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DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
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HEARING ON BIG DATA

-- Note by BIAC --

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More documents related to this discussion can be found at
www.oecd.org/daf/competition/big-data-bringing-competition-policy-to-the-digital-era.htm

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BIAC

1.   Introduction

1.   The exponential growth of computing power, connectivity, and the digital economy in recent years has ushered in the era of Big Data. The ability to collect, store, and analyse massive quantities of user data has enabled businesses to improve product quality, offer new services, more effectively market to customers, increase production and operational efficiency, and better forecast market trends. These gains accrue to consumers, who realize a wide range of benefits such as innovative, customized, and continually enhanced services often provided free of charge. At the same time, the collection and exploitation of an ever increasing volume and variety of data may present potential risks to consumers, including lack of transparency, loss of control, threats to data security, and the potential for discrimination, among other harms. From a regulatory standpoint, many of these risks fall within the province of privacy law and consumer protection. However, as enforcement authorities in these areas have raced to understand Big Data and develop tools to balance its benefits and costs, there has been a growing focus on whether and to what extent Big Data may present an antitrust concern. Against this backdrop, the Competition Committee's attention to this issue is a timely and important initial step in advancing a rich and productive dialogue. BIAC appreciates the opportunity to contribute its collective experience to this effort.

2.   From an antitrust perspective, while Big Data can function as an agent driving competition, dynamic innovation, and consumer benefits, it also may raise questions about data-driven network effects or market power to enable firms to engage in anticompetitive behaviour. In BIAC's view, discussion regarding the relationship between Big Data and competition law should not be confined to these extremes, and the role of antitrust in addressing Big Data should not be an all-or-nothing proposition. Rather, the potential benefits and risks of Big Data as it relates to competition should be viewed in balance. Competition agencies should coordinate with enforcement authorities in other areas to select the appropriate institutional mechanism to analyse and remedy any negative effects stemming from Big Data, while allowing its benefits to flow. In this regard, competition law should remain focused exclusively on protecting competition and maximizing consumer welfare and should not be instrumentalised in order to accomplish other policy objectives. Where Big Data does implicate a legitimate competition concern, enforcement should default to tried-and-tested analytical tools rather than unproven methods that risk unintended outcomes, albeit with careful attention to the many nuances Big Data presents. Any intervention with respect to Big Data should relate to a clear likelihood of anticompetitive harm resulting from horizontal coordination, vertical foreclosure, or other clearly identifiable anticompetitive conduct.

2.   The Characteristics of Big Data

3.   While Big Data has been variously defined, it is commonly understood as the collection and use of large volumes of data characterized by the so-called four V's: (1) the volume of data collected; (2) the velocity at which data is collected, used and disseminated; (3) the variety of information aggregated; and

(4) the value of data.[1] These interdependent characteristics drive both the benefits and potential risks of Big Data from a competition policy perspective.

2.1   Volume

4.   Although it is difficult to precisely measure the total volume of data generated, collected, and stored, according to some estimates, more than 2.5 exabytes (EB) of data are generated each day, equivalent to roughly 167,000 times all information contained in the U.S. Library of Congress and half of all words spoken by humans digitized as text. Current data storage has been estimated at around 8 zettabytes (ZB),[2] forecasted to multiply by a factor of 40 by 2020.[3] The staggering volume and exponential growth of data has been driven by rapid growth in processing power according to Moore's Law resulting in the proliferation of better, smaller, and cheaper devices; widespread adoption of smartphone technology; greater access and connectivity through internet platforms; the migration of social and economic activity to the internet; and, most recently, the rise of the "Internet of Things."[4]

2.2   Variety

5.   These factors have also dramatically expanded the sources of available data and the variety of information that can be collected,[5] allowing firms to know customers' age, gender, location, household

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[1]   *See* Andrea De Mauro, Marco Greco & Michele Grimaldi, *A Formal Definition of Big Data Based on its Essential Features,* 65 LIBRARY REVIEW 122 (2016). *See also,* MCKINSEY GLOBAL INST., BIG DATA: THE NEXT FRONTIER FOR INNOVATION, COMPETITION, AND PRODUCTIVITY 1 (June 2011), *available at* www.mckinsey.com/business-functions/digital-mckinsey/our-insights/big-data-the-next-frontier-for-innovation [hereinafter MCKINSEY REPORT] ("'Big data' refers to datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze.").

[2]   One exabyte is equal to 1 billion gigabytes, and one zettabyte is equal to 1 trillion gigabytes.

[3]   *See* OECD, DATA-DRIVEN INNOVATION: BIG DATA FOR GROWTH AND WELL-BEING 20 (2015), *available at* www.oecd.org/sti/data-driven-innovation-9789264229358-en.htm [hereinafter OECD BIG DATA REPORT]; MCKINSEY REPORT, *supra* note 1, at 16.

[4]   The "Internet of Things" refers to sensors and actuators embedded in physical objects, connected by networks. Michael Chui, Markus Loffler & Roger Roberts, *The Internet of Things,* MCKINSEY QUARTERLY (Mar. 2010), *available at* www.mckinsey.com/industries/high-tech/our-insights/the-internet-of-things. *See also* OECD, SUPPORTING INVESTMENT IN KNOWLEDGE CAPITAL, GROWTH AND INNOVATION 322 (2013), *available at* www.oecd-ilibrary.org/industry-and-services/supporting-investment-in-knowledge-capital-growth-and-innovation_9789264193307-en ("More than 30 million interconnected sensors are now deployed worldwide, in areas such as security, health care, the environment, transport systems or energy control systems, and their numbers are growing by around 30% a year."); EXEC. OFFICE OF THE PRESIDENT, BIG DATA: SEIZING OPPORTUNITIES, PRESERVING VALUES 2 (2014), *available at* www.whitehouse.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf [hereinafter WHITE HOUSE REPORT] (the "Internet of Things" includes devices such as "your thermostat, your car, or a pill you swallow so the doctor can monitor the health of your digestive tract.").

[5]   A 2014 report by the Executive Office of the U.S. President observed:

The sources and formats of data continue to grow in variety and complexity. A partial list of sources includes the public web; social media; mobile applications; federal, state and local records and databases; commercial databases that aggregate individual data from a spectrum of commercial transactions and public records; geospatial data; surveys; and traditional offline documents scanned by optical character recognition into electronic form. The advent of the more Internet-enabled devices and sensors expands the capacity to collect data from physical entities, including sensors and radio-frequency identification (RFID) chips. Personal location data can come from GPS chips, cell-tower triangulation of mobile devices, mapping of wireless networks, and in-person payments. WHITE HOUSE REPORT, *supra* note 4, at 5.

composition, demographic profile, dietary habits, biometrics, sartorial leanings, and musical preferences, among countless other characteristics. As the French Autorité de la Concurrence and German Bundeskartellamt recently observed in their joint report regarding the intersection of Big Data and competition law, "the comprehensive penetration of most if not all areas of life with digital information and communication technologies" has made it "possible to record the behaviour of a very large number of people . . . in such a precise way that detailed and individualized conclusions on their receptiveness to specific sales messages can be drawn."[6]

2.3   *Velocity*

6.   As the size and scope of data collected has increased, so too has the velocity at which firms can access and process this data. Some firms can process data in real time to accurately forecast events occurring in the present, near-present, or very recent past (e.g., traffic conditions, virus outbreaks, home/auto sales, restaurant crowds).[7] This predictive ability can enable firms to deliver more timely and relevant information to consumers and avoid staleness and lag.

2.4   *Value*

7.   Volume, variety, and velocity would be of little consequence without the ability to extract information and thereby derive value from data. Thus, a critical component of Big Data is the use of sophisticated analytics (including deep learning) to extract information from data "by revealing the context in which the data is embedded and its organisation and structure," separating the "signal from the noise," and identifying "hidden relations (patterns), e.g., correlations among facts, interactions among entities, [and] relations among concepts."[8]

2.5   *Other Characteristics of Data*

8.   While the four V's are helpful in understanding the competitive significance of Big Data, BIAC encourages more rigorous development of a typology that classifies different types of Big Data from a practical (and technical) perspective. Such a typology would have real analytical utility in distinguishing data stores according to their competitive relevance. Indeed, it should not be presumed that large data stores have any competitive relevance whatsoever. For example, while firms that run cloud services for enterprises (e.g., Microsoft, Amazon and Google) may "hold" large amounts of data, they do not typically have rights to access and use this data. In fact, before moving to the cloud, enterprises insist that their data is protected and only accessible to them. This type of data is unlikely to raise antitrust issues.

3.   The Implications of Big Data for Competition Law

9.   Consideration of these fundamental characteristics has led to divergent schools of thought regarding the potential role of competition law in the regulation of Big Data. Advocates of greater antitrust scrutiny of Big Data tend to focus on the extent to which data-driven network effects and economies of scale may result in industry concentration, strong barriers to entry, and market power giving rise to a

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[6]   AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT, COMPETITION LAW AND DATA 11 (2016), *available   at* www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.pdf?__blob=publicationFile&v=2.

[7]   *See generally*, Marta Bańbura, Domenico Giannone, Michele Modugno & Lucrezia Reichlin, *Now-Casting and the Real-Time Data Flow* (Eur. Central Bank, Working Paper Series, No. 1564, 2013), *available at* www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1564.pdf.

[8]   OECD BIG DATA REPORT, *supra* note 3, at 143.

significant risk of anticompetitive conduct.[9] On the other hand, those sceptical of broad antitrust intervention in the Big Data context typically emphasize that Big Data produces procompetitive benefits in the form of subsidized (often free) and innovative services, and has inherent characteristics that mitigate (or obviate) the risk of competitive harm.[10] In BIAC's view, these positions should be carefully balanced in calibrating competition law enforcement in the Big Data realm.

3.1 Network Effects and Competitive Implications of Big Data

10. Arguments for greater antitrust scrutiny of Big Data typically begin with the proposition that online platforms are frequently characterized by data-driven network effects stemming from two user feedback loops. In a user feedback loop, a company with a large user base can collect more data, thereby enabling the platform to improve the quality of its services, which in turn attracts additional users. In a monetization feedback loop, a company with a large user base can better monetize its services (e.g., by offering more targeted advertising), thereby gaining additional funds to improve its offering, which in turn attracts additional users. These feedback loops, it is argued, lead to large economies of scale and powerful entry barriers that make it difficult for smaller competitors and new entrants to compete. Without a large user base from which to collect data, smaller competitors and entrants are unable to make comparable improvements to their services resulting in a quality gap that continues to widen as the loops run. This may result in entrenchment of dominant platforms and, eventually, market "tipping" and winner-take-all outcomes.[11]

11. From this posture, it is argued, dominant firms can foreclose one or more rivals from access to the data required to compete leading to harmful competitive effects.[12] In the absence of a competitive constraint from data-deprived rivals, a dominant firm may lack the incentive to innovate or improve the quality of its services. In addition, a dominant firm could use its data advantage to detect and squelch competitive threats tactically (by limiting or preventing access) or strategically (via acquisition),[13] resulting in a decrease in quality and/or innovation.[14] Other theories of harm include the ability to leverage data-driven market power through tying and the potential for Big Data to facilitate collusion by enabling firms to monitor compliance with illicit agreements and share pricing algorithms. Another theory of harm is based on the concept that privacy can be an important form of non-price competition. Under this theory, if a dominant firm does not face competitive pressure, it may lack the incentive to invest in privacy measures

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[9]   Allen P. Grunes & Maurice E. Stucke, *No Mistake About It: The Important Role of Antitrust in the Era of Big Data*, ANTITRUST SOURCE, Apr. 2015, *available at* www.americanbar.org/content/dam/aba/publishing/antitrust_source/apr15_grunes_4_22f.authcheckdam.pdf.

[10]   *See, e.g.,* Darren S. Tucker & Hill B. Wellford, *Big Mistakes Regarding Big Data*, ANTITRUST SOURCE, Dec. 2014, *available at* www.americanbar.org/content/dam/aba/publishing/antitrust_source /dec14_tucker_12_16f.authcheckdam.pdf; D. Daniel Sokol & Roisin Comerford, *Antitrust and Regulating Big Data*, 23 GEORGE MASON L. REV. 1129 (2016).

[11]   Andres V. Lerner, *The Role of "Big Data" in Online Platform Competition* (Aug. 26, 2014), *available at* http://awards.concurrences.com/IMG/pdf/big.pdf, at 19-20.

[12]   Sokol & Comerford, *supra* note 10, at 1140 ("The resulting harm . . . is 'not necessarily higher price[s]' (considering most of these services are provided for free), but rather a 'loss of quality, innovation, and privacy.'").

[13]   According to some estimates, the number of Big Data-related mergers more than doubled between 2008 and 2012. *See* EUR. DATA PROT. SUPERVISOR, REPORT OF WORKSHOP ON PRIVACY, CONSUMERS, COMPETITION AND BIG DATA 1 (2014), *available at* https://secure.edps.europa.eu/ EDPSWEB/webdav/site/mySite/shared/Documents/Consultation/Big%20data/14-07- 11_EDPS_Report_Workshop_Big_data_EN.pdf.

[14]   *See* Sokol & Comerford, *supra* note 10, at 1141-43.

to the detriment of consumers who, without meaningful alternatives, have no choice but to accept weaker protections.[15]

3.2 *Procompetitive Benefits and Characteristics of Big Data*

12.   On the other end of the spectrum some argue that Big Data should not be a special area of focus for competition law enforcement because (1) it produces significant procompetitive benefits; (2) it has several economic characteristics that mitigate the risk of foreclosure and competitive harm; (3) entry barriers and switching costs in data-centric markets are low; and (4) theories of competitive harm stemming from data-driven network effects and "tipping" are unsupported by real-world evidence. Arguments supporting the view that Big Data is not deserving of separate antitrust focus are summarized below.

3.2.1 *Procompetitive Benefits*

13.   Big Data enables firms to offer heavily subsidized (often free) services in exchange for permission to monetize user data in the form of advertising sales. In addition, firms use Big Data to innovate by enhancing existing services (e.g., providing higher quality search results) and developing new offerings.[16] Furthermore, less obvious to the average consumer, new analytics tools that make better use of data are being developed and made available to individuals and enterprises to empower them to use their own data in more valuable and helpful ways.

3.2.2 *Economic Characteristics of Data: Ubiquitous, Non-Rivalrous, Ephemeral*

14.   Proponents argue that data is cheap, ubiquitous, and easy to obtain, with near-zero marginal costs of production and distribution.[17] The cost of collecting, storing, and analysing Big Data is low and declining.[18] Users are constantly leaving digital footprints, while companies generate massive quantities of "exhaust" as a by-product of customer interactions.[19] Data can be readily purchased from a range of third parties, including large data brokers, and firms can access a variety off-the-shelf software tools for

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[15]   *See id.* at 1144.

[16]   Data collection is not necessarily synonymous with free services. Free services may not require data to be collected, and data collection often happens with paid-for services. For example, an online retailer can collect data about purchases in order to personalize recommendations or even at the back-end in order to improve stock management. Free services are often thought of as "data-driven" because there is no price paid by the consumer. However, equal or greater amounts of data can be collected where products and services are sold to consumers.

[17]   *See id.* at 1137 *citing* CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 24 (1999).

[18]   *See* WHITE HOUSE REPORT, *supra* note 4, at 1 (noting that the growth of big data is fueled by "the cratering costs of computation and storage"); Edith Ramirez, Chairwoman, Fed. Trade Comm'n, The Privacy Challenges of Big Data: A View from the Lifeguard's Chair, Address Before the Technology Policy Institute Aspen Forum (Aug. 19, 2013), *available at* www.ftc.gov/sites/default/files/documents/public_statements/privacy-challenges-big-data-view-lifeguard%E2%80%99s-chair/130819bigdataaspen.pdf, at 3 (the "phenomenal growth in storage and analytic power" has been accompanied by a decline in cost); MCKINSEY REPORT, *supra* note 1, at 2 ("The ability to store, aggregate, and combine data and then use the results to perform deep analyses has become ever more accessible as trends such as Moore's Law in computing, its equivalent in digital storage, and cloud computing continue to lower costs and other technology barriers.").

[19]   *See* Tucker & Wellford, *supra* note 10, at 3.

analytics.[20] In addition, Big Data is non-rivalrous in that the collection of user data by one firm does not occur at the expense of other firms.[21] The non-rivalrous quality of data is reinforced by the common practice of "multi-homing," in which consumers use (and share data with) multiple different providers for the same service.[22] Finally, the value of data is ephemeral,[23] such that any competitive advantage gained through its acquisition is fleeting.

3.2.3   *Competitive Dynamics in Data-Centric Digital Markets*

15.   Data-centric markets often are characterized by competition along various lines, of which Big Data is only one. Firms often do not require Big Data in order to enter and compete effectively in the underlying product or service. Rather, they can and do compete by offering consumers innovative products or services, as illustrated by several recent examples of "creative destruction" and competitive success without a Big Data advantage (e.g., Facebook, Instagram, Snapchat, and Tinder).[24] These examples illustrate that companies can innovate, enter, and rapidly build a user base. These dynamics, coupled with the economic characteristics of data, undercut the argument that network effects naturally drive online platforms towards entrenchment and tipping.

3.2.4   *Lack of Real-World Evidence*

16.   There are numerous examples of once dominant platforms that relied heavily on Big Data being displaced by new, more innovative firms (e.g., Yahoo!/Lycos/AltaVista). In addition, there is scant evidence that large online platforms have exercised market power by charging supra-competitive advertising rates, collecting more sensitive data from users, undercompensating users for the data they provide, or decreasing privacy protections.[25] This lack of real-world evidence is borne out by several decisions in the merger context in which competition authorities have considered the potential impact of Big Data and found no likelihood of competitive harm, as discussed below.

3.3   *Recent Enforcement Decisions and Other Developments*

17.   Competition authorities have considered the competitive impact of Big Data in several recent cases, including *Google/DoubleClick*, *Nielsen/Arbitron*, and *Facebook/WhatsApp*.

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[20]   *Id.*

[21]   *Id.*; Sokol & Comerford, *supra* note 10, at 1137.

[22]   *Id.*

[23]   *See id.*; *see also* Tucker & Wellford, *supra* note 10, at 4 ("90% of the data in the world today has been created in the last two years . . . . 70% of unstructured data is stale after only 90 days.").

[24]   As Sokol and Comerford have observed: "Little, if any, user data is required as a starting point for most online services. Instead, firms may enter with innovative new products that skillfully address customer needs, and quickly collect data from users, which they can use for further product improvement and success." Sokol & Comerford, *supra* note 10, at 1136. Additionally, "Tinder succeeded not through reliance on Big Data, but due to the strength of its underlying solution. A simple user interface and a precise attention to consumer needs resulted in massive gains for the new entrant. Similarly, despite facing competition from long established incumbents with access to huge volumes of data, amassed over years of customer service, WhatsApp was able to take on more established messaging and social networks because of its low cost and easy-to-use interface." *Id.* at 1139.

[25]   *See* Lerner, *supra* note 11, at 46-53.

3.3.1 Google/DoubleClick

18.   In 2007, the EC and the FTC unconditionally approved Google's acquisition of DoubleClick for US $3.1 billion. Both agencies analysed whether the combination of user data collected through Google's ad intermediation service and DoubleClick's ad server business would harm competition. The FTC found that the aggregation of data would not confer market power because data collected by Google and DoubleClick was not an essential input and many of Google's competitors such as Microsoft and Yahoo! had access to their own data sources.[26] Moreover, network effects were unlikely to tip the market for ad intermediation due to robust competition on several grounds (of which network size was only one) and multi-homing by publishers and advertisers.[27] The EC similarly found that network effects in online advertising were "theoretically compelling," but perhaps "not strong enough to lead to 'tipping'" based on the prevalence of publisher and advertiser multi-homing, among other factors.[28] Like the FTC, the EC concluded that data-driven foreclosure was unlikely because the types of data collected by the combined entity could be readily obtained by competitors either directly or through third party ISPs or data brokers.[29]

19.   Regarding the significance of privacy considerations in its review, the FTC underscored that antitrust review of mergers was focused exclusively on harm to competition. Nonetheless, it had investigated the potential impact of the transaction on non-price attributes of competition, including privacy, and found that such considerations did not provide a basis to challenge the deal.[30] The EC's decision was focused exclusively on analysis of competitive effects under the EU Merger Regulation, but was issued without prejudice to the merged entity's obligations under EU and Member State legislation governing the protection of privacy rights.[31]

3.3.2 Nielsen/Arbitron

20.   In 2014, the FTC approved Nielsen's acquisition of Arbitron for US $1.26 billion subject to conditions. Both companies provided media measurement services in television, radio, and other media platforms. In response to growing demand from advertisers and media companies, both companies were developing services capable of delivering nationwide reporting on audience size and frequency of exposure across multiple media platforms with corresponding individual demographic data. The FTC defined a relevant market consisting of national syndicated cross-platform audience measurement services—a data-supported product, rather than the data itself—and concluded that the elimination of competition between

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[26]   Statement of Fed. Trade Comm'n Concerning Google/DoubleClick, FTC File No. 071-0170 (Dec. 20, 2007), *available at* www.ftc.gov/system/files/documents/public_statements/418081/071220googledc-commstmt.pdf, at 12 [hereinafter FTC Google Statement].

[27]   *Id.* at 10.

[28]   Case COMP/M.4731—Google/DoubleClick, Comm'n Decision, ¶ 304 (Mar. 11, 2008) (summary at 2008 O.J.   (C   184)   10),   *available   at*   http://ec.europa.eu/competition/mergers/cases/decisions /m4731_20080311_20682_en.pdf.

[29]   *Id.*, ¶ 365.

[30]   FTC Google Statement, *supra* note 26, at 2-3. Then Commissioner Pamela Jones Harbour dissented, stating that data-driven network effects "deserve[d] greater attention" and were likely to result in tipping. Jones Harbour stressed the need for greater antitrust scrutiny of future combinations involving Big Data and argued that the diminishment of privacy protections could constitute a cognizable theory of harm under the antitrust laws, which the FTC failed to adequately consider. *See* Dissenting Statement of Pamela Jones Harbour,   FTC   File   No.   071-0170   (Dec.   20,   2007),   *available   at* www.ftc.gov/sites/default/files/documents/public_statements/statement-matter-google/doubleclick/071220harbour_0.pdf.

[31]   EC Google/DoubleClick, *supra* note 28, ¶ 368.

Nielsen and Arbitron would likely lead to higher prices for advertisers, agencies, and media companies in this market. The FTC based its decision on findings that (1) Nielsen and Arbitron possessed unique data stores critical to developing a nationwide cross-platform service; (2) access to such data was required to competitive effectively; and (3) it was unlikely that firms could successfully enter by gaining access due to the time and expense required.[32] To resolve its concerns, the FTC required Nielsen to sell or license cross-platform measurement data and related assets to an approved buyer for eight years, provide technical assistance, and remove impediments that might otherwise prevent the buyer from hiring key Arbitron employees.[33]

3.3.3   Facebook/WhatsApp

21.   In 2014, the EC and FTC again considered the competitive significance of Big Data in approving Facebook's acquisition of WhatsApp for US \$19 billion. The EC found that Facebook's potential utilization of WhatsApp user data was unlikely to harm competition in online advertising in part because a number of firms – Google, Apple, Amazon, eBay, Microsoft, AOL, Yahoo!, Twitter, LinkedIn, Adobe and Yelp, among others – would continue to collect user data post-transaction and "there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control."[34] The EC also observed that while messaging platforms were characterized by network effects, these effects were mitigated by several factors, including multi-homing, low barriers to entry, and disruptive innovation taking place in short innovation cycles.[35]

22.   As it had done in *Google/DoubleClick*, the Commission focused its analysis exclusively on competition considerations, noting that "[a]ny privacy-related concerns flowing from the increased concentration of data within the control of Facebook as a result of the transaction do not fall within the scope of EU competition law."[36] The FTC seemingly took a similar approach, clearing the transaction within two months and following up with a letter to the parties from the Director of the Bureau of Consumer Protection underscoring the importance of upholding commitments to protect users' privacy and the risks of not doing so under Section 5 of the FTC Act.[37]

23.   These decisions illustrate and reinforce certain aspects of an appropriate analytical framework for assessing the potential impact of data through the lens of competition law. For example, in *Nielsen/Arbitron*, the FTC properly analysed cross-platform audience data as an input, rather than as a relevant market unto itself. Likewise, as discussed below, the EC expressly declined to consider a relevant market for data in *Facebook/WhatsApp.* The decisions also underscore the importance of testing theory against real-world evidence in determining whether, or to what extent, Big Data presents competition

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[32]   *See* Analysis of Agreement Containing Consent Order to Aid Public Comment, Nielsen Holdings N.V. & Arbitron, Inc., FTC File No. 131 0058 (Sept. 20, 2013), *available at* www.ftc.gov/sites/default/files/documents/cases/2013/09/130920nielsenarbitronanalysis.pdf, at 1-3.

[33]   *Id.* at 4.

[34]   *See* Case COMP/M.7217—Facebook/WhatsApp, Comm'n Decision, ¶ 188-89 (Oct. 3, 2014) (summary at 2014 O.J. (C 417) 4), *available at* http://ec.europa.eu/competition/mergers/cases/decisions/m7217_20141003_20310_3962132_EN.pdf.

[35]   *Id.*, ¶¶ 131-35 (noting that "[i]n this market, any leading market position even if assisted by network effects is unlikely to be incontestable.").

[36]   Press Release, Eur. Comm'n, Mergers: Commission Approves Acquisition of WhatsApp by Facebook (Oct. 3, 2014), *available at* http://europa.eu/rapid/press-release_IP-14-1088_en.htm.

[37]   Letter from Jessica L. Rich, Dir., Bureau of Consumer Prot., Fed. Trade Comm'n, to Erin Egan, Chief Privacy Officer, Facebook, Inc. & Anne Hoge, Gen. Counsel, WhatsApp Inc. (Apr. 10, 2014), *available at* www.ftc.gov/system/files/documents/public_statements/297701/140410facebookwhatappltr.pdf.

policy concerns. While cases like *Google/DoubleClick* and *Facebook/WhatsApp* have outlined a theoretical basis for antitrust intervention in the Big Data context (and opened the door for consideration of non-price effects such as a material loss of consumer privacy), they have yet to find evidence that Big Data constitutes an essential input or barrier to entry. Finally, the cases highlight some of the challenges Big Data poses for merger control, which is inherently predictive, in keeping up with a fast-moving sector driven by dynamic innovation. In this regard, cases such as *Google/DoubleClick* and *Facebook/WhatsApp* are important benchmarks to assess analytical tools and outcomes, taking into account how competitive conditions may have changed since the cases were decided. Enforcement authorities must be attuned to new developments in the industry landscape in calibrating the role of competition law in the realm of Big Data.

3.3.4   *Enforcement Focus and Initiatives*

24.   The role of antitrust in regulating Big Data has been the subject of increasing focus within the competition enforcement community. In several recent speeches, European Commissioner for Competition Margrethe Vestager has stressed that competition problems may arise where few companies control unique data sets essential for firms to compete enabling them to drive rivals from the market. She has encouraged collaboration among competition authorities to better understand Big Data and the issues it presents, and opined that these issues underscore the need for "every national authority . . . to have the tools it needs," even going so far as to suggest they present "a strong case for new EU rules."[38] Both Vestager and Deborah Feinstein, Director of the FTC's Bureau of Competition, have acknowledged that privacy can be a non-price dimension of competition in the Big Data context, while emphasizing that competition law should not be used to address non-competition related concerns.[39]

25.   These policy pronouncements have been paralleled by action. In March 2014, the European Data Protection Supervisor published a Preliminary Opinion on the implications of Big Data on data protection, consumer protection, and competition law enforcement.[40] The report informed discussions among policymakers, regulators and commentators, culminating in a workshop attended by experts from the EC, national competition authorities, NGOs, and the FTC. In March 2016, Germany's Bundeskartellamt initiated an investigation into whether Facebook abused its position in the market for social networks by

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[38]   Margrethe Vestager, Eur. Comm'r for Competition, Big Data and Competition, Address Before the EDPS-BEUC Conference of Big Data (Sept. 29, 2016), *available at* http://ec.europa.eu/commission/2014-2019/vestager/announcements/big-data-and-competition_en.

[39]   *See* Margrethe Vestager, Eur. Comm'r for Competition, Competition in a Big Data World, Address Before the DLD 16 Conference (Jan. 17, 2016), *available at* https://ec.europa.eu/commission/2014-2019/vestager/announcements/competition-big-data-world_en ("I don't think we need to look to competition enforcement to fix privacy problems. But that doesn't mean I will ignore genuine competition issues just because they have a link to data."); Deborah Feinstein, *Big Data in a Competition Environment*, CPI ANTITRUST CHRONICLE (May 2015), *available at* www.competitionpolicyinternational.com/assets/Uploads/FeinsteinMay-152.pdf, at 2 ("Despite calls to use the merger review process to improve privacy protections for consumers, the FTC continues to examine competition and consumer protection issues separately, examining the facts to determine if there is a potential violation of any law the FTC enforces . . . . Since the decisions firms make about consumer privacy can lead to a form of non-price competition, the FTC has explicitly recognized that privacy can be a non-price dimension of competition.").

[40]   Eur. Data Prot. Supervisor, *Preliminary Opinion: Privacy and Competitiveness in the Age of Big Data: The Interplay Between Data Protection, Competition Law and Consumer Protection in the Digital Economy* (March 2014), *available at* https://secure.edps.europa.eu/EDPSWEB/webdav/site/mySite /shared/Documents/Consultation/Opinions/2014/14-03-26_competitition_law_big_data_EN.pdf.

employing terms of service regarding user data in violation of data protection provisions.[41] Two months later, France's Autorité de la Concurrence announced its intention to launch a "full-blown sector inquiry into data-related markets and strategies"[42] and, with the Bundeskartellamt, published the results of a joint study analysing the implications of Big Data in the digital economy and other industries on competition law enforcement.[43]

26.   In BIAC's view, competition authorities should focus exclusively on protecting competition and maximizing consumer welfare. Competition law should not be used in order to accomplish other policy objectives. Where Big Data implicates concerns at the intersection of competition law and other regulatory areas, competition authorities should collaborate with their counterparts to select the appropriate institutional mechanism to analyse the concern and remedy any problems, taking a cautious approach to avoid overreach, particularly in the use of competition remedies to address non-competition concerns.

3.4   Analytical Considerations

27.   Data-driven markets have a number of idiosyncrasies that can present analytical challenges for competition law enforcement.

28.   First, Big Data ecosystems are often multi-sided environments involving an array of competitively significant interactions between various players, some of whom have multiple roles. For example, Apple is simultaneously a platform (iOS, Apple Store and iTunes), hardware manufacturer/retailer (MacBooks, iPhones, iPads), and IT infrastructure provider (iCloud), interacting with consumers, content developers, advertisers, and other platforms. Antitrust analysis of Big Data can sometimes focus unduly on the user side of a platform, whereas competition frequently takes place for both users and advertisers, with an interplay between the two. The complexity of Big Data ecosystems sometimes can make it difficult to identify relevant markets and evaluate competitive effects on all sides. These challenges are compounded by the fact that online platforms frequently involve services offered at zero cost to the consumer, which can make the measurement of competitive harm more challenging.

29.   Second, Big Data may call for nuanced application of market definition principles. In many data-driven online platforms, data is collected from (not sold to) consumers, such that the hypothetical monopolist test cannot be applied using standard price metrics.[44] While some commentators have suggested that such data may comprise its own product market for purposes of antitrust analysis,[45] others have argued that this approach lacks a sound rationale, and that data should be analysed as an input. As

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[41]   Press Release, Bundeskartellamt, Bundeskartellamt Initiates Proceeding Against Facebook on Suspicion of Having Abused its Market Power by Infringing Data Protection Rules (Mar. 2, 2016), *available at* www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02_03_2016_Facebook.html.

[42]   Press Release, Autorité de la Concurrence & Bundeskartellamt, The French Autorité de la Concurrence and the German Bundeskartellamt Publish Joint Paper on Data and Its Implications for Competition Law (May 10, 2016), *available at* www.autoritedelaconcurrence.fr/user/standard.php?id_rub=630&id_article=2770.

[43]   AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT, COMPETITION LAW AND DATA (May 10, 2016), *available at* www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf.

[44]   *See* Tucker & Wellford, *supra* note 10, at 5 ("Personal information collected by a producer but not sold to customers cannot satisfy the hypothetical monopolist test or the *Brown Shoe* test: there is no sale, no customers, and no product substitution.").

[45]   Pamela Jones Harbour, Competition & Privacy in Markets of Data, Address Before the Eur. Parliament (Nov. 26, 2012), *available at* www.nortonrosefulbright.com/files/us/images/publications/121127PJHarbourEUParliamentCompetitionPrivacy.pdf, at 5 ("Defining a market for user data may . . . better reflect how firms, their competitors, their customers, and their users interact in the real world.").

noted above, the latter approach was adopted in *Nielsen/*Arbitron and in *Facebook/WhatsApp*, in which the EC explicitly "rejected the idea of considering a potential market for personal data in this case, citing the fact that the parties were not actually engaged in the sale of data to third parties."[46]

30.   BIAC appreciates that the complexities of Big Data present real challenges for competition law enforcement. However, many of these challenges are not new and have already been confronted by competition authorities in some form. They do not supply a basis to withdraw competition law enforcement from the Big Data realm altogether, nor do they justify discarding key components of the analytical toolkit in favour of new and untested frameworks. As a threshold matter, BIAC encourages further empirical study of Big Data (properties, types, ownership, ecosystems) based on real-world evidence. Such study would augment the important theoretical work being done in this area leading to a better understanding of the competitive environment.

31.   Where Big Data implicates a legitimate competition concern, enforcement should default to careful application of tried-and-tested analytical tools rather than unproven methods that risk unintended outcomes. For example, instead of bending or disregarding standard market definition principles to define markets for data, authorities should focus on rigorous assessment of the multi-faceted markets at issue and explore how data may confer market power within these markets using the full array of analytical tools at their disposal.

32.   Despite the challenges discussed above, BIAC believes that conventional competition tools can be used to evaluate and address competition issues relating to Big Data. In particular, competition authorities should consider, for example, whether horizontal combination within a relevant market involving Big Data would substantially lessen competition. But this analysis should consider whether the data sources in question are substitutes or complements, whether the market for such data is concentrated, whether entry barriers are high, whether data is an important input in the ultimate product or service, and whether the net result is likely to harm consumer welfare. The same form of traditional analysis could be applied to horizontal agreements restricting access to Big Data (i.e., those unsupported by integrative efficiency), exclusionary conduct by a dominant firm to gain or entrench a monopoly, or vertical foreclosure by a firm seeking to dominate an upstream or downstream market. Absent this type of competitive bearing, intervention into Big Data by competition authorities would lack a principled basis and would be tantamount to a "big is bad" approach with the word "data" inserted.

4.   Conclusion

33.   The exponential increase of processing power, connectivity, digital markets, and the Internet of Things has led to the rise of Big Data, unlocking wide-ranging benefits for consumers and businesses. The growing economic significance of Big Data has fuelled valuable and timely discussion regarding the appropriate role of antitrust in the Big Data context. The hearing hosted by the Competition Committee is an important next step in advancing the discourse, and BIAC welcomes the opportunity to contribute to this effort.

34.   As we continue to develop our understanding of the relationship between Big Data and competition law, and calibrate antitrust enforcement in this area, BIAC recommends consideration of the following principles and approaches:

- First, from a definitional standpoint, the fundamental characteristics of Big Data as described in much of the literature to date (volume, velocity, variety, value) are by now well-understood. Such well-trodden definitions should give way to a more sophisticated typology classifying different

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[46]   Sokol & Comerford, *supra* note 10, at 1154.

types of data from a practical (and technical) perspective. A better understanding of what Big Data is will enable better analysis of its impact on competition.

- Second, the role of antitrust in the Big Data context and the potential benefits and risks of Big Data should be viewed in balance. Competition law enforcement should take into account risk factors (network effects, economies of scale, risk of entrenchment); procompetitive benefits (innovation, free service); unique characteristics of data that may mitigate the risk of competitive harm (ubiquity, non-rivalry, ephemerality); and competitive dynamics (creative destruction, rapid innovation cycles) frequently found in some data driven markets.

- Third, recent decisions are instructive in shaping the path forward. Many of these decisions underscore that, while a theoretical basis for antitrust regulation of Big Data may sometimes exist, this basis must be matched with real-world evidence in order to justify intervention. In addition, the decisions illustrate that traditional analytical methods in the enforcement toolkit can be used effectively to assess Big Data. Furthermore, against the backdrop of a rapidly evolving Big Data environment, the cases should serve as benchmarks to assess analytical methods and outcomes, taking into account how competitive conditions may have changed since the cases were decided.

- Fourth, in identifying the boundaries of antitrust enforcement, competition authorities should focus exclusively on protecting competition and protecting consumer welfare.

- Finally, while Big Data issues present interesting challenges for competition law enforcement, these challenges are not altogether new. Thus, competition law enforcement in the Big Data context should (at least for the time being) default to careful application of tried-and-tested analytical tools, rather than unproven methods that risk unintended outcomes.