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## INTRODUCTION

Big Data and Big Analytics have become a big deal in today's economy.<sup>1</sup> They are converting ordinary household items, like thermostats, into smart technologies. They are helping San Francisco commuters find parking spaces. They are enabling a host of free items on the Internet, ranging from search engines to apps that better track our health. They are yielding revolutionary innovations, such as driverless cars, scores of Internet-enabled devices, and better analytics for manufacturing. **1.01**

Big Data and Big Analytics raise many legal, moral, and ethical issues, such as cyber-security and the accountability of firms for their algorithms' actions. Our focus is on Big Data's implications for competition policy. We are witnessing a competitive arms race for data (as opposed to more privacy)—the race to connect the 'data' bucket with the 'money' bucket by many tech firms and investors. Big Data is playing a pivotal role in many companies' strategic decision-making. More companies are adopting data-driven business models and strategies to obtain and sustain a competitive 'data-advantage' over rivals. Data-driven mergers are increasing, as are the risks of abuses of dominant tech firms. Data-driven exclusionary practices and mergers raise significant implications for privacy, consumer protection, and competition law. But one problem, as the European Data Protection Supervisor observed in 2014, is that competition authorities, until recently, have not fully considered the implications of Big Data. **1.02**

Our aim is to explore how competition law can play an integral role in ensuring that we capture the benefits of a data-driven economy while mitigating its associated **1.03**

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<sup>1</sup> Organisation for Economic Co-operation and Development (OECD), *Data-Driven Innovation for Growth and Well-being: Interim Synthesis Report*, October 2014, p 7, <http://www.oecd.org/sti/inno/data-driven-innovation-interim-synthesis.pdf> (observing how '[d]eclining costs along the data value chain... have been a significant driver of the increasing generation and use of data, as well as the accelerated migration of socioeconomic activities to the Internet thanks to the wide adoption of e-services in an increasingly participative web. The resulting phenomenon—commonly referred to as "big data"—signals the shift towards a data-driven economy, in which data enhance economic competitiveness and drive innovation and equitable and sustainable development.').

risks. To be clear, we do not argue that Big Data is invariably bad. Big Data is neither inherently good, evil, nor neutral. Its social value depends on the industry and the purpose and effect of the data-driven strategy. Our focus is to assess the implications of a data-driven economy on competition policy and identify instances when privacy and competition concerns overlap. We will explore Big Data, its competitive implications, the competition authorities' approach to data-driven mergers and business strategies, and their current approach's strengths and weaknesses.

- 1.04** This issue is important. In 2015, the US Federal Trade Commission (FTC) mistakenly released portions of a report by its Bureau of Competition staff regarding the Google investigation.<sup>2</sup> (Although Alphabet Inc in 2015 has replaced Google Inc as the name of the publicly traded entity, we, for simplicity purposes, will refer to the company as Google.) The legal staff recommended prosecuting Google. The FTC instead opted to close its investigation after Google committed to change some of its data-driven business practices.<sup>3</sup> The FTC's action was controversial. Likewise, in 2015 when the European Commission's competition authority issued

<sup>2</sup> Federal Trade Commission Bureau of Competition, *Report re Google Inc*, 8 August 2012, pp 94, 96, 98, 100, and 102 ('FTC Staff Report'), <http://graphics.wsj.com/google-ftc-report>. A few caveats about this report, which the FTC released (mistakenly) under the Freedom of Information Act to the *Wall Street Journal*. First, only the Report's even pages were released, so the missing odd pages may have contained important qualifications. Second, other reports, including any prepared by Google, were not released. Third, although the Competition Staff recommended that the FTC file a complaint, the Commissioners elected not to. Google responded to the Report's disclosure:

We understand that what was sent to the Wall Street Journal represents 50% of one document written by 50% of the FTC case teams. Ultimately both case teams (100%) concluded that no action was needed on search display and ranking. Speculation about consumer or competitor harm turned out to be entirely wrong. On the other issues raised, we quickly made changes as agreed with the FTC.

'The FTC Report on Google's Business Practices', *Wall Street Journal*, 24 March 2015, <http://graphics.wsj.com/google-ftc-report/>.

<sup>3</sup> Federal Trade Commission, 'Google Agrees to Change Its Business Practices to Resolve FTC Competition Concerns in the Markets for Devices Like Smart Phones, Games and Tablets, and in Online Search: Landmark Agreements Will Give Competitors Access to Standard-Essential Patents; Advertisers Will Get More Flexibility to Use Rival Search Engines', Press Release, 3 January 2013, <https://www.ftc.gov/news-events/press-releases/2013/01/google-agrees-change-its-business-practices-resolve-ftc>. After portions of the FTC Staff Report were disclosed and reports of meetings between White House and Google officials, the FTC Chair and two Commissioners responded, noting that the FTC conducted an 'exhaustive' investigation of Google's Internet search practices during 2011 and 2012:

Based on a comprehensive review of the voluminous record and extensive internal analysis, of which the inadvertently disclosed memo is only a fraction, all five Commissioners (three Democrats and two Republicans) agreed that there was no legal basis for action with respect to the main focus of the investigation—search. As we stated when the investigation was closed, the Commission concluded that Google's search practices were not, 'on balance, demonstrably anticompetitive'.

Federal Trade Commission, *Statement of Chairwoman Edith Ramirez, and Commissioners Julie Brill and Maureen K. Ohlhausen Regarding the Google Investigation*, 25 March 2015, <https://www.ftc.gov/news-events/press-releases/2015/03/statement-chairwoman-edith-ramirez-commissioners-julie-brill>.

its statement of objections against Google,<sup>4</sup> some shouted protectionism (without knowing the facts and evidentiary record that supported the Commission's preliminary conclusion that Google degraded the quality of its search results by systematically favouring its own comparison shopping products in its general search results page).

What is clear is that the European Commission's statement of objections will not end the matter. In 2015, the Commission stated that it was actively investigating other activities by Google, including 'whether Google has illegally hindered the development and market access of rival mobile applications or services by requiring or incentivising smartphone and tablet manufacturers to exclusively pre-install Google's own applications or services'.<sup>5</sup> In 2015, the FTC began investigating whether Google, in favouring its products on Android, violated the antitrust laws.<sup>6</sup> In 2016, Germany's Bundeskartellamt initiated proceedings against Facebook on suspicion of having abused its market power by infringing data protection rules. As Andreas Mundt, President of the Bundeskartellamt, stated: **1.05**

Dominant companies are subject to special obligations. These include the use of adequate terms of service as far as these are relevant to the market. For advertising-financed internet services such as Facebook, user data are hugely important. For this reason it is essential to also examine under the aspect of abuse of market power whether the consumers are sufficiently informed about the type and extent of data collected.<sup>7</sup>

Competition authorities will invariably investigate other companies, whose business models are built on Big Data.

As more companies undertake data-driven business strategies and mergers, competition officials and courts will likely confront the competitive implications of Big Data. They cannot ignore Big Data. The potential harm of data-driven mergers and abuses of dominant companies built on data, as we will show, is too significant to overlook or downplay. Some within the antitrust community are starting to appreciate the competitive benefits and risks of data-driven mergers and business strategies. Others, however, argue that competition law should have a limited role, if any, **1.06**

<sup>4</sup> European Commission, 'Fact Sheet: Commission Sends Statement of Objections to Google on Comparison Shopping Service', 15 April 2015, [http://europa.eu/rapid/press-release\\_MEMO-15-4781\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-4781_en.htm).

<sup>5</sup> European Commission, 'Antitrust: Commission Opens Formal Investigation Against Google in Relation to Android Mobile Operating System', Press Release, 15 April 2015, [http://europa.eu/rapid/press-release\\_MEMO-15-4782\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-4782_en.htm).

<sup>6</sup> David McLaughlin, 'Google Said to Be Under US Antitrust Scrutiny Over Android', Bloomberg Business, 25 September 2015, <http://www.bloomberg.com/news/articles/2015-09-25/google-said-to-be-under-u-s-antitrust-scrutiny-over-android-iezf41sg>.

<sup>7</sup> Bundeskartellamt, 'Bundeskartellamt initiates proceeding against Facebook on suspicion of having abused its market power by infringing data protection rules', Press Release, 2 March 2016, [http://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02\\_03\\_2016\\_Facebook.html](http://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02_03_2016_Facebook.html).

in the era of Big Data. We disagree. One aim here is to move the debate beyond these ten myths.

### A. Myth 1: Privacy Laws Serve Different Goals from Competition Law

- 1.07** Often, privacy concerns do not implicate competition concerns. A landlord, who secretly records a tenant's bedroom, violates the common law privacy tort, intrusion upon seclusion. The landlord's actions, however, do not violate competition law.
- 1.08** Likewise, some competition violations, like price-fixing cartels, generally do not raise privacy concerns. But data-driven business strategies, at times, will raise both privacy and antitrust concerns. As we will explore, data-driven mergers, like Facebook's acquisition of WhatsApp, have the potential to lessen non-price competition in terms of the array of privacy protections offered to consumers. Likewise, monopolies' data-driven exclusionary practices can hamper innovative alternatives that afford consumers greater privacy protection. Privacy competition—like other facets of non-price competition—already exists in certain industries, but some dominant companies do not face the competitive pressure to improve quality along this dimension.
- 1.09** As the European Competition Commissioner Margrethe Vestager observed,
- The more data you can collect, the more you know, the better product you can provide, but also the more powerful will you be towards others. . . . It isn't solely a competition issue. . . . It's very important for us to be able to say what is competition-related and what is an issue of privacy, ownership, data, [and] how you can be as secure on the net as you can be in the physical world.<sup>8</sup>
- 1.10** Thus one cannot quarantine privacy and competition concerns, unless one contorts antitrust's goals to a narrow economic objective that few others share.

### B. Myth 2: The Tools that Competition Officials Currently Use Fully Address All the Big Data Issues

- 1.11** The reality, as we address, is that many of the current analytical economic tools do *not* address the Big Data issues. The competition authorities have better tools to assess price effects. But they have far cruder tools to assess a merger's effect on non-price competition, including product quality and the degradation of privacy

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<sup>8</sup> *MLex Interview: Margrethe Vestager*, MLex Special Report, 22 January 2015 ("Vestager Interview"), <http://mlexmarketinsight.com/wp-content/uploads/2015/01/MLex-Interview-Vestager-22-01-151.pdf>.

protection. The agencies can currently challenge the egregious case, ie, where the evidence is compelling that the companies are competing along non-price dimensions, such as privacy protection, and the merger is intended to substantially lessen this competition. But often the analysis of quality is less straightforward.<sup>9</sup> This is problematic with the growth of multi-sided markets, where the products offered on one side are free. Quality, including privacy protection, will be an important aspect of non-price competition. When the competition agencies solely focus on the ‘paid’ advertising side of these multi-sided markets, and ignore the merger’s impact on the ‘free’ side, both consumers and advertisers are harmed. We will see this in Chapter 15 with the merger wave of commercial radio stations in the US after the 1996 Telecommunications Act.

### C. Myth 3: Market Forces Currently Solve Privacy Issues

The reality is that market forces are not solving privacy issues. Policymakers have acknowledged that privacy’s notice-and-consent model is broken and ineffective. **1.12**

In competitive markets, consumers should reign supreme. Nearly all Americans (93 per cent) in a 2015 report believed that being in control of who can get information about them is important.<sup>10</sup> But consumers do not reign supreme in many data-driven industries. Most are frustrated, feeling they have lost control over their personal data. Consumers are unaware of who has access to their personal information, what data is being used, how and when their data is being used, and the privacy implications of the data’s use. ‘While Americans’ associations with the topic of privacy are varied’, a 2014 survey by the Pew Research Center found, the majority ‘feel that their privacy is being challenged along such core dimensions as the security of their personal information and their ability to retain confidentiality’.<sup>11</sup> In the survey, 91 per cent “agree” or “strongly agree” that consumers have lost control over how personal information is collected and used by companies’.<sup>12</sup> Likewise, 72 per cent of European Internet users ‘still worry that they are being asked for too much personal data online’.<sup>13</sup> **1.13**

<sup>9</sup> Ariel Ezrachi and Maurice E Stucke, ‘The Curious Case of Competition and Quality’, 3(2) *J of Antitrust Enforcement* (October 2015): pp 227–57, draft available at <http://ssrn.com/abstract=2494656>.

<sup>10</sup> Mary Madden and Lee Rainie, ‘Americans’ Attitudes About Privacy, Security and Surveillance’, Pew Research Center, May 2015, [http://www.pewinternet.org/files/2015/05/Privacy-and-Security-Attitudes-5.19.15\\_FINAL.pdf](http://www.pewinternet.org/files/2015/05/Privacy-and-Security-Attitudes-5.19.15_FINAL.pdf).

<sup>11</sup> Pew Research Center, ‘Public Perceptions of Privacy and Security in the Post-Snowden Era’, 12 November 2014, [http://www.pewinternet.org/files/2014/11/PI\\_PublicPerceptionsOfPrivacy\\_111214.pdf](http://www.pewinternet.org/files/2014/11/PI_PublicPerceptionsOfPrivacy_111214.pdf).

<sup>12</sup> Ibid.

<sup>13</sup> European Commission, *Why We Need a Digital Single Market* (2015), [https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/digital\\_single\\_market\\_factsheet\\_final\\_20150504.pdf](https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/digital_single_market_factsheet_final_20150504.pdf).

- 1.14** Even when companies allow individuals to see (and perhaps edit or delete) information about them, the companies still will collect data on them and target them with ads both online and offline.<sup>14</sup> The market does not always provide viable alternatives that protect our privacy. When alternatives emerge, many often do not do very well. As the economist Joseph Farrell has pointed out, consumer pessimism about online privacy may have contributed to the development of a ‘dysfunctional equilibrium’.<sup>15</sup> Ordinarily, we would expect firms and consumers to have aligned incentives, and the market would supply the privacy protection consumers want. In a dysfunctional equilibrium, however, the market underprovides privacy protection because consumers do not believe that they have control over privacy or that companies really will protect their privacy. A small firm cannot simply decide to break out of the equilibrium on its own by adopting more privacy-protective policies and clearer disclosures. Since consumer demand will not shift by much, the smaller firm will simply sacrifice revenues.
- 1.15** Other reasons for the lack of privacy competition that we explore are the market’s high entry barriers due to several data-driven network effects and exclusionary behaviour by dominant firms. Moreover, some companies present themselves as privacy enhancing when they play a dual role. One Massachusetts Institute of Technology (MIT) article noted how there were few options for those wishing to avoid being followed around on the web.<sup>16</sup>
- 1.16** Consequently, one cannot simply believe that market forces will always protect consumers.

#### D. Myth 4: Data-Driven Online Industries Are Not Subject to Network Effects

- 1.17** Some data-driven industries are subject to network effects. Network effects, as we discuss, are not always bad for consumers. Think of telephones, the

<sup>14</sup> Amanda Hess, ‘Google Users Can Now Download Their Full Search Histories—and Delete Their Archive’, *Independent Online* (UK), 7 May 2015, 2015 WLNR 13461451 (‘And though Google is now inviting users to delete their search histories in a couple of clicks, it is very unclear what that means: the company’s privacy policy still reserves the right to record your search results, tie them to your IP address or Google account, then target ads on Google properties and beyond.’).

<sup>15</sup> Joseph Farrell, ‘Can Privacy Be Just Another Good?’, 10 *J on Telecomm & High Tech L* (2012): pp 251, 256–9.

<sup>16</sup> Tom Simonite, ‘A Popular Ad Blocker Also Helps the Ad Industry: Millions of People Use the Tool Ghostery to Block Online Tracking Technology—Some May Not Realize That it Feeds Data to the Ad Industry’, *MIT Technology Review*, 17 June 2013, <http://www.technologyreview.com/news/516156/a-popular-ad-blocker-also-helps-the-ad-industry/>.

benefit of which increases as others use them. But network effects, at times, enable big firms to become bigger until they dominate the industry. Data-driven industries, as Chapters 11–14 explore, can be subject to several network effects:

- Traditional network effects, including social networks such as Facebook;
- Network effects involving the scale of data;
- Network effects involving the scope of data; and
- Network effects where the scale and scope of data on one side of the market affect the other side of the market (such as advertising).

### E. Myth 5: Data-Driven Online Markets Have Low Entry Barriers

Entry barriers for data-driven online industries are neither invariably low nor high. Each industry can differ. Entry barriers, once low, can increase due to network effects. One risk is that the economics of Big Data, as the OECD recently observed, ‘favours market concentration and dominance’.<sup>17</sup> Data-driven markets ‘can lead to a “winner takes all” result where concentration is a likely outcome of market success’.<sup>18</sup> **1.18**

Moreover, the fact that venture funds are investing in online start-ups does not mean entry barriers are necessarily low. Industries with high entry barriers can still have entrants. The US Court of Appeals for the Eleventh Circuit, for example, was unprepared to say that a competitor’s ‘entry and growth’ necessarily foreclosed a finding that the defendant possessed monopoly power, especially given defendant’s ‘overwhelming market share (90%), the large capital outlays required to enter the domestic fittings market, and [defendant’s] undeniable continued power over . . . prices’.<sup>19</sup> Moreover, one has to examine in which particular markets the venture funds are investing. Few would likely fund a start-up in the search market, given Google’s market share. In 2010 Microsoft tried, and spent over ‘\$4.5 billion into developing its algorithms and building the physical capacity necessary to operate Bing’.<sup>20</sup> We will explore the uphill battle Microsoft faced. **1.19**

<sup>17</sup> OECD, *Data-Driven Innovation*, above note 1, p 7.

<sup>18</sup> *Ibid.*

<sup>19</sup> *McWane v Federal Trade Commission*, 783 F3d 814, 832 (US Ct of Apps (11th Cir), 2015).

<sup>20</sup> FTC Staff Report, above note 2, p 76.

## F. Myth 6: Data Has Little, If Any, Competitive Significance, Since Data is Ubiquitous, Low Cost, and Widely Available

- 1.20** Beware of those who say this. Some companies take the position that data are like facts and argue that all data should be open. Mapping companies, for example, might believe that the data needed to develop a map should be accessible to others. Other companies, however, treat their mapping data as proprietary and will not share.
- 1.21** As we explore, data can be critical for a company's growth and success. In one of the mergers we analyse, Google's acquisition of Waze, it was Waze's inability to achieve sufficient scale of data that hindered its competitive significance in mapping services in the United Kingdom.<sup>21</sup> Thus, companies currently spend considerable money and effort to acquire and analyse personal data and to maintain a data-related competitive advantage. If any company propagates this myth, ask it if it would be willing to license its consumer data to its competitors, and if so, at what price.

## G. Myth 7: Data Has Little, If Any, Competitive Significance, as Dominant Firms Cannot Exclude Smaller Companies' Access to Key Data or Use Data to Gain a Competitive Advantage

- 1.22** As Chapter 18 discusses, unlike Microsoft in the 1990s, today's dominant firms can use the velocity of data to discern trends well before others. In monitoring search queries, Google, for example, can predict flu outbreaks well before the government health agencies can. Some dominant platforms through similar nowcasting (such as watching for trends in their proprietary data of consumer behaviour while browsing the web and offline) can now monitor emerging business models in real time. In assessing these trends, dominant firms can quickly identify (and squelch) nascent competitive threats. The dominant firms can acquire these still small firms before they become significant competitive threats or use other means to blunt their growth.
- 1.23** Thus, in today's world, the dominant firms that have a significant data-advantage over rivals may enjoy a unique radar system that can track the flight path of competitive threats shortly after they take off from distant fields. The monopoly can

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<sup>21</sup> Office of Fair Trading, Completed Acquisition by Motorola Mobility (Google, Inc) of Waze Mobile Ltd, ME/6167/13, 17 December 2013.

intercept or shoot down the threats long before they become visible to regulators and others.

### H. Myth 8: Competition Officials Should Not Concern Themselves with Data-Driven Industries because Competition Always Comes from Surprising Sources

In the long run, monopolists, like the rest of us, die. But consumers should not suffer the harm from anticompetitive mergers and monopolistic abuses, because eventually a disruptive innovator will emerge. **1.24**

As Chapters 15, 16, and 18 discuss, the harm from anticompetitive data-driven mergers and abuses by dominant firms can be significant. The harm not only involves higher advertising rates. The abuses of powerful tech firms can cause greater harm in the loss of choice, innovation, privacy, individual autonomy and freedom, and citizens' trust in a market economy. The issue of 'data justice' is gaining traction especially as an inequality issue, as companies use data to exploit society's more vulnerable members, thus furthering the income divide.<sup>22</sup> The harm, the OECD recognized, can strike 'the core values of democratic market economies and the well-being of all citizens.'<sup>23</sup> **1.25**

### I. Myth 9: Competition Officials Should Not Concern Themselves with Data-Driven Industries Because Consumers Generally Benefit from Free Goods and Services

Consumers do not invariably benefit when services are 'free', because these services are not actually free. Consumers pay with their personal data and privacy. Because of the lack of transparency, consumers often do not know how much they actually pay for these services. In fact, economist Carl Shapiro, in a 2015 workshop, criticized the notion that because something is 'free', it must be good for consumers. Prices can be positive, zero, or negative (where consumers are subsidized).<sup>24</sup> **1.26**

In a January 2015 interview, Commissioner Vestager discussed the linkages among data, privacy, and competition: 'Very few people realize that, if you tick the box, your information can be exchanged with others.... Actually, you are paying a price, **1.27**

<sup>22</sup> See generally <http://datajustice.org>.

<sup>23</sup> OECD, *Data-Driven Innovation*, above note 1, p 7.

<sup>24</sup> Daniel Donegan, 'Summary of Committee Program on Antitrust and Zero Price Products', *The Price Point, Newsletter of the ABA Antitrust Pricing Conduct Committee*, Winter 2015, p 16.

an extra price for the product that you are purchasing. You give away something that was valuable. I think that point is underestimated as a factor as to how competition works'.<sup>25</sup> Vestager made a similar point during her confirmation hearings before the European Parliament, where she described data as 'the new currency of the Internet'.<sup>26</sup>

## J. Myth 10: Consumers Who Use these Free Goods and Services Do Not Have Any Reasonable Expectation of Privacy

**1.28** Granted some people share a lot of personal details online. But generally we can infer consumers' privacy preferences from their choices when

- consumers are *fully informed* about their choice's benefits and costs (including privacy risks), and
- the marketplace offers a *competitive array* of options that match actual privacy preferences.

As we discuss, that often is not the case today.

**1.29** The issues we explore are timely. Until early 2015, the European and US competition authorities, which were supposed to screen mergers to prevent those likely to be anticompetitive, largely did not consider the implications of a data-driven economy on competition policy. There are some exceptions, as we discuss. But that is rapidly changing, with the Europeans taking the lead. The European Commission in 2015 launched an antitrust competition inquiry into the e-commerce sector in the EU. The inquiry, according to the Commission press release, 'will allow the Commission to identify possible competition concerns affecting European e-commerce markets'.<sup>27</sup> A final report of the sector inquiry is expected in 2017. Also in 2015, the European Commission adopted its 'Digital Single Market Strategy', which is built on three pillars: '(1) better access for consumers and businesses to digital goods and services across Europe; (2) creating the right conditions and a level playing field for digital networks and innovative services to flourish; (3) maximising the growth potential of the digital economy'.<sup>28</sup>

<sup>25</sup> Vestager Interview, above note 8.

<sup>26</sup> James Kanter, 'Antitrust Nominee in Europe Promises Scrutiny of Big Tech Companies', *New York Times*, 3 October 2014.

<sup>27</sup> European Commission, 'Antitrust: Commission Launches e-commerce Sector Inquiry', Press Release, 6 May 2015, [http://europa.eu/rapid/press-release\\_IP-15-4921\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4921_en.htm).

<sup>28</sup> European Commission, 'A Digital Single Market for Europe: Commission Sets Out 16 Initiatives to Make It Happen', Press Release, 6 May 2015, [http://europa.eu/rapid/press-release\\_IP-15-4919\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4919_en.htm).

The implications of Big Data on competition policy will likely be part of the mix. The Commission, for example, will ‘comprehensively analyse the role of online platforms (search engines, social media, app stores, etc.) in the market’, and examine ‘the non-transparency of search results and of pricing policies, how they use the information they acquire, relationships between platforms and suppliers and the promotion of their own services to the disadvantage of competitors—to the extent these are not already covered by competition law’.<sup>29</sup> **1.30**

Other competition officials, however, are more closed-minded. Some believe that privacy has little, if anything, to do with competition policy. Others believe that they have the right tools, know the proper questions, and simply must wait for the right case to present itself. This worldview, to put it bluntly, is misguided. Our purpose here is to show why the competition authorities’ current toolkit for analysing many data-driven mergers and business strategies is outdated. The competition agencies, through 2015, have played a minor role in protecting consumers from the anticompetitive risks of a data-driven economy. Nor, as we discuss, can competition agencies simply push the issue to another agency. Privacy officials, with their behavioural remedies, cannot pick up the slack. Competition policy plays a key role in ensuring that citizens get the benefits of a data-driven economy, and in minimizing its risks. **1.31**

Our book is divided into five parts. Part I outlines the four ‘V’s—volume, velocity, variety, and value—of Big Data, and their competitive significance. We also examine why market forces have not provided consumers with better mechanisms to protect their privacy interests. Part II looks at how the competition authorities assess data-driven mergers and the issues they identified (and missed). Part III explains some of the challenges that Big Data currently present to the conventional antitrust wisdom. Given these challenges, some argue for a limited role, if any, for competition policy in data-driven markets. Part IV identifies several risks if competition authorities ignore or downplay data-driven mergers and the abuses by dominant tech firms. As the current analytical tools are at best average, and at worst useless, in assessing certain data-driven strategies, Part V advances a research agenda for the competition agencies and scholars to better understand the implications of a data-driven economy. **1.32**

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<sup>29</sup> Ibid.