231} 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.\textsuperscript{232}

Both Apple and Google would 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 payment methods, and more.\textsuperscript{233} As both the Play Store as the App Store contain millions of apps, the power to control discovery/search results would be key. 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.\textsuperscript{234} Apple and Google would also control advertisement and other functionalities such as “discover” or “tip of the day.” As algorithms usually privilege the most-downloaded apps, developers normally rely on paid advertising to gain popularity.\textsuperscript{235} Indeed, 0.1% of the apps in the App Store accounted for 85% of all downloads, and 3.3% in the Play Store.\textsuperscript{236}

The ACM stresses how the multi-sided nature of these stores generates strong network effects: A larger number of apps encourages more users and vice-versa—these are key to a vibrant ecosystem.\textsuperscript{237} In particular, these network effects would tend to “tip” the markets to concentration, so that only one or a few players become dominant.\textsuperscript{238} The need to attract

\textsuperscript{229} ibid. at 15; 20.
\textsuperscript{230} ibid. at 24.
\textsuperscript{231} ibid. at 4; 15; 21. See JFTC (n 16) at 19 for similar data.
\textsuperscript{232} ACM (n 9) at 27; 52.
\textsuperscript{233} ibid. at 15.
\textsuperscript{234} ibid. at 22.
\textsuperscript{235} ibid. at 24.
\textsuperscript{236} ibid.
\textsuperscript{237} ibid. at 34.
\textsuperscript{238} ibid. at 21.
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 would have been 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.\(^{239}\) Indirect network effects then would protect Apple’s and Google’s dominant position, making it very hard for alternative platforms to enter the market.\(^{240}\)

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.\(^{241}\) 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.\(^{242}\) 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 one hand, both Apple and Google provide a great service to consumers and app developers. App stores have significantly lowered barriers to entry and expansion and enabled new companies to access consumers.\(^{243}\) 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.\(^{244}\) 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.\(^{245}\) 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 would 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.\(^{246}\) Consumers would be forbidden (by Apple) or highly discouraged (by Google) from

\(^{239}\) ibid. at 34-35.
\(^{240}\) ibid. at 39.
\(^{241}\) ibid. at 21.
\(^{242}\) ibid. at 22.
\(^{243}\) ibid. at 6.
\(^{244}\) ibid. at 7; 30.
\(^{245}\) ibid. at 29.
\(^{246}\) ibid. at 3; 15.
downloading alternative app stores. These companies also pre-install their own apps and restrict functionalities such as auto-updates. 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. 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.

The control over access and interoperability conditions is key for the business models developed by Google and Apple. In relation to Apple, the report stresses the company’s ability to direct consumers to its own services, creating a closed, insulated ecosystem that would enable the company to charge higher prices. In relation to 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.

The control these companies keep over their app stores, when combined with the lack of real alternatives for app developers wishing to access consumers, would grant Apple and Google bottleneck power. The closed nature of these ecosystems significantly increases switching costs—in particular for app developers who need to code on two different systems. Indeed, the ACM concluded 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 been seen as two separate relevant markets that must be analyzed independently.

This consumer lock-in would grant 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/consumers. For most developers, terms of use are imposed by the platforms on a take-it-or-leave-it system—only very large developers, those with capacity to directly access

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247 ibid. at 45.
248 ibid. at 5; 50-51
249 ibid. at 42-43.
250 ibid.
251 ibid. at 59-60
252 ibid. at 65.
253 ibid. at 40.
254 ibid. at 53.
255 ibid. at 52.
256 ibid. at 68. JFTC (n 16) at 23.
consumers, can negotiate better terms.\textsuperscript{257} This control over the ecosystem also enables companies to leverage their dominant position to adjacent markets, protecting the platform from potential entrants.\textsuperscript{258}

The study reports many concerns around the business practices of both companies. For example, the ACM concluded 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.\textsuperscript{259} The lack of responsiveness was also seen as a problem, as companies would rely on these general terms to deny new apps, block new functionalities in apps that are already in the stores and, many times, and refuse to comply with developers’ requests for further explanations on the reasons for the denials.\textsuperscript{260} 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.\textsuperscript{261}

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—Apple strives to answer its 100,000 weekly new app requests in 48 hours.\textsuperscript{262} 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 them of their investments.\textsuperscript{263} The study presents several different such instances that may have negatively impacted competition. For example, a large developer would have 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;\textsuperscript{264} Apple would also have rejected Samsung Pay, an app that competed with Apple pay; and Google would have excluded all apps that blocked online advertising from the Play Store to protect its rents in the online advertising business.\textsuperscript{265}

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.\textsuperscript{266}

\begin{thebibliography}{9}
\bibitem{257} ACM (n 9) at 69.
\bibitem{258} ibid. at 5; 41; 52; 58; 73.
\bibitem{259} ibid. at 76-77.
\bibitem{260} ibid. at 5; 97.
\bibitem{261} ibid. at 98-99. JFTC (n 16) at 27.
\bibitem{262} ACM (n 9) at 76.
\bibitem{263} ibid. at 99. JFTC (n 16) at 70.
\bibitem{264} ACM (n 9) at 77.
\bibitem{265} ibid. at 79.
\bibitem{266} ibid. at 5; 86; 88. JFTC (n 16) at 68.
\end{thebibliography}
The companies would 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). In the case of Apple, app developers would have less access to consumer data, preventing them from improving their products or organizing better marketing campaigns. There would also be restrictions relating to the Wi-Fi APIs, voice assistants like Siri or Google Assistant, Apple’s NFC chip that controls short-distance communication between devices or screen control. Another concern would potentially arise when companies prevent (Apple) or restrict (Google) competing developers from pre-installing apps in their devices. Finally, companies might use their control over search/rankings to privilege their own products, preventing competing firms from obtaining the critical mass necessary to establish themselves on the market. In general, these policies would place developers in a condition of economic disadvantage when they compete with Apple/Google.

To conclude, the ACM highlighted three types of conduct that would 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. The ACM opened an investigation against Apple for a potential abuse of dominant position in 2019.

C. Markets based on online advertisement

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. Online advertisement markets are also important to ensure a vibrant journalism market, which is essential

267 ACM (n 9) at 29; 86; 89-91. The JFTC report also finds potential problems with the high fees/commissions charged by app stores and marketplaces. It also reported potential competitive concerns with other conducts, 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.

268 ACM (n 9) at 93. JFTC (n 16) at 63.

269 ACM (n 9) at 81-82.

270 ibid. at 84.

271 ibid. at 85. JFTC (n 16) at 88.

272 ACM (n 9) at 7; 106.

273 Furman (chair) and others (n 18) at 112.
to democracy. In addition, estimates indicate that in 2019 online advertising markets started accounting for more than 51% of all expenditures in advertising 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 7: Share of Australian advertising expenditure*

Source: ACCC (n 7) at 121.

Online advertisement markets, however, are extremely opaque: Not even large players would be able to adequately comprehend the real success of their advertisement campaigns.\(^{274}\) This opacity would be a by-product of the market power of digital platforms, who use this lack of transparency to extract rents and increase switching costs.\(^{275}\) 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.\(^{276}\)

\(^{274}\) Stigler Committee on Digital Platforms (n 3) at 61.

\(^{275}\) ibid.

\(^{276}\) ibid. at 68; See also Furman (chair) and others (n 18) at 15; 114-117, discussing other potential negative impacts on consumers.
In July 2020, the CMA published the conclusions of a broad market study.\(^{277}\) 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.\(^{278}\) These findings are corroborated by two other reports analyzing digital advertisements markets in Australia and in France.\(^{279}\) The subsections below summarize these reports, using the CMA’s finding as guidance and complementing it with data from the other two 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 offers) and to diminished consumer returns for their data and attention.\(^{280}\)

   There would be low levels of substitution between online advertisement and advertising through legacy channels such as TV, radio, and newspapers.\(^{281}\) First, the role of data and the personalization capacity differentiate these mediums. Second, many online advertisers are small companies that do not have the resources to reach legacy channels.

   The CMA divides online advertisement into four segments:\(^{282}\)

   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 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

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\(^{277}\) CMA (n 14)

\(^{278}\) ibid. at 11-12; 211.

\(^{279}\) ACCC (n 7) and AdC (n 13).

\(^{280}\) CMA (n 14) at. 69-70.

\(^{281}\) ibid. at 217. AdC (n 13) at 8-9; 70. ACCC (n 7) at 91.

\(^{282}\) CMA (n 14) at 59-60; 213.
Competition in Digital Markets

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”).283 However, there would be some substitutability between display and open display. In terms of dimensions, search would account for 51% of the roughly GBP 14 billion spent in online advertisement in the UK in 2019, with display accounting for 39% and classified for 10%.284 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.285

Image 8: 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

283 ibid. at 218. AdC (n 13) at 9; 72. ACCC (n 7) at 93.
284 CMA (n 14) at 62. AdC (n 13) at 16-17.
285 ACCC (n 7) at 46; 119. The AdC also found similar numbers. AdC (n 13) at 63.
intentions (personalization). 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.

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. These data are collected directly from browsers through cookies (which anonymize users to certain extent) and log-in information (which directly identifies users). 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 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 transparency; (v) the growing importance of ecosystems; and (vi) vertical integration and conflicts of interest.

When put together, these barriers to entry and expansion would reinforce the dominant position held by Google and Facebook in online advertisement markets. Neither smaller search engines (like Bing or others) nor new social networks (like SnapChat, Pinterest, or TikTok) would have enough scale to really threaten this dominance. 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) would restrict competitors’ access to the consumer and stop competitors from generating the type of virtuous cycle that would increase competition in these markets.

The report describes how personalized advertising provides value.

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286 CMA (n 14) at 46. AdC (n 13) at 18.
287 CMA (n 14) at 46. AdC (n 13) at 31-33.
288 CMA (n 14) at 49.
289 AdC (n 13) at 29.
290 CMA (n 14) at 11.
291 AdC (n 13) at 6.
292 CMA (n 14) at 73; 112; 146.
293 ibid. at 113; 147.
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. 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.

Google and Facebook would 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. This verticalization would be 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.

The CMA calculates the EBIT and Return on Capital Employed (ROCE) as measures of Google’s and Facebook’s profitability in their core markets (see images 8-10 below), finding that Google’s annual returns were around 44% and Facebook’s were 51%. Both would be 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. Such high profit margins would be above any reasonable benchmark for many years and would be consistent with exploitation of market power.

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294 ibid. at 15; 295.
295 ibid. at 290. AdC (n 13) at 40. ACCC (n 7) at 138.
296 CMA (n 14) at 15; 228.
297 ibid. at 293-296. AdC (n 13) at 6.
298 CMA (n 14) at 67-68; D8; D33.
299 ibid. at 67.
Image 9: Alphabet Group and Facebook Revenues and Costs 2011 to 2019

Source: CMA (n 14) at 66

Image 10: 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
The CMA expressed 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 (such as those for information/journalism). 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. To maximize revenue, the search engine has to trade-off the number of ads with 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. The available supply in the search advertisement market is directly linked to consumers’

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300 ibid. at 309-310.
301 ibid. at 222; Q2.
302 ibid. at 227; Q3 ; Q7.
demand for search and also to the quantity of ads a search engine shows in each search result. Google would control both the search market and the search advertisement market, with a share above 90% in both over the past ten years.\textsuperscript{303}

The CMA concluded that, with the potential exception of Amazon, vertical/specialized search engines such as Online Travel Agencies (booking.com, Expedia) or FinTechs are not relevant competitive threats to Google.\textsuperscript{304} 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 would also be 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. 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 clients are specialized search engines.\textsuperscript{305} Specialized search providers would have spent around 25% of their 2019 revenues and 55% of their 2019 advertising budgets on Google.\textsuperscript{306} 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.\textsuperscript{307} For the CMA, the only potential exception would be Amazon. On one hand, evidence indicated Amazon is the initial destination for many consumers; on the other, Amazon remains as 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 would come from highly protected markets.\textsuperscript{308} The ACCC reached similar conclusions, also reporting that Australian users spend 25x more time on Google than on Amazon and 250x more time than on Expedia.\textsuperscript{309}

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.\textsuperscript{310}

\textsuperscript{303} ibid. at 81, 224, C36; AdC (n 13) at 83-85. ACCC (n 7) at 89.
\textsuperscript{304} CMA (n 14) at 87; 225. ACCC (n 7) at 64; 89; 94.
\textsuperscript{305} CMA (n 14) at P6; P11.
\textsuperscript{306} ibid. at P8.
\textsuperscript{307} ibid. at 88; P51.
\textsuperscript{308} ibid. at 88-89. AdC (n 13) at 90. ACCC (n 7) at 96.
\textsuperscript{309} ACCC (n 7) at 65.
\textsuperscript{310} ibid. at 95. CMA (n 14) at 227.
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. 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.

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. In particular, Google has the ability to:

i. restrict supply of ads;

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.

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 adds, 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. In addition, Google charged prices 30-40% higher for clicks in comparable searches than 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 Bing on desktop and a 20-30% higher ratio on mobile—evidence that it can

311 CMA (n 14) at 227-229; 240-241. ACCC (n 7) at 96.
312 ibid. at 8; 11; 159.
313 CMA (n 14) at 228.
314 ibid. at 228-230; Q4-Q8; Q11.
315 ibid. at 232; C39; Q13.
extract more advertiser surplus than Bing. These last findings could be evidence of exercise of market power or of greater bidder density.

*Image 12: Average cost-per-click and price-bid ratio for top ad cost per click on Google and Bing*

![Graph showing cost-per-click (CPC) and price-bid ratio for Google and Bing across desktop and mobile platforms.]

Source: CMA analysis of parties’ data. Source: CMA (n 14) at C54; Q24.

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

ii. Display advertisement

The reports also addressed 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.

The display market is focused on increasing brand awareness, so that

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316 ibid. at 235-236; Q24.
317 ibid. at 237.
318 ACCC (n 7) at 8; 11; 119; 136; 162.
319 CMA (n 14) at 60.
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. Companies that 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.

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. The ACCC found Facebook holding a 51% share. This privileged position would grant Facebook significant market power.

Image 13: Shares of expenditure in the UK display advertising (2019)

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

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.\textsuperscript{326} This fringe, however, would be at a disadvantage against the main players in terms of quantity supplied as well as ability to better target specific audiences.\textsuperscript{327}

The display market would also be characterized by important barriers to the entry and expansion of competitors. The reports identify:\textsuperscript{328}

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.\textsuperscript{329}

According to the CMA, Facebook would be 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.\textsuperscript{330} 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.\textsuperscript{331}

\textsuperscript{326} ibid. at 248.
\textsuperscript{327} ibid.
\textsuperscript{328} ibid. at 252; Q36; E3. ACCC (n 7) at 9; 99; AdC (n 13) at 53.
\textsuperscript{329} ACCC (n 7) at 12; 80.
\textsuperscript{330} CMA (n 14) at 256; Q37.
\textsuperscript{331} ibid. at Q40.
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.\textsuperscript{332}

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.\textsuperscript{333} The chain in summarized below:

\textsuperscript{332} ACCC (n 7) at 9; 162.
\textsuperscript{333} CMA (n 14) at 263-264.
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.334

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.335 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. In addition, many players charge fees (e.g., a percentage of 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 16: CMA analysis of take rates across the open display supply chain*

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. 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. 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). The image below summarizes Google’s widespread presence in this market.

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336 AdC (n 13) at 23.
337 CMA (n 14) at 266; AdC (n 13) at 109.
338 CMA (n 14) at 266, 272, 279; AdC (n 13) at 86.
Competition between DSPs would be 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.\(^{339}\) Competition between SSPs would have been 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.\(^{340}\) Finally, Google Ad Manager (formerly DoubleClick) would all but monopolize the publisher ad server market with a more than 90% share. Websites would select only one ad server because the integration process is complex and switching costs are high.\(^{341}\)

The overall open display market would be 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.\(^{342}\) In addition, the lack of transparency associated with verticalization enables agents to

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\(^{339}\) AdC (n 13) at 28.

\(^{340}\) CMA (n 14) at 268; M8.

\(^{341}\) ibid. at 270, M65; AdC (n 13) at 26.

\(^{342}\) CMA (n 14) at 276-277.
privilege their own services in ways that may be anticompetitive.  

Google’s dominant position would be protected by significant barriers to the entry and expansion of competitors. 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. Google’s strong position in search advertising and its exclusive access to YouTube inventory would also allow 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.

This combination of opacity, market power, and verticalization would enable Google to leverage the market power/self-preference it services to other parts of the chain, excluding potential competitors. 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. Opacity would also diminish competition, create opportunities for rent seeking behavior, and create inefficiencies along the supply chain.

The CMA’s analysis found no evidence that Google would be systematically charging higher prices than its competitors or extracting significant hidden fees in open display. 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. It raised three main concerns around Google’s market power: (i) it would 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.

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343 ibid. at 278.
344 AdC (n 13) at 59.
345 CMA (n 14) at 281. AdC (n 13) at 56-57.
346 CMA (n 14) at 280-281; M107.
347 ibid. at 282, M100. AdC (n 13) at 61; 93.
348 CMA (n 14) at 283-285, M123, M143.
349 ibid. at 297.
350 ibid. at 289; R5; R9.
351 ibid. at 308.
352 ibid. at 290.
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 collected and then ranking and returning results to search queries.\(^{353}\) 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.\(^{354}\) 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.\(^{355}\) 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%.\(^{356}\)

\(^{353}\) ibid. at 75.
\(^{354}\) ibid. at 78-79.
\(^{355}\) AdC (n 13) at 51. ACCC (n 7) at 65.
\(^{356}\) CMA (n 14) at 82; C13; C20.
Google’s privileged market position is protected by significant barriers to entry and expansion of competitors, in particular:

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); and

iii. the large number of default positions held by Google in cellphones.

In particular, 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

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357 ibid. at 89, 17; AdC (n 13) at 89. ACCC (n 7) at 66.
358 CMA (n 14) at 89; AdC (n 13) at 52. ACCC (n 7) at 66.
and scope and would be a significant barrier to the entry and expansion of competitors. In relation to scale, the CMA indicates that only Google and Microsoft maintain English indexing services. Smaller companies such as DuckDuckGo, Ecosia, and Qwant would celebrate syndication agreements with Microsoft to buy wholesale search results, as Google refuses to supply search services to third-parties. These agreements normally establish a fixed price for 1000 searches as well as the sharing of the revenues these companies obtain with advertisement. While they would enable the creation of fringe competition, these syndication agreements would prevent companies from expanding in a way that truly challenges Google. 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 their manual index. Currently, Google’s index hosts something between [500-600] billion pages, while Microsoft’s hosts [100-200] billion. Both companies would 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. Even Bing would not provide a strong constraint on Google.

Data perform a similarly important role in the development of a search engine, being an important barrier to the entry and expansion of competitors. Companies would 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 would create same-side network effects for search that are an important barrier to entry. Search engines would 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. 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

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359 ACCC (n 7) at 73.
360 CMA (n 14) at 76; 98.
361 ibid. at 97.
362 ibid. at 86; 119-I20.
363 ibid. at 76; 89.
364 ibid. at 87.
365 ACCC (n 7) at 73.
366 CMA (n 14) at 92.
367 ibid. at 79.
only 1% of Google’s unusual queries where 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.\(^{368}\) These non-usual queries would be 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.\(^{369}\)

Finally, default positions would 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/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.\(^{370}\) These
agreements would be positively correlated with share of supply, in
particular on mobile, and are a significant barrier for the expansion of rival
search engines.\(^{371}\) 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,
Google would have paid these companies 17% of its UK revenues, or USD
1.3 billion. This would generate another chicken-and-egg problem because
Google’s preferred position on devices would increase its profitability,
enabling it to pay Apple and other companies more than its competitors to
keep this key access.\(^{372}\)

\(^{368}\) ibid. at 93-94.

\(^{369}\) ibid. at 95. ACCC (n 7) at 73.

\(^{370}\) CMA (n 14) at 100; H6.

\(^{371}\) ibid. at 102; 113; H22.

\(^{372}\) ibid. at 103-108; H6-H9. ACCC (n 7) at 69.
All in all, the reports conclude that the general search market is currently dominated by Google. Its market power would be protected by important barriers to the entry and expansion of competitors—some of which may be a violation of antitrust laws. The same barriers would also protect Google from potential competition in search. The reports also find that Google has been leveraging this control over search to enter related markets, potentially in violation of antitrust laws—something that the CMA says should be better investigated. 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 costs.

373 CMA (n 14) at 112. ACCC (n 7), at 76.
374 ibid. at 66.
375 CMA (n 14) at 109-111.
markups in online advertisement to their goods/services.\textsuperscript{376}

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.\textsuperscript{377} 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.\textsuperscript{378}

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:

\textit{Image 20: Social media platforms’ functionalities}

\begin{tabular}{|l|c|c|c|c|c|c|c|}
\hline
 & Profile/Account & Curated/Personalised Feed & Friends/Contacts/Connections & Followers/Subscribers & Photo Sharing & Video Sharing & Comments & Messaging \\
\hline
YouTube & ✓ & Recommended & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Facebook & ✓ & News Feed & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Snapchat & ✓ & Discover & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
WhatsApp & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Instagram & ✓ & Explore & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Twitter & ✓ & Timeline & ✓ & ✓ & ✓ & ✓ & Replies & ✓ \\
LinkedIn & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
TikTok & ✓ & For You & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Pinterest & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Reddit & ✓ & Front Page & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
Tumblr & ✓ & Dashboard & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
\hline
\end{tabular}

Source: Adapted from Ofcom (2019), \textit{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.

\textsuperscript{376} ibid. at 113.

\textsuperscript{377} ibid. at 53.

\textsuperscript{378} ibid. at 116.
The CMA stresses, however, that YouTube is closer to audiovisual content providers such as television or video streaming companies than to social media companies. This leads them to conclude that YouTube is not a strong competitive constraint on Facebook and other social media—a conclusion that would be reinforced by Google’s internal documents. Without YouTube, Facebook’s share would be 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. Only Instagram, WhatsApp, Snapchat, and TikTok would 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

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379 ibid. at 120; 126-128.
380 ibid. at 118; 129.
significantly smaller than Facebook (73%) in the UK.\textsuperscript{381}

*Image 22: Share of supply by user time spent in the UK from July 2015 to February 2020 (excluding YouTube)*

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.

\textsuperscript{381} ibid. at 121; 134.
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. 382 In particular, Facebook’s family of apps would enable 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.383

Facebook’s market power would be protected by important barriers to the entry and expansion of competitors, including:384

i. direct (users) and indirect (content providers, third-party developers) network effects;385

ii. access to user data and user-generated content; and

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382 ibid. at 130. AdC (n 13) at 51. ACCC (n 7) at 77.
383 ibid. at 80. CMA (n 14) at 130.
384 AdC (n 13) at 89. ACCC (n 7) at 79; CMA (n 14) at 131.
385 CMA (n 14) at 131; 138; AdC (n 13) at 52. ACCC (n 7) at 79.
iii. Facebook’s control over interoperability protocols and its capacity to degrade access to competing and complementary apps/services.\textsuperscript{386}

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.\textsuperscript{387} Facebook’s incumbent advantages 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.\textsuperscript{388} The lack of interoperability would also diminish competitive pressures.\textsuperscript{389} While APIs would be essential for services to access Facebook’s rich database, Facebook’s tight control over access conditions and over single sign-on functionalities would create a situation of market dependency. The reports stress how Facebook would have 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.\textsuperscript{390} Finally, Facebook’s large database and its constant access to users allows it to explore economies of scale and scope and better personalize experiences and ads—increasing the profitability of the platform.\textsuperscript{391}

The reports conclude that the social media market is dominated by Facebook and that the company does not face material competitive threats from existing platforms nor from potential entrants.\textsuperscript{392} 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.\textsuperscript{393}

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.\textsuperscript{394} Certain characteristics of digital markets significantly increase barriers to entry and expansion,
preventing new competitors from correcting market distortions. 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. 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.

While some studies focus on the use of antitrust tools, others discuss the use of regulatory policy to complement antitrust. This paper (and this section) focuses on antitrust tools, mentioning regulatory interventions when they would complement antitrust policy.

A. Abandon the consumer welfare standard?

Most studies agree that the consumer welfare standard should continue to drive antitrust enforcement. This 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. 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. It would be particularly important to protect potential competition in these markets.

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 tilt in favor of a dominant provider. Concerns here would be that many types of conduct that increase market efficiency may also lead to anticompetitive effects. One way to go around certain concerns would be to establish that certain practices (e.g., those that prevent multi-homing whenever platforms enter adjacent markets) would be deemed presumptively anti-competitive when adopted by dominant companies. These companies would 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 a given conduct will be shared with consumers as a way to elicit information sharing. The Special Advisers report discusses how authorities must consider the error-cost framework of antitrust by taking the entire antitrust policy into account, not only on a case-by-case basis. The best way to do so would be through changes in legal standards and presumptions and by inverting burdens of proof so that dominant companies are required to prove the procompetitive effects of their conducts. This inversion would be 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. It would be 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.

The Stigler report lists certain areas/practices that require special

402 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.
403 Crémer, de Montjoye and Schweitzer (n 6) at 4; 51.
404 Stigler Committee on Digital Platforms (n 3) at 98. Furman (chair) and others (n 18) at 103.
405 Crémer, de Montjoye and Schweitzer (n 6) at 4-6; 51.
406 ibid.
407 Schweitzer and others (n 20) at 1-2.
attention by competition authorities:408

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;

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.409 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.410

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

408 Stigler Committee on Digital Platforms (n 3) at 96-99.
409 Commission Competition Law 4.0 (n 21) at 49.
410 ibid. at 50-54.
Competition in Digital Markets

ecosystem because, among other things, platforms:\footnote{411} 

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,\footnote{412} a concept also present in the Special Advisers report (intermediation power),\footnote{413} the German report (intermediation power),\footnote{414} the ACM report (bottleneck power),\footnote{415} and both the Furman and the CMA reports (strategic market status or competitive gateway).\footnote{416} The Furman and the CMA reports go into the most detail on what this 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.\footnote{417} The concept of “Significant Market Power” that exists in telecom markets would provide some references on how to think about strategic market status in digital markets.\footnote{418} 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

\footnote{411} Crémer, de Montjoye and Schweitzer (n 6) at 4; 60-61.
\footnote{412} Stigler Committee on Digital Platforms (n 3) at 105.
\footnote{413} Crémer, de Montjoye and Schweitzer (n 6) at 4; 49.
\footnote{414} Schweitzer and others (n 20) at 2.
\footnote{415} ACM (n 9) at 40.
\footnote{416} Furman (chair) and others (n 18) at 10; 55; 59. CMA (n 14) at 22; 335.
\footnote{417} Furman (chair) and others (n 18) at 41.
\footnote{418} ibid. at 81.
advertising revenues, control over the rules or standards which apply in the market, and the ability to obtain and control unique datasets.\textsuperscript{419} 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.\textsuperscript{420}

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.\textsuperscript{421} In particular, a potential antitrust intervention would need to 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.\textsuperscript{422} 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.\textsuperscript{423} 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; (iii) online platforms penalizing companies for offering better terms to other sites.\textsuperscript{424}

Other reports suggest that antitrust plays a key role in ensuring fair treatment and preventing self-preferencing.\textsuperscript{425} 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.\textsuperscript{426} According to the Special Advisers report, dominant companies may have an obligation to establish interoperability with regards to complementary services,\textsuperscript{427} especially when there is no inter-platform competition.\textsuperscript{428} In particular, companies should not use their umpire powers

\textsuperscript{419} CMA (n 14) at 336.
\textsuperscript{420} ibid. at 23; 336.
\textsuperscript{421} Stigler Committee on Digital Platforms (n 3) at 89-91; 100.
\textsuperscript{422} Furman (chair) and others (n 18) at 57.
\textsuperscript{423} ibid. at 58.
\textsuperscript{424} ibid. at 61.
\textsuperscript{425} Schweitzer and others (n 20) at 2. ACCC (n 7) at 10; 110. Competition Commission of India (n 23) at 29.
\textsuperscript{426} Crémer, de Montjoye and Schweitzer (n 6) at 69.
\textsuperscript{427} ibid. at 71.
\textsuperscript{428} ibid. at 61.
to pre-determine the results of a competitive process; rules that distort intra-platform competition must be carefully assessed and documented.\footnote{ibid. at 61-62.} 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.\footnote{ibid. at 7; 66.} In markets with high barriers to entry and where platforms 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.\footnote{ibid. at 66.}

**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 markets\footnote{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.}—the Special Advisers report going as far as discussing whether there should be a presumption of interoperability whenever dominant platforms control key databases that cannot be replicated by competitors.\footnote{Crémer, de Montjoye and Schweitzer (n 6) at 4. Commission Competition Law 4.0 (n 21) at 38.}

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.\footnote{Crémer, de Montjoye and Schweitzer (n 6). at 99-101.} 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.\footnote{ibid. at 103. Furman (chair) and others (n 18) at 75.} 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.\footnote{Crémer, de Montjoye and Schweitzer (n 6) at 106; Competition Bureau - Canada (n 4) at 9.}

The Special Advisers report discusses how data portability obligations present in the 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).\footnote{Crémer, de Montjoye and Schweitzer (n 6) at 81. Commission Competition Law 4.0 (n 21) at 38.} 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. 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. 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 policy, and constantly evaluating the effectiveness of this policy. 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.

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. 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. It uses the UK’s Open Banking and the Smart Data Review as examples of how standardization and data mobility may increase competition. 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. 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.

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. It also points out, however, how M&A can benefit consumers by diminishing costs or promoting innovation as

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438 Crémer, de Montjoye and Schweitzer (n 6) at 82.
439 ibid. at 9; 101; Schweitzer and others (n 20) at 4.
440 Crémer, de Montjoye and Schweitzer (n 6) at 9-10; 107.
441 ibid. at 107
442 Furman (chair) and others (n 18) at 65; 72; 74; 108.
443 ibid. at 9-10; 65. ACCC (n 7) at 11.
444 Furman (chair) and others (n 18) at 69.
445 ibid. at 76. Commission Competition Law 4.0 (n 21) at 43-44.
446 Commission Competition Law 4.0 (n 21) at 60.
447 Furman (chair) and others (n 18) at 89-90.
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.\textsuperscript{448} 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.\textsuperscript{449} There are particular concerns that acquisitions of startups 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.\textsuperscript{450}

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 would 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.\textsuperscript{451} The growing evidence of “stealth consolidation” in different sectors would increase the importance of discussions around notification thresholds and intervention standards.\textsuperscript{452}

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.\textsuperscript{453} 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.\textsuperscript{454} 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.\textsuperscript{455}

There are challenges in separating pro- and anti-competitive acquisitions, as regulators struggle to properly grasp theories of harm based on potential competition and/or conglomerate effects that are associated with digital ecosystems.\textsuperscript{456} It is crucial that authorities evaluate the potential

\begin{footnotesize}
\bibitem{448} ibid. at 90. AdC and Bundeskartellamt (n 5) at 16-17.
\bibitem{449} Crémer, de Montjoye and Schweitzer (n 6) at 110.
\bibitem{450} ibid. COFECE (n 17) at 70.
\bibitem{451} Furman (chair) and others (n 18) at 91.
\bibitem{452} Stigler Committee on Digital Platforms (n 3) at 88.
\bibitem{453} ibid. at 88. Crémer, de Montjoye and Schweitzer (n 6) at 111.
\bibitem{454} Stigler Committee on Digital Platforms (n 3) at 90; 111.
\bibitem{455} Crémer, de Montjoye and Schweitzer (n 6) at 117; 120. Furman (chair) and others (n 18) at 93.
\bibitem{456} Crémer, de Montjoye and Schweitzer (n 6) at 112.
\end{footnotesize}
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 developed business plans. 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. The theory of harm would not only be around restrictions to an essential key input, but also the strengthening of a dominant platform’s ecosystem connected with increased economies of scale/scope and network effects. 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. 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. 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.

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. That is because some countries have already amended national antitrust laws to incorporate some of these criteria, so it would be important to evaluate the impacts of those changes in notifications and in referral requests. In addition: (i) changes may impact legal certainty and

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457 ibid. at 119.
458 ibid. at 121.
459 ibid. at 122.
460 ibid. at 122.
461 ibid. at 123.
462 Furman (chair) and others (n 18) at 96. See also, ACCC (n 7) at 30; 105.
463 Crémer, de Montjoye and Schweitzer (n 6) at 113; 124.
464 ibid. at 10; 115; Commission Competition Law 4.0 (n 21) at 64.
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.  

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. 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. 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.

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.

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 markets evolved vis-à-vis the authority’s forecasts. The final report is interesting both due to its methodological approach as for 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)

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465 Crémer, de Montjoye and Schweitzer (n 6) at 114.
466 Furman (chair) and others (n 18) at 12; 95.
467 ibid. at 11.
468 ibid. at 13; 101.
469 Competition Bureau - Canada (n 4) at 5.
470 LEAR (n 8) at i; 48.
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.\(^\text{471}\) The report stressed how authorities must always ensure that they obtain the correct and accurate data to evaluate the impacts of a transaction of 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.\(^\text{472}\)

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.\(^\text{473}\)

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.\(^\text{474}\) 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 and fast growth, both indicating that it could potentially compete with Facebook.\(^\text{475}\) Authorities also ignored how the companies could integrate userbases and databases, strengthening the position of Facebook in online advertisement markets.\(^\text{476}\) Finally, authorities underestimated how Facebook could integrate Instagram functionalities to foreclose competition—for example, less than a year after the acquisition,

\(^{471}\) ibid. at iii; 44.
\(^{472}\) ibid. at ii; 44-46.
\(^{473}\) ibid. at v; 51.
\(^{474}\) ibid. at vi; 52.
\(^{475}\) ibid. at 71.
\(^{476}\) ibid. at 57.
Instagram diminished interoperability with Twitter. This foreclosure behavior would have helped Facebook increase its dominance over the UK markets for online advertisement.477

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.478 It would be 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.479

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.480 However, authorities would have 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.481

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.482 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.483 Finally, they also ignored potential impacts on the monetization side of the market, both through ads and through the sale of data and market intelligence.484

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.485 That notwithstanding, authorities ignored how

477 ibid. at 59.
478 ibid. at vii; 58; 69.
479 ibid. at vii; 71.
480 ibid. at 73.
481 ibid. at 73-74; 83.
482 ibid. at 84.
483 ibid. at 74.
484 ibid. at viii; 77.
485 ibid. at 78; 84.
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.486

iii. Priceline/Kayak e Expedia/Trivago

The report also analyzed the transactions between Priceline/Kayak and Expedia/Trivago in the online travel agencies market (OTA). 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.487 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, would be 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.488

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 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.489 Bottlenecks and ecosystems may lead to higher prices.

The report stresses how Priceline and Expedia increased their market

486 ibid. at viii; 85-86.
487 ibid. at ix; 88.
488 ibid. at ix; 90.
489 ibid. at x; 91.
share over time, strengthening their market leadership. MSSs also grew in importance over time, so that these acquisitions may have contributed to this expansion as companies influence search results. 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.

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.

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. Authorities found that TBD was not an important competitor to Amazon, dismissing all three theories.

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.

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 advertisers, how to steer demand, etc.). 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

490 ibid. at 98.
491 ibid. at 91.
492 ibid. at 103.
493 ibid. at 106.
494 ibid. at xi; 109.
495 ibid. at 109.
496 ibid. at 112; 116.
497 ibid. at xii; 117.
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. 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.

This regulator would not be similar to utility commissions that establish maximum prices for companies operating natural monopolies. Rather, the goal would be to ensure that markets remain open and competitive, diminishing the need for other regulatory interventions. 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 B2B and 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 authority may be responsible for implementing remedies imposed by antitrust authorities, or for coordinating data portability or interoperability. 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

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498 ibid. at xii; 118.
499 Furman (chair) and others (n 18) at 55. CMA (n 14) at 324, 329. ACCC (n 7) at 13; 141.
500 ACCC (n 7) at 139.
501 Furman (chair) and others (n 18) at 56.
502 Stigler Committee on Digital Platforms (n 3) at 100.
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.503

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 of 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.504 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 in 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.505

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 as holding strategic market status, such as Google and Facebook in digital advertising.506 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.507 While the strategic status should apply to the group as a whole, the code would only impact the platforms’ core businesses and adjacent businesses.508

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;

503 ACCC (n 7) at 25-27; 141.
504 CMA (n 14) at 322.
505 ibid. at 326.
506 ibid. at 335-336.
507 ibid. at 336.
508 ibid. at 338.
and (iv) rules regarding the interaction between platforms and users. Each code of conduct would be particular to each platform, would be directly enforced by the regulator, and would be based on the principles of fair trading, open choices, and trust and transparency.

Fair trading would ensure that platforms offer fair and reasonable terms to the companies/consumers that rely on them (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.

Open choices would limit platforms’ ability to self-preference/deny interoperability and impose abusive terms or prevent users’ ability to access different platforms (exclusionary behavior). 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.

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.

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:

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.515

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.516

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).517

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.518

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 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.

515 ibid. at 25; 358; 362-367.
516 ibid. at 28-29; 400-418; M144.
517 ibid. at 26; 358; 374.
518 ibid. at 30; 426.
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. 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 asymmetric regulation. While concepts such as “bottleneck power” or “strategic market status” may provide general guidance, they

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519 The appendix D of CMA (p 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.
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:** Finally, 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.

**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. Luckily, over the past years the same authorities and scholars have put together an impressive body of work aimed at better understanding how competition takes place in many of these markets. This literature review may come in handy for those who want to understand what the current state of knowledge on competition in the digital world is, what materials are available for those who want to dig further, and what topics require more reflection.