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Online Platforms and the EU Digital Single Market

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Online Platforms and the EU Digital Single Market Submission to the House of Lords, Internal Market Sub-Committee

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1. Summary

1.1. The following submission is based on joint research work conducted by Professors Ezrachi and Stucke.[3] Our research explores the effects Big Data and technology have on competition dynamics. It reviews the use of technology to facilitate collusion, conscious parallelism, and unilateral price discrimination as well as the effects of online and mobile platforms.

1.2. Our submission addresses the following issues:

1.2.1. What role does data play in the business model of online platforms?
1.2.2. Can data-driven online platforms have excessive market power?
1.2.3. If so, how can they abuse this power?
1.2.4. If so, how does this happen and what effect does it create?
1.2.5. Is European competition law able adequately to address abuse by online platforms?

2. What role does data play in the business model of online platforms?

2.1. The innovations from computer algorithms and Big Data can have a transformative, positive impact. In many markets, data and computer algorithms have lowered entry barriers, provided new channels for expansion and entry, and stimulated competition. Similarly, positive effects emerge from the use of self-learning algorithms and Big Analytics – that is, technology used to gather, assess, process, and act upon the increasing volume and variety of data at faster speeds.

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[2] Maurice E. Stucke is a law professor at the University of Tennessee, of counsel at the Konkurrenz Group, and co-founder of the Data Competition Institute. He has twenty years experience handling a range of competition policy issues in both private practice and as a prosecutor at the US Department of Justice. At the Antitrust Division, he successfully challenged anticompetitive mergers and restraints in numerous industries, and focussed on policy issues involving antitrust and the media. As a Special Assistant US Attorney, he prosecuted a variety of felony and misdemeanour offences. As an associate at Sullivan & Cromwell, Professor Stucke assisted in defending Goldman Sachs, CS First Boston, and Microsoft in civil antitrust litigation. The Legal Aid Society presented him two awards for his criminal appellate and defence work.

[3] Many of the issues we discuss herein are explored in greater detail in THE END OF COMPETITION AS WE KNOW IT: THE RISE OF PRICE ALGORITHMS, MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE (Harvard University Press, forthcoming 2016).

2.2. Data has always played a central role in any market economy. Information enables: customers to learn more about products and sellers; and, companies to make better decisions about expansion and entry. Consequently, the general belief is that improving the flow of information should increase efficiency, competition and our welfare. But, the term "Big Data" encompasses much more than aggregated market information. We are entering the age of "datafication", which involves "taking all aspects of life and turning them into data."[4] In particular, in a data-driven economy, personal data on our behaviour, preferences, weaknesses and habits is the new currency for the advertising- and marketing-dependent business models.

Rise of a Data-Driven Economy

2.3. Big Data and the rise of data-driven business models have been for several years a hot topic in the business literature. The business literature identifies core themes of the strategic implications of Big Data.

2.4. First, Big Data is on many senior executives' minds. One survey of two marketers from B2B and B2C organisations in the UK and Europe found that 83 percent of marketers have decided already to invest in Big Data, "because of the granular and detailed understanding it gives them about their consumers."[5]

2.5. Second, companies are increasingly adopting business models that rely on personal data as a key input. The exponential growth of the Internet has seen a proliferation of online platforms – ranging from e-mail platforms, social networks, texting, mapping, video sharing, gaming and online communications; many of which are provided free of charge. The common business model in these multi-sided markets is based on the potential income firms may generate from utilising their customer base. Most noticeably, firms offer consumers a free product or service and earn their income from in turn selling to advertisers the ability to access these consumers with targeted behavioural ads. As the European Data Protection

[4] Kenneth Cukier & Viktor Mayer-Schoenberger, The Rise of Big Data: How It's Changing the Way We Think About the World, Foreign Affairs, 2013, at 35.

[5] Amy Gravelle, Can Big Data Turn Today's Marketers Into Tomorrow's Data-Empowered CEOs?, Marketing Magazine, Feb. 24, 2014, http://www.marketingmagazine.co.uk/article/1282025/big-data-turn-todays-marketers-tomorrows-data-empowered-ceos; dnx, "When will marketing be promoted to the boardroom? The reality of big data's promise" conducted by Circle Research, Mar. 21, 2014, reprinted in eMarketer, Apr. 2014, http://www.quantita.pe/documentos/eMarketer_Roundup_Using_Big_Data_to_Power_Marketing_Performance.pdf (Survey of marketing professionals in Europe in January 2014 about the ways marketing departments use big data. 30 percent identified said to store multichannel information (e.g., sales, website, mobile, social media data, etc.); 29 percent said to segment customers (discover new micromarkets); 29 percent said to determine marketing strategy; 23 percent said to analyse buying behaviour patterns; 23 percent said to justify marketing strategy; 21 percent said to develop personalised communications for individual customers; 15 percent said to predict future trends; 13 percent said to develop personalised offers for individual customers; 12 percent said to respond to customer requests and/or complaints in real time (e.g., on social media); 8 percent said to collaborate with other organisations (e.g., share data); 4 percent said to set price points; 2 percent said to sell lists of data to generate revenue; 4 percent said "Other" ; and, 2 percent said "None of these").

Electronic copy available at: http://ssrn.com/abstract=2677267

Supervisor found, "Through the supply of payment-free services, these companies compete for the attention and loyalty of individuals whose use of those services will generate personal data with a high commercial value."[6] Importantly, data-driven business models can be pro-competitive, yielding innovations that benefit both consumers and the company. Collecting and analysing data can provide the company with insights on how to use resources more efficiently and to outmanoeuvre dominant incumbents. The European Commission noted in 2015 that "the use of big data by the top 100 EU manufacturers could lead to savings worth €425 billion," and that, "by 2020, big data analytics could boost EU economic growth by an additional 1.9%, equalling a GDP increase of €206 billion."[7]

2.6. Third, companies, with data-driven business models, are increasingly undertaking strategies to obtain and sustain a competitive advantage. Companies strive to acquire a "Big Data advantage" over rivals. Big Data, one 2014 survey found, is playing "a pivotal role in the strategic decision-making of an organization" with "69% of marketers [from the sample] …already using it to shape their overall operational and commercial approach" and 90% "felt that failing to put it at the heart of a business strategy will lead to competitive disadvantages."[8]

2.7. Fourth, to acquire a "data advantage" over rivals, companies will turn to acquisitions. Given that data's value depends on its volume, variety, and how quickly the data is collected and analysed, companies will increasingly focus on opportunities to acquire a data-advantage through mergers. According to one estimate, the number of Big-Data-related mergers doubled between 2008 and 2013 - from 55 to 134.[9]

2.8. Fifth, as data-driven mergers increase, one might expect - as in the TomTom/Tele Atlas merger[10] and the Microsoft/Yahoo! joint venture - the merging parties to raise data-driven efficiencies.[11]

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[6] EDPS Preliminary Report, Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy, Mar. 2014, at 10. Available online: https://secure.edps.europa.eu/EDPSWEB/webdav/shared/Documents/Consultation/Opinions/2014/14-03-26_competitition_law_big_data_EN.pdf.

[7] European Commission Staff Working Document, A Digital Single Market Strategy for Europe – Analysis and Evidence, May 6, 2015, at 62. Available online: http://ec.europa.eu/priorities/digital-single-market/docs/dsm-swd_en.pdf.

[8] Gravelle, *supra* note 5.

[9] European Data Protection Supervisor, Report of Workshop on Privacy, Consumers, Competition and Big Data 2 Jul. 11, 2014, at 1. Available online: https://secure.edps.europa.eu/EDPSWEB/webdav/site/mySite/shared/Documents/Consultation/Big%20data/14-07-11_EDPS_Report_Workshop_Big_data_EN.pdf.

[10] Case COMP/M.4854—*TomTom/Tele Atlas*, Comm'n Decision, 2008 O.J. (C 237) 53–54, ¶¶ 245–250.

[11] Press Release, U.S. Dep't of Justice, Statement of the Department of Justice Antitrust Division on its Decision to Close Its Investigation of the Internet Search and Paid Search Advertising Agreement Between Microsoft Corporation and Yahoo! Inc. (Feb. 18, 2010); Case Comp/M. 5727—*Microsoft/Yahoo! Search Business Regulation*, Comm'n Decision, 2010 O.J. (C 020/08).

2.9. Sixth, businesses - to obtain or maintain their competitive advantage - will have strong incentives to limit their competitors' access to these datasets, prevent others from sharing the datasets, and be adverse to data-portability policies that threaten their data-related competitive advantage. Companies will battle over who gets the valuable consumer data.

Data and competition

2.10. Big Data and Big Analytics are neither good, nor bad, nor neutral. Their welfare effects depend on their intended purpose, use and the market structure.

2.11. Data can be a key competitive input. The OECD observed, "Big data now represents a core economic asset that can create significant competitive advantage for firms and drive innovation and growth."[12]

2.12. On the other hand, our reliance on data and analytics opens the door to new competition dynamics and the possibility for welfare-reducing effects. Evidently, there is a "growing potential for big data analytics to have an immediate effect on a person's surrounding environment or decisions being made about his or her life."[13] As the European Data Protection Supervisor observed, "Governments and companies are able to move beyond "data mining" to "reality mining", which penetrates everyday experience, communication and even thought."[14] We see this with many online platforms. We also see it with automated stock trading and other machine learning, where autonomous systems, through algorithms, can "learn from data of previous situations and… autonomously make decisions based on the analysis of these data."[15]

2.13. Our growing reliance on the digitalised environment makes us visible and detectable. Our purchasing patterns are recorded, along with our preferences regarding entertainment, news, and websites. Digitalized algorithm-based markets are characterized by the ability of sellers to "shadow" the activities of users and harvest data on human behaviour. This new market environment provides sophisticated players with the capacity to monitor customers' activities, accumulate data, and react to market changes with ever-increasing speed. Using sophisticated

[12] OECD, "Exploring data-driven innovation as a new source of growth: Mapping the policy issues raised by "big data"" in Supporting Investment in Knowledge Capital, Growth and Innovation, OECD Publishing, Oct. 10, 2013, at 319.

[13] Executive Office of the President, President's Council of Advisors on Science and Technology, Report to the President, Big Data and Privacy: A Technological Perspective, May 2014, at 5 (giving as examples of high-velocity data "click-stream data that records users' online activities as they interact with web pages, GPS data from mobile devices that tracks location in real time, and social media that is shared broadly"). Available online: https://www.whitehouse.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf.

[14] EDPS, Towards a new digital ethics: Data, dignity and technology, Opinion 4/2015, Sept. 11, 2015, at 6.

[15] OECD Interim Synthesis Report, Data-driven Innovation for Growth and Well-being, Oct. 2014, at 4. Available online: http://www.oecd.org/sti/inno/data-driven-innovation-interim-synthesis.pdf.

algorithms, companies engage in data mining, data trade, online marketing, pattern recognition,[16] demand estimation and price optimisation.[17] This information is the fuel that drives our Internet environment. Data is the currency – the commodity – which provides us with "free" access to many online services and products and an advanced Internet environment. For this abonnement to be available, a price is paid.

2.14. Many in society, according to surveys in the EU and US, are resigned to the trade-offs and "cost" of "free." We have become accustomed to "free" products. We also see the subtle implications of "free," such as targeted promotions, coupons and relevant ads. We expect our web-searches to deliver the right results, swiftly. But, increasingly, we have concerns when the "cost" is too high, or when we lose control over it. Indeed, growing concerns as to the invasion of privacy have increased criticism of the tracking, harvesting and use of information. It has been reported that over "90 percent of Americans feel they've lost control over how their personal information is collected and used on the Internet."[18]

2.15. Aside from the privacy implications, technological transformation has a distinct impact: upon the competitive environment in which we operate; changing the landscape in which we engage in commerce; and, changing the environment in which buyers and sellers interact. Indeed, even a cursory look at individuals, and the way in which they now purchase goods and services, reveals a markedly increased reliance on their smartphones and the Internet. These technological advances have accelerated the relative decline of high street trade and the concomitant rise of digitalised markets. These changes have also affected those who supply and sell goods and services to consumers, and the way in which they interact and compete on markets. Companies' algorithms, fuelled by the increasing flow of data, will perfect strategies to optimise profitability. These developments will give rise to new forms of competition and commerce.

3. **Can online platforms exercise excessive market power?**

3.1. To understand how online platforms can exercise market power, we outline several positive feedback loops and network effects involving online multi-sided platforms (such as Google, Bing, Price Comparison Websites (PCWs), and Facebook).

3.2. *Traditional network effects* are observable in social network platforms, like Facebook, where bigger is better. As more people join Facebook, the utility of the platform to users increases as it become easier to connect with others. The value

[16] Christopher M. Bishop, "Pattern Recognition and Machine Learning", Springer Science and Media, 2006.
[17] Pricing Algorithms: Is the Price You Pay Right?, Bloomberg, May 12, 2015. Available online: http://www.bloomberg.com/news/videos/b/02d3f0f0-e653-4ca1-8bdd-0f95a5a81212.
[18] Allen Grunes, Tracking not allowed (unless you're Google). Politico, Oct. 2015. Available online: http://www.politico.com/agenda/story/2015/10/tracking-not-allowed-unless-youre-google-000261.

of the network increases with its growth. As the big platforms get bigger, the entry barriers increase to obtain the necessary scale to meaningfully compete.

3.3. *Trial-and-Error* – This network effect is linked to the scale achieved by trial-and-error, or learning by doing. For instance, an increase in the number of searches increases the search engine's likelihood of identifying relevant results. In other words: the more consumers who use the search engine and the more searches they run, the more trials the search engine has in predicting consumer preferences, the more feedback the search engine receives of any errors, and the quicker the search engine can respond with recalibrating its offerings. Increased traffic volumes make more experiments possible, thereby improving search results. Naturally, the quality improvement attracts additional consumers to that search engine compared to competitor sites. In effect, the more users, the larger (and more heterogeneous) the sample size, and the better the search engine can identify relevant responses for both popular and less frequent queries ("tail" queries). Interestingly, each user's utility from using the search engine increases as others use it as well.

3.4. *Scope of Data* – This network effect involves the scope of data on the user. Search results, for example, can improve from the variety of personal data on users. If people use, besides the search engine, other services offered by the company (such as e-mail, web-browser, texting, mapping, purchasing, etc.), the company, in collecting the variety of personal data, can develop user profiles to better predict users' tastes and interests, and better target users with more relevant organic and sponsored search results. This feedback loop adds another dimension: it is now no longer the trial-and-error, learning-by-doing from earlier searches, but also learning of user's tastes and preferences from the variety of personal data it collects across its platform (such as the user's e-mail, geo-location data, social network and browser history) that enables the personalisation of search results and the targeting of users with specific sponsored ads that they will likely click (as well as organic search results).

3.5. *Spill-overs and Snowball Effect* – This effect concerns the way network effects on the "free" side can spill over to the "paid" side, and each can reinforce the other. The inflow of many users with heterogeneous search inquiries, for example, will attract a greater variety of advertisers to the platform. The search platform can use the inflow of personal data to better target consumers with specific targeted advertising across its platform of free services (such as sponsored search results, ads in e-mails and displaying ads in videos, etc.) in the moments that matter for a purchasing decision. In targeting users with more relevant ads (or ads that users will likelier click), the search engine increases its advertising revenue and profits. Moreover, the search engine can target users with these personalised ads across media (such as personal computers, smartphones, tablets and, soon, household appliances) and across services (such as texts, maps, videos, etc.). This too increases the likelihood of consumers clicking on a relevant sponsored ad (which

generates revenue on a cost-per-click basis) or seeing a display ad (which generates revenue on a cost-per-impression basis). As more users are drawn to the platform, and as the company amasses a greater variety of data to effectively target consumers with relevant online ads, the broad platform can reduce the advertisers' fixed costs of managing multiple ad campaigns. As more people use the search engine, the more advertisers will use the platform, the more relevant and targeted the advertisements, the likelier that users will click the ads, and the more profits the search engine has to expand its range of free services and to ensure that its service remains the default search engine on various portals to the Internet (for example, developing one's own browser and paying other browsers to have one's search engine be the default).

3.6. The above network effects illustrate the way in which online platforms may acquire market power. For example, more users generate more search queries which generate more trial-and-error, which yields better search results, which attracts more users and advertisers to the search platform, which enables better profiling of users and greater likelihood of users clicking the ads, which generates more advertising revenue to enable the search engine to offer even more free services, which enables consumers to spend more time on the company's platform, which allows it "to gather even more valuable data about consumer behaviour, and to further improve services, for (new) consumers as well as advertisers (on both sides of the market)."[19]

3.7. One important destabilising feature comes in the form of new technology and innovation which could undermine the growth of the large players. That risk is important for the operation of a market dominated by large players. Even if it does not lead to an actual entry of a new player into the market, it might generate sufficient competitive pressure which would "police" the activities of the large players. As the risk reduces, either due to an enhanced network effect, technological superiority or lack of outside options, the online platform may behave to an appreciable extent independently of its competitors and customers, and could more easily abuse its dominant position.

4. **Several ways in which data-driven online platforms can abuse their dominant position**

Quality Degradation

4.1. By and large, when a product or service is offered for free, the primary dimension of competition is typically quality. A competitive market environment is therefore likely to stimulate investment in quality of products and services. Yet, when a firm mainly earns its profits from one side of the market, such as advertising, its incentive to invest in quality on the other side of the market, such as

[19] OECD Interim Synthesis Report, *supra* note 15, at 29.

providing a search engine, may be distorted. In such instances, it may have an incentive to intentionally degrade quality on the free side of the market below levels that consumers prefer, if doing so increases its profitability (or market power).

4.2. Given data-driven network effects, an online platform can reduce quality if three necessary conditions exist: *first*, the search engine has the ability and economic incentive to degrade quality; *second*, consumers cannot accurately assess quality; and *third*, it is difficult or costly for others to convey to consumers the products' or services' inherent quality differences or to prompt them to switch.[20]

4.3. Search engines, for example, can intentionally degrade quality in several ways. A search engine, to incentivise users to click on sponsored advertisements or the results of its affiliated business, can promote, and rank higher, its sponsored results and provide fewer, and rank lower, its more relevant organic results.

4.4. Under a "hold-up" scenario, the search engine could lower the ranking of potential advertisers appearing in the organic search results to pressure the businesses to advertise with the search engine, namely to bid for keywords to get the attention of viewers who do not scroll down the list of search results.

4.5. As the search engine expands to other services (such as offering a vertical search, such as shopping, restaurant reviews, etc.), the search engine may systematically favour its other products or services over more relevant competing products and services: "the platforms may alter the ranking of the organic search results such that, from the user's perspective, firms offering competing products to the sponsored links are given a less-than-optimal ranking on the organic side."[21]

4.6. The search engine can degrade other dimensions of quality, such as collecting more personal data and providing less privacy protection for the data, than consumers would otherwise prefer.

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[20] M.E. Stucke and A. Ezrachi, When Competition Fails to Optimise Quality: A Look at Search Engines, Yale Journal of Law and Technology (forthcoming - Fall 2015 issue). Available online on SSRN: http://ssrn.com/abstract=2598128.

[21] *See, for example*, Amelio & Magos, Economic background of the Microsoft/Yahoo! Case, Competition Policy Newsletter, Issue 2, 2010, at 51 ("For instance, instead of displaying links to additional merchants in the organic search results, search engines could display links to 'informational' sites or placing the links winning the auctions also in prominent positions in the organic search results, in order to decrease substitution between organic and paid searches."); FTC Staff Report, Google Inc. File No. 111-0161, Aug. 8, 2012, at 92. Released by The Wall Street Journal online: http://graphics.wsj.com/google-ftc-report/img/ftc-ocr-watermark.pdf (stating that "Google's threat (and willingness) to degrade its own web search product—by banishing high-quality vertical websites from its web search results altogether—suggests that Google's motive in scraping high-quality content from its vertical competitors was not pro-competitive"). 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 the FTC economists and Google, were not released. Third, although the Competition Staff recommended the FTC to file a complaint, the Commissioners elected not to.

4.7. This degradation of quality can hurt consumers with higher prices (due to higher advertising costs), higher search costs (in having to spend more time to find the relevant result), less relevant results (when under the hold-up scenario companies refuse to advertise), and less innovation (when companies know that however good their products or services are, they will be unable to effectively reach consumers online). Given the importance of search engines as a gateway to the Internet, intentional search degradation can also chill the marketplace of ideas.[22]

Price Discrimination

4.8. While perfect price discrimination may be unattainable, "almost perfect" price discrimination may be within reach for dominant online platforms. Self-learning algorithms may use Big Data to categorise consumers in discrete groups, and charge each group different prices estimated by the likely reservation price.

4.9. Here is where Big Data, learning-by-doing, and the scale of experiments come into play. Pricing algorithms can see how other people react, see how the user reacts, and can predict how the user will likely react under similar circumstances. Users are then divided into subgroups of like-minded, like-price-sensitive individuals, who share common biases and levels of willpower. This subsequently enables the algorithm to more accurately approximate the user's reservation price, observe behaviour, and adjust. Thus the more times the algorithm can observe what you and others within your grouping do under various circumstances, the more experiments it can run, the more it can learn through trial and error what your group's reservation price is under different situations, and the more it can recalibrate and refine.

4.10. "Almost perfect" price discrimination supports a transfer of wealth from customers to sellers. The industry jargon for price discrimination is price optimisation or dynamic differential pricing. Dynamic differential pricing, as MIT professor Yossi Sheffi has put it, is the "science of squeezing every possible dollar from customers."[23] Companies maximise profits by extracting as much consumer surplus as they can - charging higher prices to people who can and will pay more.[24]

Parity Clauses

4.11. Parity clauses, also known as most-favoured-nation clauses (MFNs), are designed to address the hold-up problem in vertical relations and facilitate

[22] On the relationship between competition and quality see: A. Ezrachi and M.E. Stucke, The Curious Case of Competition and Quality, 3 Journal of Antitrust Enforcement 227 (2015). Available online: http://antitrust.oxfordjournals.org/content/current

[23] James Surowiecki, In Praise of Efficient Price Gouging, MIT Technology Review, Aug. 19, 2014. Available online: http://www.technologyreview.com/review/529961/in-praise-of-efficient-price-gouging/.

[24] *Id.*

investment and efficiencies by the online web-aggregator – the Price Comparison Website (PCW). These clauses, which have become a common feature in recent years, aim to provide assurance to the online platform that it has received goods or services from the supplier, at terms that are at least as favourable as those offered to any other buyers. They are therefore instrumental to the operation of PCWs, and as such facilitate the competitive market dynamic fostered by web-aggregators – the increase in market transparency and the increased competition between suppliers.[25]

4.12. However, the restrictions afforded by MFNs may undermine potential positive welfare gains, when these clauses are designed too broadly.

4.13. MFNs are commonly divided into two categories: narrow and wide, differentiated by their scope and effects. A *narrow* MFN clause links the supplier's price and terms quoted on a PCW to those available directly on the upstream supplier's website, ensuring that the former will not be less attractive than the latter. (For example, an airline will not offer a lower airfare for a particular route on its own website than on the PCWs such as Kayak or Orbitz.) A *wide* MFN clause provides for similar protection on a broader scale, aiming to ensure that the price and terms quoted through the platform in question will not be higher than the price available directly on the upstream supplier's website *or* on any other platform.

4.14. In addition to the narrow/wide classification, MFNs may also be categorised by the distribution model that they support. In a *wholesale model,* the agreement governs the price at which the upstream supplier will sell to the online platform, but does not determine the final price available on the platform. Under an *agency model,* the upstream supplier sets the final price on the platform, and the platform receives a commission for each sale made under an agreed revenue-sharing clause. In these cases, the platform does not purchase the product but rather acts as an agent, selling it on the supplier's behalf.

4.15. It is the combination of wide MFNs and the agency model that has attracted the most scrutiny by competition agencies.[26] Common theories of harm include excessive intermediation, limits on low cost entry to the downstream market, and

[25] For a detailed review of these competitive effects see: A. Ezrachi, The Competitive Effects of Parity Clauses on Online Commerce. Available online on SSRN: http://ssrn.com/abstract=2672541.

[26] For example, see: Bundeskartellamt Press Release, 'Amazon abandons price parity clauses for good', Nov. 26 2013. Available online: http://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2013/26_11_2013_Amazon-Verfahrenseinstellung.html%3Fnn%3D3599398; HRS - Best price clauses, B 9 - 66/10, Dec. 20, 2013. Available online: http://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Entscheidungen/Kartellverbot/B9-66-10.pdf;jsessionid=9BE25EB94E65170764A6BA609635D89A.1_cid378?__blob=publicationFile&v=3; *United States v. Blue Cross Blue Shield of Michigan*, 809 F. Supp. 2d 665 (E.D. Mich. 2011); DOJ Press release, Justice Department Files Antitrust Lawsuit Against Blue Cross Blue Shield of Michigan, Oct. 18, 2010. Available online: www.justice.gov/atr/public/press_releases/2010/263227.htm.

price uniformity. These agreements should be distinguished from narrow parity clauses, which only concern the relationship between a single web-aggregator and a single supplier, and do not govern the relationship between that supplier and other PCWs. Narrow MFNs have largely been regarded as an acceptable restriction necessary for the attainment of the benefits derived by PCWs.[27]

Other Data-Driven Abuses by Dominant Platforms

4.16. When scale and scope from data are important, one risk is that a dominant data-driven platform uses exclusionary tactics to prevent rivals from achieving the minimum efficient scale. Scale can be especially important in data-driven industries, such as search and search advertising.

4.17. A second risk arises when a monopoly uses its data-advantage in a regulated market to leverage its power in another market. Such was the case when a regulated monopoly GDF Suez was using its vast database of customers on regulated tariff to target them with deals on gas and electricity. The data, which was otherwise unavailable to competitors, would enable rivals to precisely locate gas consumers and know their consumption level, in order to propose to them offers that are better suited to their profile.[28] Moreover, the database was not the "product of a specific innovation that GDF Suez may have introduced, but is merely inherited from its former status as monopolistic gas supplier."[29]

4.18. A third risk involves when the platform increases consumers' switching costs to obtain valuable data (and preventing rivals from accessing the data). In finding that the Facebook/WhatsApp merger was unlikely to be anticompetitive, the European Commission inquired, among other things, whether: (i) users of the consumer communications apps are locked-in to any particular physical network, hardware solution or anything else that needs to be replaced in order to use competing products; (ii) consumers had control over, and there were any significant limits on, the portability of their data; and, (iii) the parties have any means to preclude competitors from recreating a user's network on the parties' applications. [30] Presumably, if the answer was "yes", then the risks of anticompetitive unilateral conduct increase. These three factors, which identify several more potential abuses of a dominant position, involve consumers' switching costs. The basic premise is that as the time and cost needed to switch products or services increase, the greater the consumer is locked-in, and the greater

[27] Illustrative is the scrutiny of Booking.com's practice and commitments across Europe. See, for example, the Swedish Competition Authority commitment decision, Bookingdotcom Sverige AB and Booking.com, Apr. 15, 2015, Ref no. 596/2013; the French Competition Agency's decision: Decision no 15-d-06 of 21 April 2015 on the practices implemented by Booking.com B.V., Booking.com France SAS and Booking.com Customer Service France SAS in the online hotel reservation sector.

[28] Autorité de la concurrence, Press Release: Gas Market, Sept. 9, 2014. Available online: http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=592&id_article=2420.

[29] *Id.*

[30] Case COMP/M.7217—*Facebook/WhatsApp*, Comm'n Decision, 2014 O.J. (C 7239) 24–25, ¶ 134.

the dominant firm's ability to increase price, or for our purposes, reduce other parameters of competition, such as quality, including the level of privacy protections. This is especially the case where consumers cannot readily predict the costs or quality levels over time.

4.19. A fourth risk involves intra-platform competition. A platform operator can inhibit rivals on its platform or give preference to its own programs or services. Competition authorities are sensitive to vertical integration by a dominant platform operator. This is the case where a dominant platform operator also becomes a seller on the platform. The platform operator's incentives now change, as it may earn greater profits by steering users and advertisers to its own products and services to the detriment of rival sellers (and contrary to consumers' wishes).

4.20. The platform can abuse its dominant position to harm competitors and lessen competition: by degrading the functionality of the independent app; by having it run slower than the operating system's app; by reducing or eliminating the independent app's ability to distribute its products by making it harder for consumers to find the product on its search engine or app store; by limiting any competing app's revenues stream by excluding it from its online wallets, such as Apple Pay or Google Wallet; or, by giving preferential treatment to its own products, by preloading its app on the smartphone, having it on the opening screen, or integrating its own products into its other popular products, including search and the smartphone operating system.

5. **Express and tacit collusion**

5.1. Collusion may be facilitated when sellers on a dominant online platform all use the same pricing algorithm. Indeed the platform can serve as the "hub" that sets and enforces uniform pricing by every seller in a hub-and-spoke conspiracy.

5.2. Another dimension in which the rise of big analytics may change the dynamics of competition concerns instances in which computer algorithms are used to facilitate the conditions required for stable tacit collusion.[31] "Tacit collusion, sometimes called oligopolistic price coordination or conscious parallelism, describes the process, not in itself unlawful, by which firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximizing, supracompetitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions and subsequently unilaterally set their prices above the competitive level."[32]

[31] For a detailed review, see: A. Ezrachi and M.E. Stucke, Artificial Intelligence & Collusion: When Computers Inhibit Competition. Apr. 8, 2015. Available online on SSRN: http://ssrn.com/abstract=2591874.

[32] *Brooke Group, v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993); Glossary of Industrial Organisation Economics and Competition Law, compiled by R. S. Khemani and D. M. Shapiro, commissioned by the Directorate for Financial, Fiscal and Enterprise Affairs, OECD, 1993. Available online: http://www.oecd.org/dataoecd/8/61/2376087.pdf.

5.3. Collusion may be facilitated when the firm programmes an algorithm, among other things, to monitor price changes and swiftly react to any competitor's pricing. The algorithm may be programmed to follow price increases when sustainable, i.e., when others timely follow so that no competitor benefits from keeping prices lower. It may engage in "predictive analytics" – that is the study of patterns of pricing and commercial decisions. Such analysis will enable firms to combine "real-time, historical and third-party data to build forecasts of what will happen in their business months, weeks or even just hours in advance."[33]

5.4. An industry-wide use of such pricing algorithms is likely to support conscious parallelism in instances in which, absent algorithm intervention, a competitive dynamic may have prevailed.

5.5. It is important to nuance the above proposition – tacit collusion will only be sustained in some markets in which all the economic conditions for conscious parallelism are present. Further, even when these conditions are present, the dynamics of a market may trigger change or new entry and destabilise conscious parallelism. [34] Similarly, technology may provide a disruptive force, allowing algorithms to successfully "cheat" by lowering the price (e.g., by providing a selective discount). Still, with the above caveats in mind, we believe that this dynamic will become more common in the future. The nature of electronic markets, the availability of data, the development of similar algorithms, and the stability and transparency they foster, are likely to push markets which were just outside the realm of tacit collusion into interdependence.

6. **Is European competition law able adequately to address abuse by online platforms?**

6.1. No doubt, the online revolution has done wonders to the competitiveness of some markets. But markets, although seemingly competitive, may not necessarily increase consumers' welfare. Markets may exhibit many sellers and a variety of choices – common ingredients of a competitive environment – yet fail to enhance welfare.

6.2. Technology and data-driven markets make the task of identifying the adequate level of intervention a challenging one. The risk of chilling innovation and investment due to excessive intervention is real, and a careful, case-by-case assessment for the nature and level of intervention is necessary. With that in mind,

[33] R. Moore-Colyer, Predictive analytics are the future of big data, V3, Oct. 9, 2015. Available online: http://www.v3.co.uk/v3-uk/analysis/2429494/predictive-analytics-are-the-future-of-big-data.

[34] Note that the algorithms may be designed to deter entry, provide complex signals as to profitability and engage in limit pricing or other strategies.

however, the above-described dynamics and abuses raise challenging questions as to the adequacy of the current enforcement approach by competition officials.

6.3. Generally, the price-centric models that competition officials have relied upon do not necessarily measure the competitive effects of data-driven mergers involving multi-sided platforms, where one side is free.[35] Quality is often the important parameter of competition when the product or service is free; and yet, at times, the competition authorities' assumptions about the relationship between competition and quality break down.[36]

6.4. Other possible enforcement gaps involve price discrimination and tacit collusion:

6.4.1. *Price Discrimination* – Price discrimination may be welfare-enhancing. Indeed, competition officials infrequently challenge it. Yet, in a digitalised environment, one may argue that "almost-perfect" price discrimination should justify intervention. While behavioural advertising, personalised searching, and targeted pricing can help reduce our search costs and time, they may also serve as powerful tool to extract consumers' wealth, invade their privacy, and cause at times other social harms, such as facilitating actual discrimination along race, gender, and other classifications.

6.4.2. *Tacit collusion* – While conscious parallelism is not illegal as such under Article 101 TFEU, its creation may come under scrutiny in the case of mergers and acquisitions. In the context of a digitalised market, the question arises whether the creation or facilitation of tacit collusion through the use of algorithms should come under scrutiny. The challenges are clear. If, for instance, the algorithms increase market transparency, one challenge confronting the courts and competition authorities is that the defendants will often have an independent legitimate business reason for their conduct. Courts and the enforcement agencies may be reluctant to restrict the free flow of information in the marketplace which often increases economic efficiency and consumer welfare. Indeed, concerted action to reduce price transparency may itself be an antitrust violation.[37]

6.5. Another area which may justify further inquiry concerns the threshold for establishing market power in a data-driven environment. At what stage could a

[35] These shortcomings are explored in M.E. STUCKE & A.P. GRUNES, BIG DATA AND COMPETITION POLICY (Oxford University Press, forthcoming 2016).
[36] See Ezrachi & Stucke, Curious Case of Competition and Quality, *supra* note 22.
[37] OECD Directorate for Financial, Fiscal and Enterprise Affairs Committee on Competition Law and Policy, Price Transparency, DAFFE/CLP(2001)22, Sept. 11, 2001, at 183, 185–86 (citing examples of U.S. enforcement agencies seeking to increase price transparency).

company behave independently of its customers or competitors? We note that network effects, absence of outside options, high switching costs and locked-in customers, may all give rise to market power at lower levels than in traditional markets. Moreover, the anticompetitive effects with dominant online platforms may be less salient than the traditional monopolist's steep prices—namely the steady degradation in quality, including the privacy protections afforded to individuals. We acknowledge, however, that the sustainability of such power in dynamic technology markets may be difficult to ascertain and therefore controversial to act upon.