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COMPETITION IN DIGITAL MARKETS

CPI COMPETITION POLICY INTERNATIONAL

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LETTER FROM THE EDITOR

Dear Readers,

Happy New Year!

At the beginning of 2017, the Antitrust Chronicle brings you an in-depth look at Competition and Big Data in Digital Markets. There is much hype surrounding big data, but does it simply offer operational advantages, or can it provide long-run sustainable competitive advantage, protecting a firm from competition?

This month's edition of the Antitrust Chronicle, in collaboration with the Computer & Communications Industry Association ("CCIA"), contains a variety of articles addressing Competition in Digital Markets. From block-chain, geo-blocking and antitrust investigations to big data to market definition and enforcement, including a wide range of sub-topics addressing digital markets and recent case law.

We sincerely hope you enjoy reading our first 2017 edition of the Antitrust Chronicle. A sincere thank you to CCIA.

Sincerely,
CPI Team

SUMMARIES

WELCOME TO THE TEAM

CPI is pleased to welcome Raúl Escalante to the team. Raúl will take over as Managing Director. In addition, Sam Sadden will be the Managing Editor of the Antitrust Chronicle.

REACHING OUT IN 2017

CPI wants to hear from you, our subscribers. In the coming months of 2017, we will be reaching out to members of our community for your feedback and ideas.

CPI ANTITRUST CHRONICLE MARCH 2017

The March Antirust Chronicle of 2017 will address **recent antitrust developments in China.** This 2017 special issue will cover various topics including MOFCOM, SAIC and NDRC enforcement as well as private litigation in China. CPI encourages authors to address this topic from the angle they consider most interesting or especially relevant.

Contributions to the Antirust Chronicle are about 2,500 – 4,000 words long. They should be lightly cited (follow bluebook style for footnotes) and not be written as long ponderous law-review articles with many in-depth footnotes. As with all CPI publications, articles for the CPI Antitrust Chronicle should be written clearly and with the reader always in mind.

Interested authors should send their contributions by February 15, 2017 to Sam Sadden (ssaden@competitionpolicyinternational.com) with the subject line "Antitrust Chronicle," a short bio and picture(s) of the author(s).

The CPI Editorial Team will evaluate all submissions and will publish the best papers. Authors can submit papers on any topic related to competition and regulation, however, for the March issue, priority will be given to articles addressing the abovementioned topic. Co-authors are welcome.

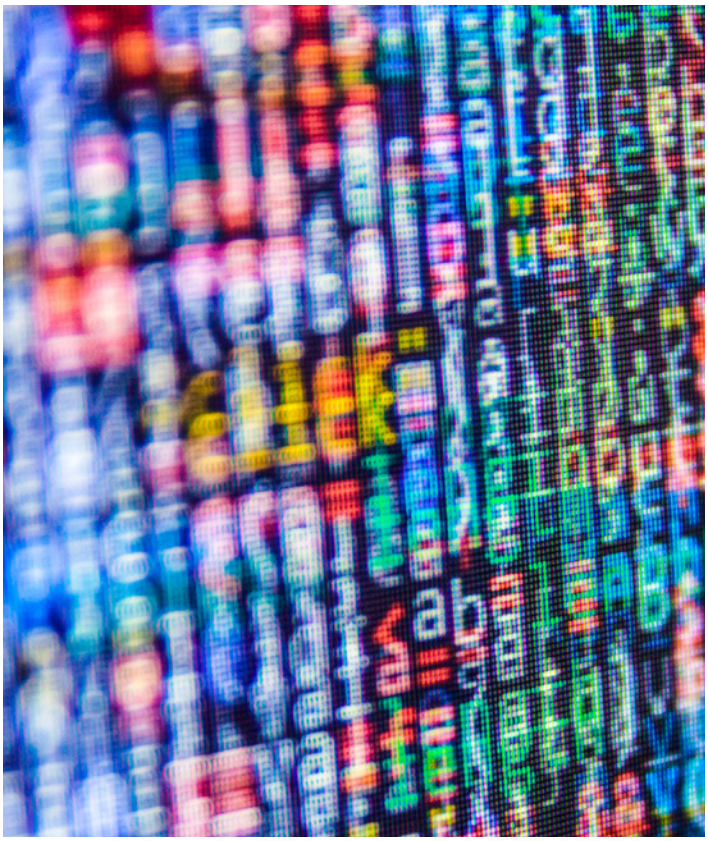
WHAT'S NEXT?

This section is dedicated to those who want to know what CPI is preparing for the next month. Spoiler alert!

The February edition of the Antitrust Chronicle will contain a variety of articles addressing what is on the antitrust horizon in the U.S. and EU. The edition will cover a broad range of antitrust topics from leading practitioners, academics and regulators on both sides of the Atlantic. We hope you are as excited about this upcoming edition as we are.

BIG DATA, PRIVACY AND COMPETITION LAW: DO COMPETITION AUTHORITIES KNOW HOW TO DO IT?

BY ALFONSO LAMADRID & SAM VILLIERS[1]



I. INTRODUCTION

It has become customary to open any article or discussion on big data referring to it as "the oil of the internet," the "currency of the digital economy" or using Hal Varian's famous analogy: "data is to information as sand is to silicon chips."

There is, however, another quote that we find appropriate or, rather, relevant: according to Prof. Dan Ariely "Big data is like teenage sex; everyone talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it, so everyone claims they are doing it."[2]

The quote might have been conceived to depict the commercial side of discussions on big data, but our submission in this brief piece is that when it comes to competition authorities and judges, the analogy still holds. Indeed, competition enforcers—like teenagers—think they don't yet know how to do it, when in reality they do, because it is actually pretty simple and there is not much room for new inventions.

Competition authorities appeared to share this stance, but recent moves suggest an evolution in their thinking.

On June 2, 2014 the European Data Protection Supervisor ("EDPS") held a closed door workshop at the European Parliament in Brussels in which it tried to advance its view — published earlier in its Preliminary Opinion on "Privacy and competitiveness in the age of big data"[3] – that competition law should intervene to address privacy and data-related concerns and perceived regulatory gaps. This reflex is certainly not new; given its vaporous scope and the wide variety of remedies available, it is relatively common for agencies in Europe and plaintiffs in the U.S. to think of competition law as a hammer suitable for all sorts of nails. As one of us explained at the abovementioned EDPS workshop, competition law is a tool that has the flexibility to intervene whenever there is a competition problem, however novel or unforeseen. Importantly, it is not designed, nor is it well-suited, to address non-competition concerns, including privacy issues. Whilst the message may have been somehow anticlimactic in that setting, it did enjoy the support of the only competition authority in the room, the European Commission. Back then we thought we could safely assume that all competition authorities would share the arguably obvious view that competition law should kick in when there is a competition problem. That is what EU case law and decisional practice suggested.[4] But as in many other respects, the past few years have shaken our assumptions and what seemed obvious back then is now in dispute.

1 Alfonso Lamadrid is a Principal Associate at the EU and Competition Law Department of Garrigues (Brussels). Sam Villiers is an Associate in the Brussels office of Garrigues.

2 Dan Ariely Facebook page, January 6, 2013.

3 EDPS Preliminary Opinion on 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.

4 See Commission Decision of March 11, 2008 in case No COMP/M.4731 – *Google/ DoubleClick,* at 368); Commission Decision of October 3, 2014 in case No COMP/M.7217 - *Facebook/Whatsapp*, at 164, 188, fn 69; Commission Decision of January 9, 2014 in case No COMP/M.7023 - *Publicis/ Omnicom*, at 625-630; Case M.8124 *Microsoft/LinkedIn* (decision not yet publicly available); and Judgment of November 23, 2006, *Asnef-Equifax, Servicios de Información sobre Solvencia y Crédito, SL v. Asociación de Usuarios de Servicios Bancarios (Ausbanc)*, C-238/05, ECLI:EU:C:2006:734.

Competition authorities all over the world have devoted increasing attention to this issue, giving it further visibility and propelling debates. In March 2016, the German Bundeskartellamt opened proceedings against Facebook on suspicion of having abused its market power by infringing data protection rules.[5] Then in May 2016, France's Autorité de la concurrence together with the Bundeskartellamt published a joint paper on data and its implications for competition law.[6] These developments have been accompanied by a plethora of conferences, speeches and publications, such as the one you are now reading.

It still remains unclear whether this is because it is believed that there really are novel issues, whether the exercise is merely aimed at showing that the standard analytical framework remains perfectly applicable or whether those moves are simply intended as a way of signaling that competition law is keeping up with economic and societal changes. Be that as it may, the welcome debate that has been triggered has also given room to calls to change competition law, to widen its scope or to supposedly "refine" its goals.

What we submit below is that such views are misguided, and that while big data raises fascinating new possibilities and business opportunities, it does not bring about any novel competition law issues and that if "old" competition problems ever arise (which we do not fully exclude), those could be well addressed under our traditional framework.

II. DATA AS AN ASSET LIKE, AND UNLIKE, ANY OTHER

Competition law applies established, time-tested principles across all industries—whether regulated or not—and regarding literally every sort of product, service and asset, ranging from endives, vitamins, and steel pipes, to robots and social networks, and these across any conceivable market.

Competition law has also applied to data before.[7] This, in itself, should indicate (i) that it is suited to dealing with data-related concerns and (ii) that such concerns are not new and cannot be excluded. Indeed, data is an asset, big data can be a big asset, and we know from experience that the accumulation or use of assets may, depending on the circumstances, generate competition problems. This means that, conceivably, the possession of big data could translate into barriers to entry, market power or the ability to foreclose, or that it could facilitate collusion.

While all theoretically possible, in our view there is certainly no automatic causality. It is only in very specific circumstances that mere access to data might be the source of a competition law problem. One could in fact even claim the contrary: that the exponential improvement of firms' ability to collect data, its potential uses, and the surge of business models—both online and offline—might result in much more competition.

Interestingly, many of the writings on the topic intend to argue, most often in the abstract, that big data will always, or never—depending on the author—be a barrier to entry, or give rise to foreclosure, for example. In our view, many of these pieces, on both sides of the argument, resort to a rhetorical method that consists in rebutting only the most extreme view posited by those on the opposite side. For example, if an author claims that data is typically replicable and hence not likely to give rise to barriers to entry, the rebuttal is likely to indicate that in some cases data may not be replicable, jumping directly to the conclusion that replicability is a "myth" and thus barriers to entry are likely.

That approach may be useful in showing that extreme dogmatic positions may be wrong, but it does not help to find the correct, prudent attitude to the issue.[8] In our view, both are right and both are wrong. The problem is that discussing in the abstract whether or not big data can be a barrier to entry, or whether or not it might give rise to foreclosure, may not make much sense, as all these questions need to be assessed on a case-by-case basis, depending on the data and depending on the market. Unfortunately, there are no easy one-size-fits-all solutions for this problem either.

The joint Autorité de la concurrence - Bundeskartellamt report in fact seems to share this belief, at least at a wider level, as (a) it makes clear the point that the competitive impact of data depends on many factors that need to be considered on a case-by-case basis, and (b) when discussing possible theories of harm it makes general arguments about how standard theories of harm often used in antitrust could apply to data, applying the same logic that would apply to any other asset (the one exception, concerning privacy, is discussed below). This is all sensible, and arguably quite obvious.

Ultimately, data is an asset, and like all assets (be it infra-

5 Bundeskartellamt, Press Release: *Bundeskartellamt initiates proceeding against Facebook on suspicion of having abused its market power by infringing data protection rules,* March 2, 2016, available at: https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02_03_2016_Facebook.html.

6 Autorité de la concurrence and Bundeskartellamt, *Competition Law and Data*, May 10, 2016, available at: http://www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf.

7 See, for example, Judgment of the Court of April 29, 2004,*IMS Health GmbH & Co. OHG and NDC Health GmbH & Co. KG*, C-418/01, ECLI:EU:C:2004:257; Commission Decision of September 4, 2012 in Case No COMP/M.6314 – Telefónica UK/Vodafone UK/Everything Everywhere/JV; Commission Decision of October 3, 2014 in case No COMP/M.7217 - *Facebook/Whatsapp.*

8 Avid readers of CPI may have spotted a commonality between this line of reasoning and a previous contribution to this publication: see Alfonso Lamadrid de Pablo, *Antitrust and the Political Center,* CPI Antitrust Chronicle, January 2013 (2) available at: https://antitrustlair.files.wordpress.com/2013/01/antitrust-and-the-political-center.pdf.

structure, intellectual property or a raw material), it is unique in its very own way, is of relative importance depending on the context or market, and it presents its particular challenges to competition law enforcement.

In the case of data one may, for example, need to consider the potentially dynamic nature of data-driven markets and the possibly fleeting value of data when undertaking market definition exercises; when assessing the value or indispensability of a given set of data one must also be aware of the fact that some data is rivalrous but that some is not, that some data is sometimes—but not always—ubiquitous and cheap and that some is not (as Robert Mahnke put it in a previous CPI contribution, "there are data, and then there are data").[9] One should be mindful of the fact that what defines barriers to entry is not equality, but functional equivalence, or of the reality that privacy can be a parameter of competition when personal data is relevant. Importantly, one must realize that more often than not the relevance of data lies not in volume, but in the analytics, how it is processed and used, and that as easy as it might be for rivals to attribute the success of a company to its access to data, "skill, foresight and industry" usually matter more than the data itself. The growing role of data as an asset also underscores the difficulties of effectively incorporating the verified efficiencies into the legal assessment of a given conduct or merger.[10]

While undeniable, these challenges—which are not necessarily exclusive to data—are only a useful reminder of the importance of detailed, cautious and fact-based analysis; they do not require radical changes or innovations to our standard, flexible, substantive analytical framework.[11]

In sum, against a background of a very polarized debate where some seem to favor beliefs not grounded in facts (a fashionable trend these days), we opt for an objective case-by-case, fact-based assessment. That is what we do daily in our discipline; competition law has the economic and legal tools, the expertise for and the habit of examining whether assets are important, substitutable and replicable (or not) in a given setting. This is why if in a given case we came up with the conclusion that the possession of big data raises a competition issue (which in our view is rather unlikely but certainly plausible) our current rules can perfectly apply and why no new rules are needed. "It depends" may be a frustrating answer, but it might, as in this case, be the right one.

III. FACTORING IN PRIVACY CONSIDERATIONS?

Until now, we have reasoned quite simply that if there is a proven competition issue, then competition law should apply; and if there is no such issue, then naturally competition law should not apply. This has been a widely held view up until now—including by the ECJ[12] and the European Commission[13] —but one that has recently been put into question by the issue of privacy.

Some, however, have recently, and strongly, advocated the view that the protection of personal data should, as a fundamental right, be factored into the consumer welfare standard that guides the application of competition law, thereby departing from a purely economic analysis thereof. In our view, such calls for reform may be misguided.

Privacy is undoubtedly an important issue, and there may indeed be a need for better privacy regulation through tailored privacy laws; in our view, in fact, privacy may be too important to be left to competition lawyers and competition authorities.

The most powerful argument against the inclusion of standalone privacy considerations into the competition analytical framework is perhaps that there is nothing so special about privacy as to distinguish it from other fundamental rights or from other legitimate and important public policy goals. Accordingly, if one were to accept the contention that the competition laws must be applied in such a way as to ensure privacy is respected, there would be no apparent reason not do the same with any other right or legitimate public goal. This would lead to the absurd result of turning competition law into a law of everything, which would not only entirely deform the discipline but would also provide a great starting point for a dystopian novel.

9 Robert Mahnke, *Big Data as a Barrier to Entry*, CPI Antitrust Chronicle May 2015 (2).

10 For a more detailed comment on these difficulties, see Alfonso Lamadrid de Pablo, *The double duality of two-sided markets*, [2015] Comp Law 64, Available at: https://antitrustlair.files.wordpress.com/2015/05/the-double-duality-of-two-sided-markets_clj_lamadrid.pdf.

11 When it comes to substantive "refinements," we are not persuaded, for example, by the proposals to define intermediate "data markets" (as proposed by Pamela Jones Harbour in her now often invoked dissent to the FTC's *Google/Double Click* decision, in that case in relation to "data used for targeted advertising purposes") as we cannot see how an intermediate data market may be a meaningful market in the sense of competition law, except perhaps when the data is subject to trade. If the alleged problem is that the use of data might have consequences in some markets, then what makes sense is to define and look directly at those markets as we always do. Returning to one of our opening analogies, this proposal would be akin to a suggestion to run cases on sand instead of chipsets. Some non-substantive refinements may nevertheless be necessary; this may be the case, for example, of turnover-based merger thresholds that may fail to capture the value of a data-driven transaction.

12 See Judgment of November 23, 2006, *Asnef-Equifax, Servicios de Información sobre Solvencia y Crédito, SL v. Asociación de Usuarios de Servicios Bancarios (Ausbanc)*, C-238/05, ECLI:EU:C:2006:734, para. 63: "any possible issues relating to the sensitivity of personal data are not, as such, a matter for competition law, they may be resolved on the basis of the relevant provisions governing data protection."

13 See Commission Decision of October 3, 2014, Case M.7217 – *Facebook/ WhatsApp*, C(2014) 7239 final, para. 164: "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 the EU competition law rules but within the scope of the EU data protection rules,"- Case M.8124 *Microsoft/LinkedIn* (decision not yet publicly available).

It is true, however, that in some cases privacy can be a parameter or a dimension of competition, and in this sense could fall into the scope of competition law; but even in these cases it is arguable that competition authorities are well placed to deal with restrictions of this sort of competition and to identify optimal and non-competitive privacy terms. Indeed, if competition law often struggles dealing with prices, not to mention innovation considerations, factoring privacy considerations into the competition analysis could pose great hurdles or bring about an undesirable degree of discretion on the part of authorities lacking the necessary expertise on privacy matters. The ongoing Bundeskartellamt investigation into Facebook has brought to the fore some of these issues.[14]

To conclude, one must be mindful that the scope of competition law is, fortunately, limited to a relatively narrow set of economic concerns; it is about balancing restrictions of competition with countervailing economic efficiencies. Other issues of public importance remain outside of its realm; they are rightly left to legislators, not to ultra-specialized agencies and lawyers, and not even to courts. Within its margins, we often like to say that competition law is a distillation of common sense through years of application by those judges and specialized agencies, infused with mainstream economics. Applying time-tested principles, competition law has over the years managed to deal with conflicts between different public policy goals, and has been flexible enough to cope with markets and assets of all forms, no matter how supposedly unique or distinctive. Our concern is that by making exceptions or contortions to address big data, or by factoring in exogenous elements such as privacy, one might very well ruin the mix.

14 Alfonso Lamadrid de Pablo, *Facebook, Privacy and Article 102- a first comment on the Bundeskartellamt's investigation*, chillingcompetition.com, available at: https://chillingcompetition.com/2016/03/02/facebook-privacy-and-article-102-a-first-comment-on-the-bundeskartellamts-investigation/.

CAN BIG DATA PROTECT A FIRM FROM COMPETITION?

BY ANJA LAMBRECHT & CATHERINE E. TUCKER[1]

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All mistakes are our own.

I. INTRODUCTION

The digitization of the offline and online economy alike means that firms are naturally collecting "big data," distinguished by its volume,[2] variety of formats spanning text, image and video and velocity, meaning that data is recorded in real time.[3]

There is much hype surrounding big data. Firms are constantly exhorted to set strategies in place to collect and analyze big data, and warned about the potential negative consequences of not doing so. For example, the Wall Street Journal recently suggested that companies sit on a treasure trove of customer data but for the most part do not know how to use it.[4]

However, despite the excitement surrounding big data, its long-term strategic, rather than operational, implications for firms are less clear. Some observers have concluded that big data may lead to a new type of competitive advantage.[5] But others have questioned whether this is indeed the case.[6] The question of whether big data can confer a sustainable competitive advantage to a firm has, to our knowledge, received surprisingly little systematic attention. However, understanding the potential strategic implications of big data is important for firms who want to comprehend whether ownership of big data can protect their business from current or future competition.

2 Companies such as Amazon and Walmart already work with petabytes of data in a single data set.

3 Traditionally definitions of big data have focused on its functional characteristics such as volume, variety and velocity rather than the nature of consumer insights it provides. This means that big data spans anonymized user data, personally identifiable information, search query data, web browsing data or data on consumer sentiments or purchase intentions. We recognize that depending on the specific type of data under consideration, the precise implications with respect to how it is of value to the firm may differ. One aim of the framework we set out is to provide firms with a structure that can guide the analysis of whether their "big data" provides a sustainable competitive advantage.

4 http://www.wsj.com/articles/the-untapped-value-of-customer-data-1444734633?mod=djem_jiewr_MK_domainid.

5 See for example McGuire, T., J. Manyika, and M. Chui (2012),"Why big data is the new competitive advantage," Ivey Business Journal 76 (4), 1-4.

6 See: https://hbr.org/2015/01/why-nordstroms-digital-strategy-works-and-yours-probably-doesnt. This article highlights that because digital technologies are visible and accessible to competitors, it is hard to generate a competitive advantage.

To evaluate the strategic role of big data as a source of sustainable competitive advantage or as a barrier to entry, we use a classic framework in strategic management sometimes referred to as the resource-based view of the firm. This literature is useful because it sharply distinguishes factors that enhance an entire industry from a "sustained competitive advantage" that benefits a single firm. For there to be a sustainable competitive advantage, the firm's rivals must be unable realistically to duplicate the benefits of this strategy or input. Specifically, for a firm resource to be a source of competitive advantage, the resource has to be inimitable, rare, valuable and non-substitutable.[7]

II. IS BIG DATA INIMITABLE?

For big data to be inimitable, no other firm should easily be able to replicate the advantage. There are two underlying economic reasons for why big data in many instances is unlikely to be inimitable. First, big data is non-rivalrous, meaning consumption of the good does not decrease its availability to others. Second, big data has near-zero marginal cost of production and distribution even over long distances. These two basic characteristics, combined with the fact that customers constantly leave footprints on the internet, have led to a thriving industry where consumer big data is resold.

This type of commercially available big data typically has broad reach and coverage, allowing many firms whose business does not usually generate big data to gain insights similar to those available to firms that own big data on a large number of customers. There are many examples for very big commercially available data sets. Acxiom has "multi-sourced insight into approximately 700 million consumers worldwide" with over 1,600 pieces of separate data on each consumer and Datalogics asserts that its data "includes almost every U.S. household."[8] Comcast is planning to license TV viewing data collected through set top boxes and apps.[9] Other companies, such as the Oracle-owned Bluekai, sell cookie-based user information online to allow for targeting advertising based on a user's past activities or demographics. Bluekai states that it has data on "750 million unique users per month with an average of 10-15 attributes per user."[10] To protect both their customers and themselves, such companies ensure that their data collection is done in full compliance with data protection rules.

Given the different possible types of big data, an obvious question is whether this analysis extends to cases where the big data has what appears to be unique or individual insights. For example, recently the retail store Target hit the headlines because of its alleged ability to use its retail shopping data to predict a pregnancy even before close relatives knew about it.[11] However, even such highly specific and timely data-driven insights are easy to imitate for firms that do not own a national database of retail sales. For example, a marketing unit of the credit-scoring agency Experian sells frequently updated data on expecting parents, along with income and first-birth information.[12]

In addition, data that is available due to individual consumer-level tracking is complemented by the explosion of user-generated content where consumers themselves create a footprint of their behavior, likes, opinions and interests across the internet. Recent research in computer science has emphasized that by combining a myriad of external online profiles external firms can gain huge insights into any one customer. Firms can also use such content as a direct substitute for customer data. For example, Zillow.com was able to build a successful home-buying digital platform by relying on existing town assessment data.

In short, where a market for data exists it is unlikely that big data is inimitable.

III. IS BIG DATA RARE?

For Big Data to be a "rare" resource would mean that few other firms possess it. However, there are two reasons why this is unlikely to hold. First, large shifts in supply infrastructure have rendered the tools for gathering big data commonplace. Cloud-based resources such as Amazon, Microsoft and Rackspace make these tools not dependent on scale[13] and storage costs for data continue to fall, so that some speculate they may eventually approach zero.[14] This allows ever smaller firms to have access to powerful and inexpensive computing resources. Furthermore, free open source technologies such as Hadoop that allow users to analyze large datasets are widely available and accessible.

Second, as consumers' lives increasingly shift to the web, consumers leave traces of their needs and preferences everywhere. Firms who embrace these low-cost digital technologies have many opportunities to gather customer data. Telecom companies can col-

7 Barney, J. (1991),"Firm resources and sustained competitive advantage," Journal of Management 17 (1), 99-120.

8 See Acxiom Corp., 2013 10K Annual Report for the Period Ending March 31, 2013 and Staff of S. Comm. on Commerce, Sci., and Transp., Office of Oversight & Investigation, A Review of the Data Broker Industry: Collection, Use and Sale of Consumer Data for Marketing Purposes.

9 See: http://www.wsj.com/articles/comcast-seeks-to-harness-trove-of-tv-data-1445333401.

10 See: https://docs.oracle.com/cloud/latest/daasmarketing_gs/DSMKT/GUID-418EDA59-1BD9-40F6-9D57-DD7C266555FF.htm#DSMKT3616.

11 See: http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html?_r=0. Note, however, there are some doubts over the origin of this story and whether Target actually did this: http://www.kdnuggets.com/2014/05/target-predict-teen-pregnancy-inside-story.html.

12 See: http://www.experian.com/small-business/prenatal-lists.jsp.

13 See: http://betanews.com/2014/06/27/comparing-the-top-three-cloud-storage-providers/.

14 See: http://www.enterprisestorageforum.com/storage-management/can-cloud-storage-costs-fall-to-zero-1.html.

lect data on calling behavior and browsing on their phones; Amazon, Macy's and Walmart collect detailed consumer-level purchase data, while platforms such as Bluekai collect a large range of detailed consumer browsing and purchasing information across multiple websites.[15]

Indeed, such "multi-homing," that is the use of multiple different digital services by consumers, means that similar pieces of information are often available to many different companies. Take, as an example, consumers who use multiple online social media such as Facebook, Twitter, LinkedIn or Instagram and share broadly similar information through each of them. Or, consider the access to information in the app ecosystem: many apps, and not only those related to location or weather, regularly ping location data – as many as hundreds of times a week – meaning that a user's location is always available to a wide range of firms. Of course, as we later discuss, these firms will still have to invest in ensuring that they have the technical skills to transform this data into valuable insights.

Seeing that big data is not inimitable or rare, we turn to the question of whether and when big data is valuable for firms.

IV. IS BIG DATA VALUABLE?

Much of the current managerial literature is focused on whether or not big data is indeed valuable for firms in that it enhances a firm's ability to have profitable relationships with customers. There are three open problems currently challenging analysts and researchers faced with ensuring that big data is valuable to organizations. We discuss these challenges in turn and conclude that by itself big data is not sufficient to create profit-enhancing opportunities.

The first challenge limiting the value of big data to firms is compatibility and integration. One of the key characteristics of big data is that it comes from a "variety" of sources. However, if this data is not naturally congruent or easy to integrate, the variety of sources can make it difficult for firms to indeed save cost or create value for customers. Such hindrances may prove particularly burdensome in industries such as healthcare, where prior research has shown that firms have strategic incentives to ensure that data is siloed and hard to integrate.

The second challenge to making big data valuable is its unstructured nature. Specialized advances are being made in mining text-based data, where context and technique can lead to insights similar to that of structured data, but other forms of data such as video data are still not easily analyzed. One example is that, despite state-of-the-art facial recognition software, authorities were unable to identify the two bombing suspects for the Boston Marathon from a multitude of video data, as the software struggled to cope with the full-frontal nature of the photo of their faces.[16]

Given the challenges of unstructured data, firms tend to find big data most valuable when it augments the speed and accuracy of existing data analysis practices. In oil and gas exploration, big data is used to enhance existing operations and data analysis surrounding seismic drilling. However, engineers have been using massively parallel processing capabilities of high-performance computing to perform analysis on large quantities of data for decades. In other words, though big data may be a new label for such practices, and the volume of data may have increased, such big data is valuable in oil and gas as an extension of existing practices and infrastructure. In general, for the large majority of firms, their ability to analyze the "variety" of types of big data does not yet match the ability to record its volume and velocity.

The third challenge, and in our opinion the most important factor that limits how valuable big data is to firms, is the difficulty of establishing causal relationships within large pools of overlapping observational data. Very large data sets usually contain a number of very similar or virtually identical observations that can lead to spurious correlations and as a result misguide managers in their decision making. The Economist recently pointed out that "in a world of big data the correlations surface almost by themselves"[17] and a Sloan Management Review blog post emphasized that while many firms have access to big data, such data is not "objective,"[18] since the difficulty lies in distilling "true" actionable insights from the data. Similarly, typical machine learning algorithms used to analyze big data identify correlations that may not necessarily offer causal and therefore actionable managerial insights. Recent work suggests that machine learning algorithms should be used as a "guide to further investigation" in order that we might be able to "predict the effect of our actions."[19] In other words, the skill in making big data valuable is being able to move from mere observational correlations to correctly identifying, potentially outside of big data, what correlations should form the basis for strategic action.

To take a specific example, imagine a shoe retailer that advertises to consumers across the web who have previously visited their website. Raw data analysis would suggest that customers exposed to these ads are more likely to purchase shoes. However, these consumers, who have previously visited the website have al-

15 The European Commission spoke similarly in 2014 when concluding its investigation into Facebook's acquisition of WhatsApp. It concluded that "there are currently a significant number of market participants that collect user data alongside Facebook, including Google, Apple, Amazon, eBay, Microsoft, AOL, Yahoo, Twitter, IAC, LinkedIn, Adobe and Yelp and that, in addition, 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." See Case No COMP/M.7217 - *FACEBOOK/ WHATSAPP*.

16 See: http://www.wired.com/2013/05/boston-marathon-investigation/.

17 The Economist,(2010). Data, data everywhere. The Economist Newspaper Limited.

18See: http://sloanreview.mit.edu/article/for-better-decision-making-look-at-facts-not-data/.

19 Domingos, P. (2012, October). A few useful things to know about machine learning. Commun. ACM 55 (10), 78-87

ready demonstrated their interest in the specific retailer even prior to viewing the ad, and so are more likely than the average consumer to purchase. Was the ad effective? It is hard to say. Indeed, big data here does not allow any causal inference about marketing communication effectiveness. To understand whether such ads are effective, the retailer needs to run a randomized test or experiment, where one subset of consumers are randomly not exposed to the ad. By comparing the purchase probabilities across consumers who were exposed to the ad and those who were not, the company can then determine whether exposing consumers to an ad made them more likely to buy. Value is delivered in such instances not primarily by the access to data, but by the ability to design and implement meaningful experiments.

Therefore the primary avenue by which a firm can understand whether a data relationship is merely correlational or might be predictive (because it is causal) is through experimentation. While it may be challenging for a manager to improve profitability using even one petabyte of observational data describing customer behavior, comparing the behavior of a customer who was exposed to a marketing activity to that of a customer who was by chance unexposed may lead a marketer to conclude whether the activity was profitable. Implementing field experiments, drawing the right conclusion and taking appropriate action is not necessarily easy.[20] But successful companies have developed the ability to design, implement, evaluate and then act upon meaningful field experiments. It is this "test and learn"environment, coupled with the skill to take action on the insights, which can make big data valuable.[21]

However, because of diminishing returns to increasingly large data samples, such experimentation does not necessarily require big data. For example, Google reports that it typically uses random samples of 0.1 percent of available data to perform analyses.[22] Indeed, a recent article suggested that the size of big data can actually be detrimental as "the bigger the database, the easier it is to get support for any hypothesis you put forward."[23] In other words, because big data often offers overlapping insights, a firm can get similar insight from one-thousandth of the full dataset as from the entire dataset.

Experimentation is not the only method companies can use to infer valuable insights from big data. Another potential skill firms can develop is the ability to build better algorithms to deal with big data. One example for such algorithms is recommender systems. Recommender systems rely on algorithms trained on correlational data to recommend the most relevant products to a customer. Yet, again, it is not the size of the underlying data, but the ability to identify the critical pieces of information that best predict a customer's preferences. For example, it has been shown that to predict preferences for movies, ten movie ratings alone are more helpful than extensive metadata.[24] Indeed, often not the size of the data but the machine learning algorithm used determine the quality of the results.[25] While predictive power may increase with the size of the data available, in many instances the improvements in predictions show diminishing returns to scale as data sets increase in size.[26]

Our analysis demonstrates that, by itself, big data is unlikely to be valuable. It is only when combined with managerial, engineering and analytic skill in determining the experiment or algorithm to apply to such data that it proves valuable to firms.[27] This suggest for firms the primary challenges lie in determining a big data strategy[28], implementing the systems and tools to analyze the data[29] and adapting organizational capabilities.

Given that our previous analyses suggest that big data is neither rare nor inimitable, we conclude that the search for competitive advantage in the new digital economy should focus on attracting the kind of skilled workers who are able to transform big data into valuable tools.

20 See: https://hbr.org/2015/11/run-field-experiments-to-make-sense-of-your-big-data?utm_campaign=HBR&utm_source=facebook&utm_medium=social.

21 Note that even when using insights from experiments, managers need to carefully consider the scope of any findings and how replicable they will be in different contexts.

22 Varian, H. R. (2014). Big data: New tricks for econometrics. The Journal of Economic Perspectives, 3-27.

23 See: https://www.london.edu/faculty-and-research/lbsr/diie-nov-drowning-in-numbers#.Vk-OZvmrRNO.

24 Pilaszy, I. and D. Tikk (2009). Recommending new movies: even a few ratings are more valuable than metadata. In Proceedings of the third ACM conference on Recommender systems, pp. 93-100. ACM.

25 See: http://www.slideshare.net/xamat/10-lessons-learned-from-building-machine-learning-systems, http://stackoverflow.com/questions/25665017/does-the-dataset-size-influence-a-machine-learning-algorithm.

26 Junqué de Fortuny, Enric, David Martens, and Foster Provost, "Predictive modeling with big data: is bigger really better?" Big Data 1.4 (2013): 215-226.

27 One potential way of evaluating whether this insights holds in a specific context is to examine the relative pricing of data relative to firm processing skills. In contexts where data is cheap relative to processing skills this is suggestive that indeed processing skills are more important than data itself in creating value for a firm.

28 See: http://www.cio.com/article/2395010/data-management/the-big-data-challenge--how-to-develop-a-winning-strategy.html.

29 See: http://sloanreview.mit.edu/article/overcoming-legacy-processes-to-achieve-big-data-success/.

V. IS BIG DATA NON-SUBSTITUTABLE?

For a resource such as big data to provide a sustainable competitive advantage, there has to be no other means of achieving success in the specific industry. Yet, in the digital world, perhaps more so than offline, there are many examples of firms that came from nowhere and, without any embedded data advantage, were still able to disrupt an industry and attract more customers because of a superior value proposition. In this section, we discuss five settings where alternative firm capabilities have proved to be compelling substitutes to big data and consequently where big data has not been a sufficient sustainable source of competitive advantage.

First, it is natural to focus on an industry where data has, even before the internet, offered operational advantages. The communications industry offers such a case study due to its long history of using extensive data to both improve operations and offer better value to customers. Many traditional communications firms such as AT&T and Verizon as well as newer online firms such as Skype and Facebook have large datasets covering messaging services. However, even though incumbents owned massive data bases, the messaging app WhatsApp became a serious competitor to established messaging and social network services by offering a product that satisfied social media users' latent needs – an easy-to-use interface and an extremely low-cost messaging solution. Even when acquired by Facebook for USD $22 billion, WhatsApp had only 55 employees, suggesting its success was not due to large-scale data analytics capacity.[30] A similar example is Snapchat, which succeeded in competing in this space without access to big data because of its insight that people wanted to share personal information more privately.

Another industry where big data could provide insights into consumer preferences and therefore give advantages to large digital firms when launching new products, is online gaming. Yet, King Digital Entertainment was not among the dominant digital gaming companies, nor supported by firms with access to big data such as Google and Facebook, when it launched the smartphone hit Candy Crush Saga. By 2014, 93 million people played Candy Crush Saga more than 1 billion times a day.[31] The fact that Candy Crush is playable in short sessions and does not require extensive time investment explains its appeal to the non-gaming population of time-strapped parents, or commuters, "from office juniors through to CEOs."[32] One challenge for new games is discovery to speed up adoption. But when players progress in Candy Crush, Candy Crush displays the progress of the player's Facebook friends, fostering competition in the player's social network to keep them engaging with the game.[33] This example illustrates that a superior value proposition to a new group of consumers can be more important than access to data, even in a sector where companies routinely have access to big data.

Second, it is natural to ask whether there is a substitute for insights from big data in sectors where there has historically been little use of data. It is possible that in such contexts, firms in adjacent sectors who do have big data have an executional advantage in terms of modernizing these sectors. However, the rise of the new "sharing economy"provides evidence that to build up entirely new digital industries in traditional sectors does not require access to big data. Uber and Lyft had no superior access to data compared to established taxi services, but they were better at putting together a product that met consumer needs for a convenient and reliable taxi service. AirBnB entered a highly competitive industry where large travel companies have access to large swathes of data and regularly run experiments to interpret their data in a meaningful way to constantly improve business practices. Yet, despite the lack of data, AirBnB quickly became a dominant player because of its superior value proposition. Google's purchase of ITA along with its flight data and data-processing capabilities did not give Google a significant presence in the flight search market. This contrasts with the growth of Kayak – a travel search engine – which grew from 2004 from a small startup with no user data to being acquired in 2012 by Priceline for USD $1.8 billion.[34] Indeed, recent spectators have argued that for the sharing economy the secret sauce is not data by itself, but instead the systems that such platforms build around ensuring there is "trust and reputation"among users of the platform.[35]

Third, industries where data is important for delivering a personalized experience, and where this personalized system of recommendations is particularly important for customer experience, may be another natural setting where big data might have few substitutes. One obvious example of such an industry is online dating, where the difficulty of predicting human relationships likely puts a premium on the availability of large data sets. However, Tinder entered the online dating market in September 2012 with no access to existing data and quickly became a dominant player with 1.6 billion Tinder profiles, making more than 26 million matches per day (as of April 2015). More than 8 billion matches have been made since Tinder launched.[36]

30 See: http://www.forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/, http://www.businessinsider.com/why-facebook-buying-whatsapp-2014-2?IR=T, http://www.bloomberg.com/news/articles/2014-10-28/facebook-s-22-billion-whatsapp-deal-buys-10-million-in-sales.

31 See: http://www.theguardian.com/technology/2014/mar/26/candy-crush-saga-king-why-popular, https://thinkgaming.com/app-sales-data/2/candy-crush-saga/. While Candy Crush Saga is free to download and play, it makes its money from in-app purchases of extra moves, lives and power-ups, with estimated daily revenues of over USD $700,000, as of November 23, 2015.

32 See: http://www.theguardian.com/technology/2014/mar/26/candy-crush-saga-king-why-popular.

33 See: http://blog.upsight.com/blog/breaking-down-candy-crushs-formula-for-success.

34 See: http://thenextweb.com/insider/2012/11/08/priceline-com-acquiring-travel-company-kayak-for-1-8b-in-cash-and-stocks/.

35 See: http://sloanreview.mit.edu/article/data-at-the-heart-of-the-sharing-economy/?utm_source=facebook&utm_medium=social&utm_campaign=sm-direct.

36 See: https://en.wikipedia.org/wiki/Tinder_(app).

Tinder succeeded not because of big data but because it offers a better solution for its market. Critically, this included a simple user interface that does not require users to fill out long surveys and personal questions but instead allows quick sign-in with Facebook. It also allows for "liking" (but no rejections) using a simple "swipe right." Another feature that makes Tinder attractive to users is the "double opt-in," that is, both users must agree before they can message each other. These points illustrate that Tinder was very good in understanding how people would like to use dating services and in mirroring offline interactions where normally two people would only strike up a conversation in a bar when there were signs of interest on both sides. This is especially important as on other dating sites women often receive many messages, making them feel overwhelmed, while men receive few messages, making them feel disheartened.[37]

By allowing women and men to decide who could contact them, Tinder gave them more control over their dating experience. Additionally, the double opt-in reduces non-responses and so avoids feelings of rejections. This stands in contrast to other online dating sites where men or women often send many messages that are not responded to, ultimately demotivating them to continue using the service. Last, the easy swipe to the next profile makes the service more like a game and so more enjoyable to use. Notably, to build up its user base, Tinder did not advertise or use mass emails based on big data bases but hosted "exclusive"parties on college campuses with admittance based on having downloaded the app.[38] By signing up hundreds of available singles in dense geographic areas, Tinder could benefit from more traditional forms of word of mouth communications.

Fourth, another natural place to look for non-substitutability is industries with switching costs and network effects. Switching costs are the costs (both perceived and real) incurred by customers when they switch brands or suppliers. Network effects occur when the usefulness of a product, service or platform increases as more people use it. Historically, switching costs and network effects have been highlighted by economists as potential sources of incumbent competitive advantage, especially in digital environments. Therefore it is natural to ask whether big data in combination with switching costs and network effects might lead to a setting where potential rivals struggle to compete or find sufficient substitutes to compete with. Social network sites exhibit both potential network effects, because consumers value being able to communicate with their friends, and switching costs, as customers invest time and money in curating their online profiles.

However, the history of social networking sites suggests that big data has not protected larger firms in this industry. Rather, this industry has experienced a succession of large firms, even though at each point in time the incumbent had access to big data whereas the new entrant was, in terms of data availability, at a disadvantage. For example, Myspace replaced Friendster and was then replaced by Facebook as the leading social network site. What ultimately made Facebook successful was the ability to build a product that was more focused on customer needs for their social media interactions. This included giving customers more control over their social media interactions (for example Facebook allowed users more control relative to the public nature of MySpace about what content observers could see about a user), and increasing the usability of the site (for example, MySpace was seen by many as too cluttered, Facebook offered a much cleaner design).[39]

Fifth, one potential way that big data could be non-substitutable is if it is necessary for attracting capital investment. However, it is notable that venture capital does not view big data as "non-substitutable," in that it continues to fund startups to compete in spaces where other firms are demonstrably in possession of "big data." For example, despite "Amazon Fresh" and "Google Express"having access through their parent companies to big data about potential customers, there is vibrant funding of new startups that are trying to compete in the local delivery space who do not have this data advantage. For example, Instacart has received USD $275M in funding,[40] Jet has received $220M in funding,[41] and Postmates has received $138M in venture capital funding.[42]

Overall, big data is not a non-substitutable requirement for offering online services, though ownership of big data is often the natural consequence of being successful in offering such online services. Instead, in a similar manner to the offline world, what determines success online is a superior ability to understand and meet customer needs. The unstable history of digital business offers little evidence that the mere possession of big data is a sufficient protection for an incumbent against a superior product offering.

37 See: https://pando.com/2013/08/26/laid-to-paid-how-tinder-set-fire-to-online-dating/.

38 See: https://www.quora.com/How-did-Tinder-grow-so-quickly.

39 Decisions on the size, quality and placement of ads on MySpace were less influenced by needs of the users and more by the imperative to monetize the site, leading to an even more ad-cluttered site. For a comprehensive account of what happened to MySpace, see: http://www.bloomberg.com/bw/magazine/content/11_27/b4235053917570.htm#p3.

40 See: https://www.crunchbase.com/organization/instacart\#/entity.

41 See: https://www.crunchbase.com/organization/jet\#/entity.

42 See: https://www.crunchbase.com/organization/postmates\#/entity.

VI. IMPLICATIONS

Can big data confer a sustainable competitive advantage for firms, which can help them persistently deflect current and future competition? To analyze whether big data can act as a barrier to entry in this manner, we use the classic resource-based view of strategic management, which emphasizes that to qualify as a sustainable competitive advantage a resource needs to meet four criteria. It has to be inimitable, rare, valuable and non-substitutable. For a wide range of examples from the digital economy we demonstrate that when firms have access to big data, at least one, and often more, of the four criteria which are required for a resource to constitute a sustainable competitive advantage are not met.

Our aim is not to suggest that firms cannot derive benefits from owning and evaluating big data. Instead, we highlight that the simple act of amassing big data by itself does not confer a long-term competitive advantage. We conclude that to build up a competitive advantage related to big data firms need to develop two new competencies.

First, firms need to attract employees who have the ability to develop and train algorithms or to design and/or to set up and run meaningful experiments since it is insights from such efforts that may be able to turn big data into a meaningful competitive advantage. Instead firms needs to develop complementary organizational skills.

Second, firms need to use big data to look forward and understand evolving customer needs rather than simply use past historic big data to make incremental improvements to their current product offering or service. The unstable history of digital business offers little evidence that the mere possession of big data is a sufficient protection for an incumbent against a superior product offering. To build a sustainable competitive advantage, the focus of a digital strategy should therefore be on how to use digital technologies to provide value to customers in ways that were previously impossible.

In addition to our managerial implications this paper also contributes to a policy literature. This literature is concerned with the question whether big data can constitute a barrier to entry which is in a sense the flipside of the question we focus on – whether big data constitutes a competitive advantage. In contrast to this largely legal literature, which grapples with how to frame big data in the context of traditional antitrust analysis, we use a long-established strategic framework to evaluate whether big data indeed merits consideration as a source of sustainable competitive advantage.

ENFORCEMENT IN DIGITAL MARKETS

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I. INTRODUCTION

Andreas Mundt, president of the German Federal Cartel Office ("FCO"), recently emphasized the important role of competition authorities in tackling antitrust concerns related to digital markets. He thereby reacted to policymakers' aspiration to regulate issues such as the "free flow of data" between platforms. Mundt commented that tech giants such as Google, Facebook and Apple should see the FCO and other competition agencies as their ally and acknowledge that competition law enforcement is more flexible and efficient than legislation.

The FCO has been at the forefront of competition law enforcement in Europe when it comes to the digital economy. In March 2016, the FCO opened an investigation against Facebook based on an allegation of abuse of dominance: Because of the social network's popularity, the FCO suspects that users have no choice but to accept Facebook's terms of service even where these are in violation of data protection laws and such conduct, according to the FCO, could amount to abuse of market power.[2] Just a few weeks ago, the Italian Competition Authority opened similar investigations against WhatsApp, albeit based on consumer protection laws.

Apart from the FCO's Facebook proceeding, which caused quite a stir internationally, the German agency initiated a number of notable cases based on Article 101 TFEU / Section1 Act against Restraints of Competition ("ARC") allegations, namely regarding selective distribution systems, dual pricing, platform bans and most favorite nation clauses. In addition, the FCO has published several working papers over the recent months and years that deal with new challenges brought about by the digital economy.[3]

Other authorities across Europe including the European Commission are actively monitoring the economic developments in this space as well:

2 See also Huttenlauch, How Many Likes for the German Facebook Antitrust Probe?, in: Competition Policy International (August 2016), available at: https://www.competitionpolicyinternational.com/wp-content/uploads/2016/08/Huttenlauch.pdf.

3 See, e.g. *Vertical Restraints in the Internet Economy* (October 2013), available at: http://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Diskussions_Hintergrundpapiere/Vertical%20Restraints%20in%20the%20Internet%20Economy.pdf?__blob=publicationFile&v=2; *Competition Law and Data* (May 2016), available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.pdf?__blob=publicationFile&v=2; Market Power of Platforms and Networks (June 2016), an executive summary in English is available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Berichte/Think-Tank-Bericht-Zusammenfassung.pdf?__blob=publicationFile&v=4.

• The European Commission launched a sector inquiry into e-commerce in May 2015, the final findings of which will be published in the first half of 2017. Enforcement action to follow can be expected.

• The Netherlands Authority for Consumers and Markets ("ACM") will soon publish the results of its market study in relation to online platforms streaming videos and movies, including digital marketplaces and content producers. The ACM also published a paper on the role of consumers' data in the assessment of market power of online platforms and the role of competition law enforcement as a means of data privacy protection.

• The French Competition Authority ("FCA") launched a sector inquiry into the online advertising sector in May 2016; results will be published in 2017. In addition, the FCA issued several decisions relating to digital markets, a number of which order interim measures.

However, it is probably fair to say that most competition law enforcers in Europe are just as actively watching the actions of the German competition authority. In light of the FCO's pioneering role, this article is aimed at giving an overview of the most important enforcement actions in digital markets in Germany over the last years, mostly based on Article 101 TFEU / Section 1 ARC.

II. EXCLUSION OF INTERNET SALES

One of the burning issues is whether or to what extent online sales of certain goods can be restricted by manufacturers. While manufacturers see such restraints as a way of protecting their distributors from low-cost competition and free-riding, distributors increasingly want to make use of the commercial opportunities of the internet and mobile commerce.

On the European level, there is fairly little case law dealing with vertical restraints in relation to online sales so far. In the *Pierre Fabre* case, the European Court of Justice ("ECJ") ruled that sales through a certain sales channel cannot be per se prohibited because this would result in a loss of intra-brand competition and therefore constitutes a restriction by object ("hardcore restriction").[4] Consequently, in the context of a selective distribution system, online sales cannot be per se excluded – e.g. by requiring sales to be made in a physical space where a qualified pharmacist must be present – and the aim of a manufacturer to protect the image of a certain brand image with such restrictions does not justify any exception.[5]

The European Commission also adopted this view in their Guidelines on Vertical Restraints ("Vertical Guidelines").[6] While online sales cannot be precluded per se, the supplier is allowed to require, without limiting the online sales of the distributor, that the buyer sells at least a certain absolute amount (in value or volume) of the products offline to ensure an efficient operation of its brick and mortar shop, nor does it preclude the supplier from making sure that the online activity of the distributor remains consistent with the supplier's distribution model (paragraphs 54 and 56 of the Vertical Guidelines).

III. DUAL PRICING SYSTEMS

Companies have also been using so-called "dual pricing"systems – possibly as a reaction to the ECJ's *Pierre Fabre* decision – which do not exclude online sales per se but, as a means of incentivizing offline sales, provide worse terms and conditions for online sales. For example, distributors and retailers receive better prices or higher discounts and rebates for offline as opposed to online sales.

The FCO has dealt with dual pricing systems in several cases, the most recent being the LEGO investigation which was eventually settled.[7] Previous case law includes *Gardena*,[8] *Bosch Siemens Hausgeräte*[9] and *Dornbracht*.[10] The bottom line of the FCO's dual pricing cases is that while dual pricing systems do not necessarily raise competition concerns, they must be carefully examined. Price discrimination is only considered legal if the higher price charged for online sales reflects the fact that online retailers have lower costs. Or put differently, rebates to incentivize sales efforts by offline retailers can only be granted to the extent that such retailers have higher costs in the brickandmortar trade (e.g. investing in their shop by hiring a space, employing sales personnel and providing advice to customers). Such specific costs may be reimbursed in the form of fixed subsidies that are unrelated to turnover and quantities. Here, the retailer is still free in his choice of a certain sales channel, as fixed amounts usually do not influence the setting of prices. In *Bosch Siemens Hausgeräte*, so-called hybrid dealers who sold both offline and online were put at disadvantage vis-à-vis offline retailers, which the FCO considered unlawful. In the *Dornbracht* case, the Higher Court of Düsseldorf considered discounts linked to quality requirements that could typically not be fulfilled by online retailers – and therefore effectively excluded online retailers – as by-object-restrictions.[11]

4 European Court of Justice, Judgment of 10.13.2011, C-439/09, para. 39.

5 European Court of Justice, Judgment of 10.13.2011, C-439/09, para. 47.

6 2010/C 130/01, para. 52.

7 See press release of 7.18.2016.

8 FCO, Decision of 11.28.2013, B5-144/13.

9 FCO, Decision of 12.23.2013, B7-11/13.

10 FCO, Decision of 12.13.2011, B5-100/10.

11 Judgment of 11.13.2013, VI-U Kart 11/13.

IV. PLATFORM BANS

One of the most controversial questions in relation to online sales at present is whether or to what extent manufacturers using a selective distribution system can restrict or exclude sales on third party platforms, such as eBay or Amazon. While it is acknowledged that a selective distribution system may be permissible provided that the nature of the goods requires selective distribution to ensure proper distribution, there is considerable legal uncertainty for manufacturers and distributors surrounding the permissibility of restrictions of sales through online marketplaces. While small retailers want to use such marketplaces to gain greater exposure with customers, luxury-goods manufacturers are concerned that their brands will be devalued by the fact that high-end products are sold through low-end shops.

In the past, German courts have assessed third party platform bans differently from the German competition watchdog and even among different courts, the decisional practice has varied. Additional uncertainty stems from the fact that at the EU level, the Vertical Guidelines take a different view. Eventually, the split between German courts triggered the recent decision of the Higher Court of Frankfurt in the Coty case concerning the distribution of luxury perfume and cosmetics to refer to the ECJ the following questions:[12]

- Is the protection of a "luxury image" a legitimate reason for a selective distribution system? The Court seeks guidance on whether the protection of a luxury image itself meets the requirements for a permissible selective distribution system.

- If this is assumed, there are inconsistent rulings by German courts on whether third party platform bans are excessive for ensuring that the branded goods are distributed under appropriate conditions. Hence the second question: Is it permissible to impose on distributors an outright ban on sales via third party platforms regardless of whether the distributor failed to meet legitimate quality criteria set by the manufacturer?

- In case the ECJ confirms that Coty's selective distribution system is not in line with competition law, the Court seeks to clarify further whether – based on the European Vertical Block Exemption Regulation – a justification of such terms and conditions would be possible:

    - Is it an intended restriction of a customer group if distributors are prohibited from selling products on online platforms such as Amazon or eBay?

    - Does a sales ban on internet platforms result in a restriction of "passive sales"?

Depending on the outcome of the decision of the ECJ, which is expected for mid 2017, substantial revisions of existing and future distribution agreements between suppliers and distributors might become necessary.

The European Commission takes the view that the Vertical Guidelines should apply to the case, which, under certain conditions, allow luxury-goods makers to prohibit the use of online marketplaces in the context of selective distribution systems. Brand owners can curb sales by distributors that use online platforms displaying the platform's own name or logo. The Commission's view is supported by the governments of Austria, Italy, France and the Netherlands who have all submitted observations in the Coty case. Germany and Luxemburg have taken the view that the platform bans should be considered as hardcore restrictions.

Below is a quick look at the different views that were taken by German courts in the past and that eventually triggered the referral to the ECJ:

- In the *Scout* case,[13] the Higher Court of Berlin took the view that in exceptional cases platform bans can be permitted in the context of a selective distribution system provided the criteria for selective distribution are fulfilled, namely where the selection of resellers is based on objective qualitative criteria concerning their professional skills, staff or equipment, and where such criteria are applied in a non-discriminatory manner. In the case at hand, however, the criteria were not applied consistently as the manufacturer itself sold its school rucksacks to discounters who equally did not fulfil the qualitative criteria and therefore the ban of sales on eBay could not be upheld as justified.

- In the *Casio* case,[14] the Higher Court of Schleswig-Holstein considered the distribution system of a manufacturer of digital cameras unlawful (by-object restriction) for lack of necessity and because the system applied inconsistently. The Court did not consider the selective distribution system necessary to ensure quality and correct use of the product as the cameras in question were not considered to be "technically complex" or in need of comprehensive explanations beyond what could be achieved by the instruction sheet. In addition, the cameras were equally distributed via large electronic discounters where, according to the Court, it is pure coincidence whether you encounter knowledgeable sales personnel or not.

- In the *Deuter* case, the Higher Court of Frankfurt[15] found that selective distribution systems – including platform bans – can be legal if they are applied in a non-discriminatory

12 Decision of 4.19.2016, 11 U 96/14.

13 KG Berlin, Judgment of 9.19.2013, 2 U 8/09; before: District Court of Berlin, Judgment of 4.21.2009, 16 O 729/07.

14 Higher Court of Schleswig-Holstein, Judgment of 6.5.2014, 16 U 154/13; before: District Court of Kiel, Judgment of 11.8.2013, 14 O 44/13.

15 Higher Court of Frankfurt am Main, Judgment of 12.22.2015, 11 U 84/14.

manner. Therefore, and given that all other criteria were met, a ban of selling premium rucksacks on Amazon was considered in line with competition law.

The FCO has dealt with third party platform bans in several investigations and has voiced a rather clear opinion on such restrictions, albeit only in *obiter dicta*.

- Both in its *Sennheiser*[16] decision and in *Adidas*,[17] the FCO investigated distribution systems which prohibited sales via Amazon Marketplace and other third party platforms. Both cases were eventually settled because both Sennheiser and Adidas agreed to change their distribution contracts.

- The issue of platform bans came up again in the *ASICS*[18] case. The company had introduced a distribution system which imposed several restrictions on ASICS distributors: (1) they were not allowed to use the ASICS trademark for Internet advertising; (2) they were prohibited from collaborating with price-comparison portals; and (3) selling via online platforms, such as Amazon Marketplace and eBay, was not allowed. The FCO did not take a decisive view on the platform ban because it considered the selective distribution system in its entirety to be in breach of competition law based on (1) and (2) being hardcore restrictions. In its *obiter dictum*, however, it stated that there were good reasons for assuming that the platform ban constitutes a by-object restriction in violation of Article 101 TFEU / Section1 ARC and, as a hardcore restriction within the meaning of Article 4 (c) VBER, was not open for efficiency considerations within the meaning of Article 101 Section 3 TFEU. A similar view had already been taken in the investigation against Adidas.[19]

V. MOST-FAVORED-COSTUMER CLAUSES

A further hot area of antitrust enforcement in digital markets are so-called most-favored-customer-clauses ("MFNs"), namely in the contracts between online travel agents ("OTAs") and hotels, which have triggered a vivid debate among enforcement agencies, legislators and economists. Such clauses, also referred to as parity clauses, oblige hotels to offer to OTAs the same or better room prices as the hotel makes available on all other online and offline distribution channels. The FCO has also dealt with similar MFNs in previous proceedings against Amazon and Verivox which both ended with a removal of the clauses from all relevant contracts.

According to the FCO, such MFNs ultimately harm consumers because they prevent competition on price and lead to an artificially high price floor in the market. The theory of harm specifically in relation to MFNs used by OTAs is that (1) MFNs restrict competition between existing hotel booking platforms since platforms charging lower commission from the hotels cannot offer lower hotel prices or better cancellation conditions and therefore no OTA has an incentive to charge lower commission fees; (2) MFNs increase the barriers to entry of new OTAs as potential new platforms cannot offer lower commission rates in exchange for lower prices in order to gain market shares; and (3) MFNs potentially have a negative effect on the competition between hotels because they cannot price-differentiate across distribution channels.

In its proceedings against HRS,[20] the FCO found such clauses anticompetitive. HRS's clauses obliged hotels to always match their HRS price with the lowest available price for their hotel rooms and to offer their most favorable booking conditions and cancellation terms to the OTA. After the Higher Court of Düsseldorf confirmed the FCO's view, the authority opened two probes against Booking.com and Expedia based on similar grounds.

Based on the fairly narrow market definition adopted by the FCO who assumed a national market for booking services provided by OTAs (no interchangeability of online and offline services), the Vertical Block Exemption did not apply because of shares above 30 percent. The FCO left open whether MFNs qualify as hardcore restrictions under Article 4 lit. a VO 330/2010/EU. However, it noted that MFNs had the effect of establishing minimum prices and therefore a similarly anticompetitive effect as RPM clauses. Even if they do not prescribe a certain price level, they have the effect of a minimum resale price obligation given the strong market position of HRS and its monitoring and sanctioning mechanism in case of any deviations.

Parity clauses were subject to parallel investigations by competition authorities in France, Sweden, Italy, Austria, Denmark, Greece, Ireland and the UK. The European Commission did not open their own investigation but coordinated the market test of EEA-wide commitments offered by Booking.com in relation to the investigations in France, Sweden and Italy. Under the settlement eventually reached, Booking.com agreed to remove its "wide" parity clause, i.e. to no longer require hotels to grant to the OTA the same, or better, room rates, conditions and availability than the hotels extend to other sales channels. However, it allowed to keep its "narrow" parity clauses, which require hotels to give the OTA the same rates and conditions as those published on the hotel's own website but not the same room availability. Expedia settled on similar terms. As a result of these settlements, hotels are free to offer their rooms to only certain OTAs or to none. They can also offer lower rates to customers who make a booking on the hotel's own website or receive emails as part of a loyalty program.

16 FCO, Decision of 10.24.2013, B7-1/13-35.

17 FCO, Decision of 8.19.2014, B3-137/12.

18 FCO, Decision of 8.26.2015, B2-98/11.

19 FCO, Decision of 6.27.2014, B3-137/12.

20 FCO, Decision of 12.20.2013, B9-66/10, confirmed by the Higher Court of Düsseldorf, see 1.9.2015, VI 1/14 V.

There is still considerable uncertainty across Europe, however. This is due to the fact that legislation was passed in some Member States, notably France ("Loi Macron"), which provides that hotels are free to charge lower prices on their own websites than on hotel booking platforms, i.e. banning both narrow and wide MFNs. This is consistent with the view taken by the FCO in its recent decision against Booking.com,[21] according to which MFNs are illegal irrespective of whether they are broad or narrow because they restrict both competition between portals and competition between the hotels themselves. In Italy, legislation was considered but has not been adopted yet. Trade Associations representing OTAs have filed complaints at the European Commission claiming that such legislation is incompatible with EU competition rules and fundamental principles of EU law, such as the freedom to provide services. Another angle was added to the discussion by a recent decision of the Paris Commercial Court, which declared contracts between Booking.com and French hotels void finding that MFNs were in breach of competition law, not only to the extent they related to room rates but also in as far as general conditions and room availability were concerned. It also found that clauses prohibiting hotels to enter in direct contact with customers, e.g. by telephone or marketing mailings, are unlawful.[22]

VI. ECONOMIC CONSIDERATIONS

Economists have cautioned against over-enforcement in digital markets and have pointed out that in some cases, vertical restraints could mitigate the price-driven competition that online retailers tend to gravitate towards and restore the balance between price and service competition, which would eventually benefit consumers. There is also some concern that competition authorities may not sufficiently acknowledge the economic importance of brand-image and the significant investments made by manufacturers in the value of their brand which needs protection against free-riding.

Particularly in relation to MFNs, it has been criticized that potential benefits of such clauses have not been adequately taken into consideration. The defense put forward by the OTAs was that MFNs could effectively prevent free-riding by clients on the investments made by the platforms. If clients use the platform to search and compare, but then buy or book elsewhere where it is cheaper, the platform cannot recoup its investments. As a consequence, no platform has an incentive to invest in improving the quality of its services ("hold-up problem"). While the FCO concluded that there was insufficient evidence of such efficiency gains, at least in Germany, and therefore decided to prohibit the MFNs used by OTAs, the French, Italian and Swedish competition authorities implicitly recognized that some level of protection against free-riding was necessary in their respective jurisdictions on the basis of the evidence submitted to them.

The significance of these economic considerations and their weight in the analysis of antitrust authorities eventually depend on factual evidence and empirical studies. The main insight gained from enforcement measures taken in digital markets so far is probably that more empirical analysis remains yet to be done on the effects of certain restraints and on the respective counterfactuals. For example, in relation to MFNs used by OTAs, there was a debate on whether there is sufficient correlation between the investments made by the OTAs and the free-riding problem: do OTAs make hotel-specific investments or do they mainly invest to increase their overall visibility, i.e. by spending advertising costs? Is it legitimate not to take advertising investments into consideration in the efficiency analysis? In addition, some took the view that structural differences across various national markets impact the possibility of hotels to react to high commissions and/or to possibly forego the intermediation services of booking platforms as such – which explains the different outcome of analysis in different jurisdictions. Finally, more empirical analysis was called for in relation to alternative ways of addressing the free-riding problem and their effect in the market (e.g. by using alternative remuneration models discussed by the FCO in its HRS decision).

VII. CONCLUSION

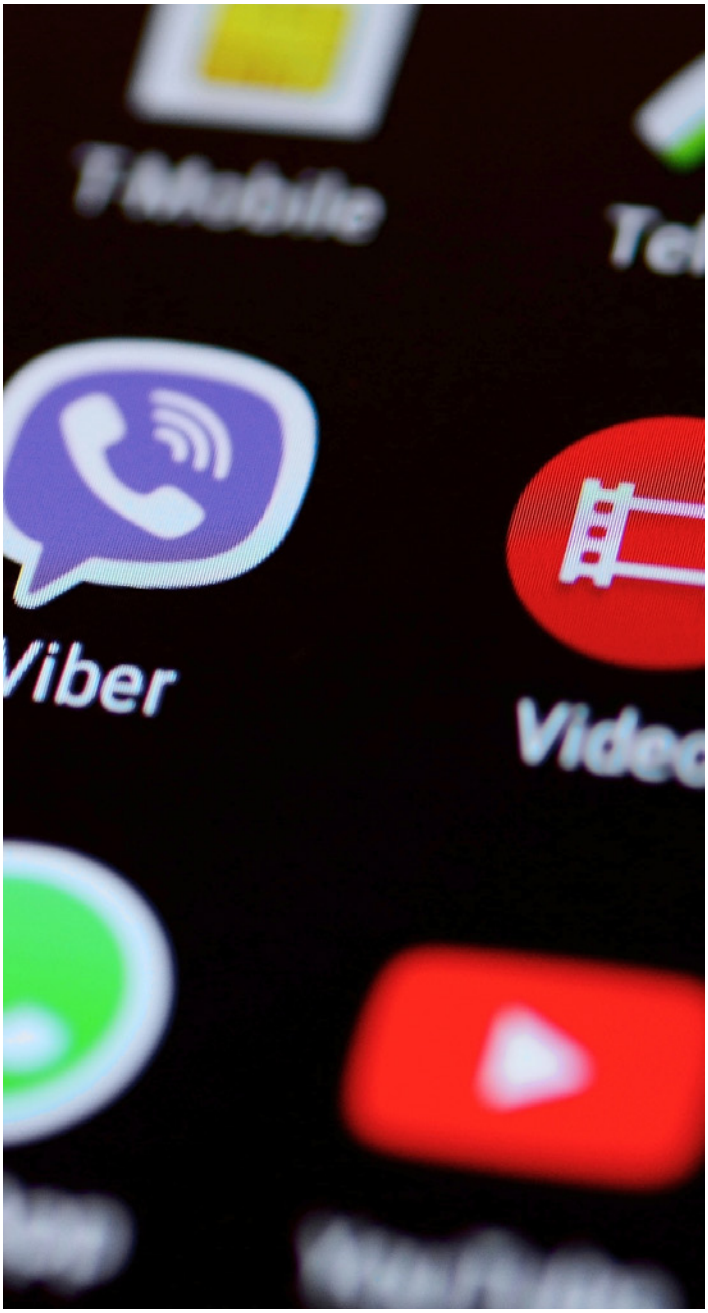
Competition cannot be adequately protected without an in-depth understanding of a market's operation and enforcement tools must be designed in response to it in order to effectively tackle competitive restraints. The main challenge of digital markets lies in their dynamic nature and the fast pace of technological innovation which makes it difficult for enforcers to catch up with the rapidly evolving market characteristics before being able to recognize and effectively address anticompetitive effects of certain practices. However, competition law enforcers are probably still better placed than legislators in this respect as they can react more flexibly and fine-tune their appropriate response to certain behavior. Digital markets will pose challenging questions in the coming years and competition authorities around the globe are eager to build up relevant know-how in order to deal with them. The role that the FCO has been playing in this regard over the past years is remarkable as it has sparked the debate amongst competition law enforcers, economists and stakeholders on various issues and in many ways. Irrespective of whether one agrees with the position taken in relation to the outcome of the cases picked up by the FCO and the individual issues at stake, the role that the authority has taken on for itself is crucial for the development of competition law in the digital economy in the years to come and will therefore continue to be watched carefully across Europe and within the European Competition Network.

21 FCO, Decision of 12.22.2015, B 9-121/13.

22 Decision of 11.29.2016.

GOOGLE, MOBILE AND COMPETITION: THE CURRENT STATE OF PLAY

BY BENJAMIN EDELMAN[1]



I. INTRODUCTION

Google's widely-used Android operating system is open source software. Any developer who wishes to examine the source code can download it in full. Any device manufacturer that wishes to install "bare Android" can do so free of any Google apps whatsoever, and subject to minimal restrictions and few obligations to Google or anyone else. Such flexibility might seem the epitome of competition. How could such methods be anticompetitive?

Notably, options are far more limited for the mainstream devices that offer the features consumers expect in developed markets. Consider a consumer who wants a "normal" Android phone with Google Maps and YouTube, along with the Google Play app store to download Uber and Pandora as well as obscure apps for the user's hobbies and vocation. Unbeknownst to most users, these routine capabilities require a device manufacturer to accept a web of contracts with Google—some easily available, yet others literally unknown to the public before I posted copies on my web site. Under those contracts, a device manufacturer must install the Google apps that Google specifies, must configure the device as Google specifies, and can only install apps from other developers to the extent Google approves and to the extent consistent with Google's demands. Meanwhile, Google's restrictions impede efforts of competing app developers seeking to enter the markets at issue—including preventing them from paying device manufacturers to make them the sole preinstalled services, in their respective genres, on a given device.

Competition authorities have taken note of these practices. The European Commission announced in April 2015 that it had opened an investigation of Google's practices in mobile, separate from and parallel to the Commission's long-running investigation of self-favoritism in Google's search results, among other practices. Despite previously closing an examination of Google's tactics in search, the U.S. Federal Trade Commission announced in September 2015 that it had begun to evaluate Google's tactics in mobile. The Korean Fair Trade Commission in April 2016 announced a similar investigation of Google's mobile practices. Furthest along is Russia, which in September 2015 found Google's mobile practices impermissible, and by August 2016 had imposed penalties totaling nearly USD $7 million (though Google continued to appeal).

1 Benjamin Edelman is an associate professor at Harvard Business School. His research and writings are at www.benedelman.org He has no current clients adverse to Google with respect to the practices discussed herein.

II. THE GOOGLE CONTRACTS AT ISSUE

While bare Android is open source, any device manufacturer wanting to install even a single Google app—perhaps Google Maps, Google Chrome, YouTube, or crucially the Google Play app store that allows downloads of other apps—must accept a Google Mobile Application Distribution Agreement ("MADA"). The existence of these MADA contracts was itself secret, but in February 2014 I found and posted two MADAs.[2] (They had been revealed in open court in copyright litigation between Google and Oracle.)

The MADAs entail significant restrictions on device manufacturers: First, device manufacturers must preinstall all the Google apps that Google specifies. Second, the preinstalled apps must be prominent, with some required to be at least adjacent to the home screen. In some MADAs, Google even specifies the exact sequence from left to right and top to bottom. Third, Google requires that Google Search be the default search provider for all web search access points. (The newest MADAs also require that "assist" and "voice search" functions use Google Search, and that physical buttons access Google Search.) Fourth, Google requires that the device use Google's Network Location Provider service, which tracks users' locations at all times and sends that information to Google. Finally, Google requires that the Google Web View Component (the core of a web browser) be used by all apps that seek to render web pages. As part of MADA requirements, Google also requires device manufacturers to accept an Anti-Fragmentation Agreement ("AFA"), which Google styles as preventing ill-advised customization of Android that might create incompatibilities. To date, it seems that no AFA has been released to the public. But by all indications, the AFA disallows a manufacturer from distributing any devices using a modified version of Android—requiring manufacturers to forego the customization that open source software otherwise allows.

Defending the MADA restrictions, Google argues that device manufacturers need not accept MADAs. Indeed, a manufacturer could in principle distribute some other operating system totally unrelated to Android. But alternatives are not commercially viable. Apple iOS is of course not available for installation on devices made by independent manufacturers. Windows Phone never crossed 3 percent worldwide market share and has been declining since 2015. Though Blackberry and Symbian were historically popular, they too are in decline and indeed have been withdrawn by their respective developers. As a result, device manufacturers have a single choice of operating system—Android—for marketable mobile phones.

Alternatively, a device manufacturer could distribute bare Android without any Google apps, thereby avoiding signing an MADA. A phone without Google Maps might satisfy some users; perhaps MapQuest or Yahoo Maps would suffice. Indeed, some users might affirmatively prefer a different network location provider, mobile web browser, or even search engine, in part in response to concerns that Google's services collect and track excessive personal information. To assist manufacturers that attempt to offer multiple third-party apps, the Android distribution Cyanogen Mod seeks to provide the best available alternative to each of Google's apps. Cyanogen's approach has attracted enthusiast followers, yet it is struggling with management turnover, allegations of overstating installations threefold or more, and difficulty attracting distributors. Notably, whatever a device manufacturer's ability to find substitutes for most Google apps, there remains a substantial additional challenge: replacing the Google Play app store, the subject of the next section.

III. APP STORES AS AN IMPEDIMENT TO COMPETITION

App stores are the software marketplace where consumers browse software to install onto their phones and tablets, including both free offerings and those with a fee. In principle, anyone can make an app store. But an app store is no more useful than the apps it offers, and in this respect Google has a sizable advantage: the Google Play app store features some 2.2 million apps, more than three times as many as Amazon Appstore, the closest competitor among Android app stores.

In principle, a competing app store could expand its inventory by copying app listings and files from Google Play. In general, the apps would work as expected; if the only difference were that a user installed an app via a different app store, the app would still function as usual. Furthermore, each app is embodied in an APK file, which is actually just a ZIP of the app's components—so an app store wishing to use this strategy would only need to download a single file per app from Google Play servers. Notably, developers of free apps would benefit from additional distribution via inclusion in a competing app store, so they would be unlikely to object. Nonetheless, Google specifically bans this strategy, admonishing prospective copiers in the Google Play Terms of Service that copies are only allowed "via the Google Play user interface," subject to Google's restrictions, for personal and non-commercial use, with sharing and redistribution specifically disallowed—quadruply prohibiting a competing app store from copying APKs from Google Play. If a competitor has copied files from Google Play, it has done so only in secret and without significant public discussion.

Seeing the difficulty of copying apps into a competing app store, a device manufacturer might attempt to arrange for its users to receive Google Play. In principle, the device manufacturer could itself copy the Google Play APK file and preinstall it appropriately, along with any support files and configuration adjustments found to be necessary. But distributing Google Play without a license is copyright infringement, exposing the device manufacturer to litigation including statutory damages, actual damages and injunctive relief. Alternatively, the device manufacturer could teach users how to install Google Play themselves. Putting aside the prospect of contributory liability for users' infringements, such methods appear to be unreasonably difficult for users—requiring them to reduce device

2 Benjamin Edelman. "Secret Ties in Google's 'Open' Android." February 13, 2014: http://www.benedelman.org/news/021314-1.html

security settings to allow the installation, find a web site offering the Google Play APK file, accept installation prompts, then restore device security. Several of these steps rightly give consumers pause. For example, mainstream sites cannot host a copyright-infringing Google Play APK, so users must resort to untrustworthy forums or file hosting services to find it. Similarly, users appropriately hesitate to reduce device security settings, even when that is in fact necessary to install crucial software. Furthermore, users can easily forget to restore security defenses in the final step—having obtained Play and the benefits it offers—which leaves their devices especially vulnerable. For all but the savviest experts, it is unrealistic to install Google Play independently.

IV. BUSINESS MODELS FORECLOSED BY GOOGLE'S RESTRICTIONS

Google's restrictions prevent device manufacturers from making a variety of changes to Android. For one, device manufacturers cannot replace certain Google apps with third-party alternatives viewed as preferable. If a device manufacturer thought that some other location service provider was more accurate than Google Location Services, better protected privacy or otherwise offered some notable advantage, it nonetheless could not make this substitution. So too if a device manufacturer found that some other search engine was better than Google, perhaps with fewer advertisements, more privacy, or best-of-the-web results rather than listings disproportionately drawn from Google's ancillary services.

For other apps, such as maps and email, device manufacturers remain permitted to install third-party apps in addition to Google's offerings. But Google's apps are guaranteed the prominence Google specifies, which means that users will see multiple choices for the same functions— duplicative and potentially confusing. Even if a device has ample long-term storage for apps of modest size, both RAM and CPU tend to be in short supply, and a user with multiple similar apps risks running them simultaneously, thereby taxing these key resources and also reducing battery life. When users accidentally spread prior activity across multiple apps—perhaps recent destinations split between competing map apps—the user experience is particularly poor.

Notably, device manufacturers might sometimes want to preinstall other apps not because they are intrinsically superior to Google's apps, but because competing app makers offer to pay for such installations. On one view, this creates a risk of "bloatware"—devices clogged with software installed not because a device manufacturer truly thinks it is useful for consumers, but because app makers pay to put it there. On the other hand, mobile device manufacturing is notoriously competitive: numerous manufacturers make devices that are broadly similar. Additional revenue from app makers would therefore push device manufacturers to lower their prices to consumers. Would a consumer prefer a phone with Google Maps, or one for which MapQuest paid Samsung USD $3 to preinstall its app, and Samsung in turn reduced the phone's retail price by $2? For many consumers, the lower price would prevail. Yet if MapQuest knows it can buy only additional installation, with Google Maps also preinstalled and indeed still prominent, its willingness to pay will be correspondingly reduced—perhaps $1 rather than $3, in anticipation of many users going straight to Google's offering and never trying the competitor. At best, Samsung then has less ancillary revenue to pass on (in part) to the consumer through a lower price. At least as likely, MapQuest and Samsung wouldn't even bother to do the deal.

Occasionally, a device manufacturer experiments with foregoing the MADA and modifying Android to build a customized device. But market response to these offerings confirms the limits of this strategy. For example, Amazon in July 2014 began to distribute the Fire Phone which did not preload any Google apps and was marketed without the Android name or logo. Avoiding MADA restrictions, Amazon could load its own apps for every feature and otherwise customize the device as it saw fit. But without Google Play, users could not get the apps they expected—a complaint reported in most reviews from both technology journalists and ordinary users. As a result, the Fire Phone was not commercially viable, and Amazon discontinued it after one year.

One might discount Amazon's failure as a phone novice struggling to enter a competitive market with experienced incumbents. But the all-or-nothing provisions of Google's AFA assure that any such experiments come only from entrants and not from firms with relevant experience. In particular, any device manufacturer that accepted the MADA for any device is bound by the AFA as to the manufacturer's entire operation. Suppose, say, that Samsung built the same device that Amazon distributed as Fire Phone. As a modification of Android, this device would have breached Samsung's AFA commitments—forfeiting the company's license to install any Google apps on any of the company's devices. Samsung's expertise might provide an advantage in designing customized devices and in making prudent decisions about device settings and features. Nonetheless, Google's interlocking contracts make Samsung's existing business an important handicap—risking losses too big to justify experimentation.

V. GOOGLE'S DEFENSES

Google has responded to critics' concerns.[3] For one, Google suggests that Android competes with Apple iOS—a market definition that reduces Android's market share and dulls concerns about dominance. Google's approach has some appeal: Certainly normal consumers in mature markets do compare Android devices with iOS devices, and from a consumer's perspective, the market may include both. Yet Google's market definition is unconvincing from the perspective of a device manufacturer. For a mobile device manufacturer needing an operating system to install on its hardware, iOS is no answer at all; Apple of course does not license iOS to other manufacturers. Mean-

3 Kent Walker, "Android: Choice at Every Turn." Google Blog, November 10, 2016: https://blog.google/topics/google-europe/android-choice-competition-response-europe/

while, even in the broader market that includes iOS, Android remains much larger than iOS in most countries. With over 80 percent of the global market share as of 2016, compared to about 15 percent for iOS, Android easily meets the level of dominance that triggers competition scrutiny.

Google's most nuanced arguments explore questions of compatibility and restrictions on customization. Google correctly points out that "Any phone maker can download Android and modify it in any way they choose." Yet this argument notably ignores the overwhelmingly more common devices that combine bare Android with Google Play and Google apps, at which point modifications are limited by Google's contractual restrictions as discussed above. Moreover, bare Android devices appear to be largely unworkable in wealthy and developed markets. With a few key exceptions such as China (where many Google apps would be blocked in any event), sophisticated consumers expect and demand Google Play access. Then bare Android appears to be more of a developer toolkit than a commercially-viable offering, and in that context the potential but unpalatable availability of bare Android need not blunt competition scrutiny of Google's restrictions. Here, too, the relevant decision-maker may be a mobile device manufacturer. Choosing between bare Android and a normal installation with Google Play and more, even a substantial increase in price of the latter (or contractual restrictions equivalent to such an increase) seems unlikely to push the developer to bare Android in light of the commercial difficulties of marketing such devices.

Separately, Google flags the risk of fragmentation—noting the importance of "a stable and consistent framework" across devices so that all apps run on all devices. No doubt certain customizations would create incompatibilities. But most of Google's restrictions seem a poor match for this concern. For example, there is no serious suggestion that a device would be incompatible with new apps if, say, a MapQuest icon took the space where Google Maps usually appeared. In the event that some third-party app required Google Maps (perhaps for mapping within the app), it could access Google Maps components despite the lack of a Google Maps app for users to see—an approach reminiscent of Microsoft hiding Internet Explorer but keeping its components for use where needed by other Windows applications.

Google later suggests that it "offer[s] manufacturers a suite of apps so that when you buy a new phone you can access a familiar set of basic services." Here, it seems there are competing values: Perhaps Google's approach offers convenience for users who most value simplicity. Yet it simultaneously increases the barriers to entry for competing apps, and it portends a world where Google's apps dominate ever more sectors. If consumer confusion is Google's fundamental concern, the better approach might be impeccably clear choices for consumers—"Do you want Google Maps or MapQuest?" "Do you want your location tracked by Google Location Services or by Skyhook?" By insisting that users receive Google service, prohibiting such prompts, and denying these user choices, Google invites an inference that its true motive is leveraging its other services, not protecting consumers.

Google concludes by discussing its requirement that manufacturers preinstall Google Search as the default search provider from all search portals, in order to get the crucial Google Play app store. Google explains that this restriction "permits us to offer our entire suite for free—as opposed to, for example, charging upfront licensing fees." Google continues: "This free distribution is an efficient solution for everyone—it lowers prices for phone makers and consumers, while still letting us sustain our substantial investment in Android and Play." But Google offers no financial information to support the claim that the value of free traffic to Google Search is similar to the cost of operating Google Play. Indeed, one might suspect otherwise in light of high revenues from search ads, versus the apparent modest costs of running Play. Indeed, Play's costs seem to be particularly low thanks to self-service app uploads and little to no screening by app store staff. Moreover, Play's costs are likely at least partially offset by some of the service's revenues, including Google's non-negotiable 30 percent fee on both paid apps and in-app purchases. With modest costs and considerable offsetting revenues, it seems probable that Google Play could even be profitable on a standalone basis.

The merits of providing a larger software suite at no charge, versus for a license fee, surely deserve additional examination and discussion. But in some respects, competition concerns would be more naturally advanced by a paid platform. Indeed, if Google charged a license fee for its services, competitors could enter with lower prices to offset, perhaps, lower initial product quality. And if device manufacturers could recoup Google license fees via revenues from third-party app preloads, device manufacturers' net cost might well be negative, facilitating lower device prices to consumers as sketched above.

A recent Google-sponsored paper by Christopher Yoo offers additional insights into Google's defenses of its approach.[4] As to Google's requirement that device manufacturers install certain apps, Yoo notes potential benefits of standardizing user interfaces so that users can more readily switch between devices. But if user interface standardization is truly Google's concern, the MADA's specific requirements do little to fix the problem. For example, most users would find a competing map app intuitive based on experience with Google Maps, and vice versa, and there is little apparent risk of genuine confusion there. Nor does it seem particularly confusing for some devices to direct searches to Google, while others use alternate search services, just as desktop and laptop computers have long featured similar diversity in search defaults. In contrast, Google allows device manufacturers to customize Android in ways that users widely report as confusing. For example, manufacturers install "skins" that transform Android's appearance by changing menus, icons, shortcuts, and more. As a result, the on-screen display of

4 Christopher Yoo, "Open Source, Modular Platforms, and the Challenge of Fragmentation," SSRN Working Paper 2866666, November 10, 2016.

a Samsung phone may differ substantially from, say, a Motorola phone. Similarly, manufacturers change which hardware buttons, in which sequence and combination, perform common shortcuts—so buttons that take a snapshot on one device may not work on another. Furthermore, manufacturers alter and reorganize crucial settings screens that allow user to adjust key configurations. Google's professed interest in user interface standardization would seem to call for standardization in these crucial respects, which have been widely criticized by users and reviewers. Instead, Google allows diversity in these areas—yet demands uniformity in precisely those realms that benefit Google's own apps.

VI. LOOKING FORWARD

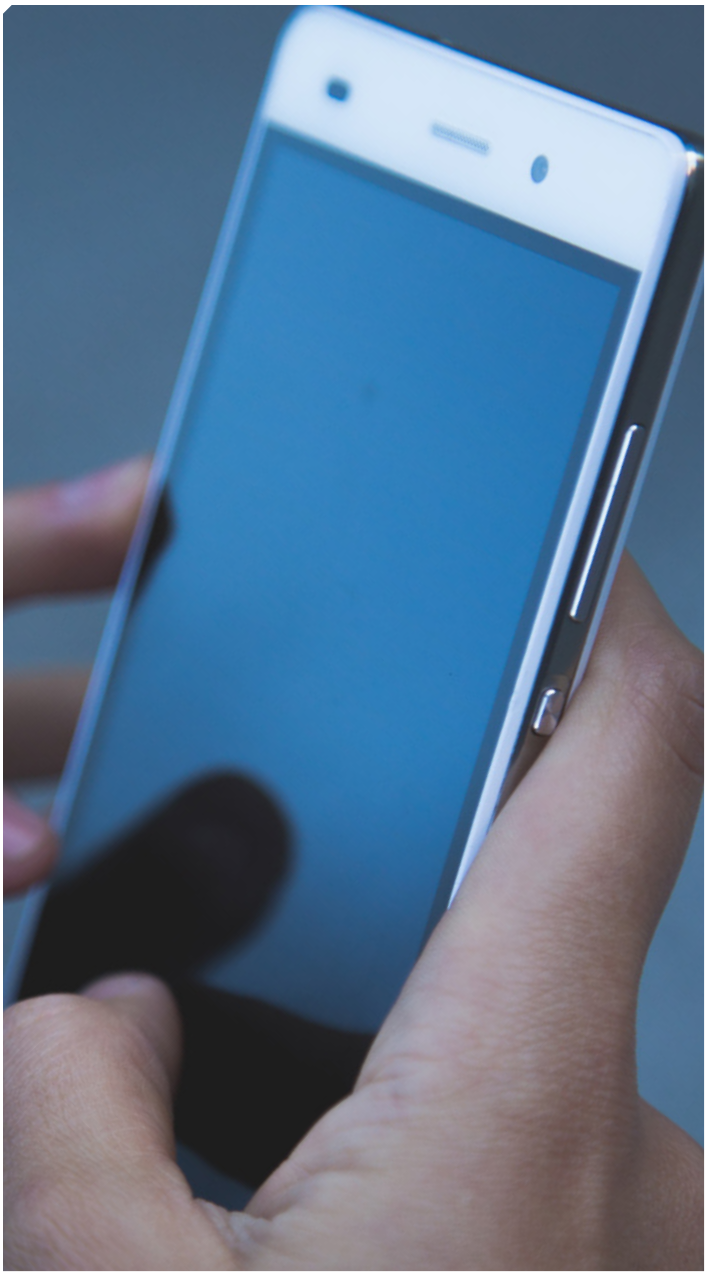
Despite investigations on three continents, Google seems to stand by its restrictions on mobile device manufacturers. Indeed, requirements that had previously been cloaked in secrecy are now under public discussion, in part via newly-available documents and also via increasingly detailed statements from Google leaders. Yet consumer reaction remains limited. On one view, consumers may be satisfied with their devices and may not care. But with few alternatives apparent, save for intervention by competition authorities, consumers may see little reason to speak up.

Meanwhile, important aspects of these questions have already played out in prior competition cases. Most similar are prior proceedings against Microsoft. Accused of misconduct in the design of its dominant computer operating system, Microsoft noted the availability of other OSs including Apple's MacOS—but competition regulators resoundingly rejected that argument, in part because MacOS was unavailable to PC manufacturers. Notably, the final resolution in Europe required Microsoft to offer users prominent choice among competing browsers—promoting the top five browsers in random order with none offered as the default. I previously proposed that competition authorities impose a similar requirement on Google, as to apps on phones and tablets, in any sector where Google offers an app of its own.[5] With such an intervention, competition regulators might similarly accelerate usage of competing services and reinvigorate competition in these important sectors.

5 Benjamin Edelman and Zhenyu Lai, "Comments on Commitments in AT.39740 – Google," May 28, 2013: http://www.benedelman.org/publications/comment-edelman-lai-to-dgcomp-28may2013.pdf

ANDROID, IOS AND MARKET POWER - WHAT DOES MOBILE PLATFORM COMPETITION REALLY LOOK LIKE?

BY JAKOB KUCHARCZYK[1]



I. INTRODUCTION

The European Commission's competition investigation into Google's Android mobile operating system ("OS")[2] has unsurprisingly raised a lot of attention and commentary. So far most comments focused on the "abuse part" of that investigation. The key question there is whether certain provisions in the Mobile Application Distribution Agreement ("MADA"), relating to the bundling of Google apps and the anti-fragmentation agreement ("AFA"), constitute an abuse under Article 102 TFEU. In fact, the Computer and Communications Industry Association ("CCIA") has addressed a letter to Commissioner Vestager explaining why the MADA and the AFA are key to the functioning of the Android ecosystem, spurring innovation and competition.[3]

While the issue of "abuse" is arguably the more interesting part in most Article 102 cases, I believe that the finding of a dominant position is worth a broader discussion in the Android investigation. That is because it reveals a lot on how the Commission views the competitive dynamics in the mobile OS space. This contribution will discuss this issue and will also explain how large market share is not a reliable proxy for market power.

II. TAKING ACCOUNT OF THE "APPLE FACTOR"

Most readers will know that conceptually, a finding of dominance involves a two-stage assessment. First, one has to define the relevant market. While that definition can involve complex economic assessments, it is essentially a matter of substitutability. Where goods or services can be regarded as substitutes or interchangeable by the consumer, they are within the same product market. Second, competition authorities look at whether a given company has a "dominant position" on the relevant market. For economists, companies with a dominant position are companies that have substantial market power. In the often recurring words of the Court of Justice of the EU ("CJEU"), a dominant position:

> relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of

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2 Press Release from April 20, 2016, available at: http://europa.eu/rapid/press-release_IP-16-1492_en.htm.

3 Letter from August 18, 2016, available at: http://www.ccianet.org/wp-content/uploads/2016/09/CCIA-Letter-on-Android-Investigation_August-2016.pdf.

its competitors, customers and ultimately of its consumers. (*United Brands v Commission*, para. 65)[4]

Importantly, the Commission explains in its Guidance on Article 102 Enforcement Priorities[5] that the notion of "independence" is "related to the degree of competitive constraint exerted on the undertaking in question" and where competitive constraints are ineffective, the "undertaking's decisions are largely insensitive to the actions and reactions of competitors, customers and, ultimately, consumers." (para. 10)

With this in mind, let's turn to the ongoing Android investigation. To most people, competition experts and non-experts alike, one aspect of the Commission's investigation stands out: the market definition. When the Commission announced the Statement of Objections[6] ("SO") it sent to Google, it held that the company has a market share of more than 90 percent in the market for licensable smart mobile operating systems. The word "licensable" is key because it means that Apple's iOS which powers all iPhones and iPads is outside the scope of the relevant market. So are iPhones really not competing with Android-powered smartphones? (Leaving aside the question of whether tablets should be included in the market definition for now).

One can argue the answer to this question depends on perspective. If you're an original equipment manufacturer ("OEM"), like LG or Samsung, iOS is not an option for you, indeed. Apple does not license iOS, leaving OEMs with the possibility of either licensing from a mobile OS provider or developing their own OS. OEMs are also free to develop a "forked" OS based on the Android open source code. From the perspective of app developers and consumers, however, the answer to the question above would be dramatically different.

Without the need to dive into a complex econometric analysis, it is fair to say that in the eye of consumers, iPhones and Android-based smartphones are pretty interchangeable, particularly as regards the higher-end Android phones that have started to compete in the price range of the top iPhone versions. Today consumers can seamlessly switch from OS to OS – Apple even developed an app allowing consumers to easily move from Android to iOS.[7] That may be one of the reasons why Apple has repeatedly stressed the increased number of "movers" coming from Android in its earnings calls. At the end of 2015, Tim Cook said that 30 percent of customers who recently bought an iPhone switched from an Android mobile device.[8] Furthermore, competition between Android and iOS is set to increase among mid-range smartphones as Apple continues to sell its entry-level iPhone SE as well as iPhone versions right below the newest one. Consumers will continue to look for the best mobile experience even if that entails a change of the OS.

It is also fair to say that in the eye of developers, iOS and Android compete for their app development efforts. While Android powers the biggest volume of smartphones, iOS has proved to be by far the most lucrative OS. Data recently released by App Annie shows that in Q2 2016, the worldwide app revenue generated by Apple's App Store was twice as high as the revenue generated by Google Play – even though Google Play had twice as many worldwide app downloads as the App Store.[9] Interestingly, the data also showed that when compared to Q1, the revenue gap in favor of the App Store has increased (and in fact by 10 percentage points), indicating that iOS is becoming even more important for app developers. The recent dispute between Spotify and Apple confirms this and shows who the real power player in the mobile sphere is.[10] Without going into the details of this fight, suffice to say that iOS Spotify subscribers are extremely important because they generate most of Spotify's mobile revenue. Importantly, what is true for Spotify is also true for many other apps.

Going back to the Android investigation, it seems illogical to leave out what I will call the "Apple factor," i.e. the presence of a clearly weighty company in the mobile space despite its lower share in mobile OSs.

III. COMPETITION BETWEEN MULTI-SIDED MOBILE ECOSYSTEMS

Competition in the mobile sphere is better described as competition between competing ecosystems– of course, today the two main ecosystems are iOS and Android but in fast-moving technology markets one should never neglect competition, particularly when exerted by a company as sophisticated and well-resourced as Microsoft. If you like, you can replace the word "ecosystem" with the trendier word "platform" or even "multi-sided platform." In fact, the multi-sidedness of a platform like a mobile OS is key to understanding the dynamics of competition in this market. For any mobile OS platform, ranging from Apple's closed platform to Android's open business model, the ability to keep the various sides of the platform happy is

4 Case 27/76 *United Brands v. Commission*. Judgement of the Court of February 14, 1978.

5 Communication (2009/C 45/02). Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings.

6 See Press Release from April 20, 2016, available at: http://europa.eu/rapid/press-release_IP-16-1492_en.htm.

7 See: http://www.apple.com/iphone/switch-to-iphone/.

8 Woollaston, V. (October 28, 2015). The decline of Android? Record number of users are abandoning mobile software in favour of Apple. Available at: http://www.dailymail.co.uk/sciencetech/article-3293254/The-decline-Android-Record-number-users-abandoning-mobile-software-favour-Apple.html.

9 App Annie. (2016). Q2 2016 Index. Available at: https://www.appannie.com/insights/market-data/app-annie-index-market-q2-2016/.

10 See e.g. Webb, A. Spotify's Apple Dispute Reveals Uneasy Dependence on App Stores. Published July 1, 2016 at: https://www.bloomberg.com/news/articles/2016-07-01/spotify-s-apple-dispute-reveals-uneasy-dependence-on-app-stores.

key. Arguably the three most important sides in the mobile OS market are consumers, app developers and content providers. Keeping all of them happy in a balanced way is no easy task. In light of the numbers above, Apple clearly excels at keeping consumers and app developers happy. Some commentators even refer to an "iOS bias"[11] to explain developers' preference for trying new features with their iOS apps before launching them later on Android.

To define a market as narrow as "licensable mobile OS" essentially means that there must be a separate market for "non-licensable mobile OS" and that companies active in these two markets do not compete. In light of the "Apple factor," that is more than just counterintuitive. What does not feel right from a pure consumer or app developer view has also been indirectly rebutted by the Australian Competition and Consumer Commission ("ACCC").[12] In a request made by some of Australia's leading banks, the competition authority was asked to grant authorization to the banks which would allow them to collectively bargain with Apple in respect of access to the iPhone's embedded Near-field Communication ("NFC") controller as well as the ability to pass through Apply Pay fees to bank cardholders. In essence, the banks' ultimate goal was to provide their own digital wallets with embedded NFC on Apple devices without relying on Apple Pay for mobile payment processing and to make sure Apple would not apply any unreasonable terms and conditions to the distribution of the banks' digital wallets through the App Store.

While this proceeding has many interesting angles, the ACCC has recently denied authorization for a variety of reasons, including a concern that the proposed conduct could lead to a distortion of competition between mobile OSs. That is because it could lead to an alteration of the integrated iOS experience which is an "important point of product differentiation that Android and other platform providers compete against" (p. vi). The fact that iOS and Android compete with each other could hardly be expressed more explicitly in the ACCC's observation that:

> As software platforms, both Apple's iOS operating system and Google's Android operating system are driven by the goal of attracting more users, developers and (for Android) handset manufacturers. There is often strong competition for market share, which tends to be fluid and subject to rapid change. (Emphasis added, para. 93).

IV. BACK TO BASICS: DOMINANCE ONLY IF THERE IS "ECONOMIC INDEPENDENCE"

But of course in the context of the Android investigation one can say that market definition does not matter much because even if one includes iOS into the equation, Android's share in mobile device shipment will still be around 80 percent which would not dramatically change a finding of dominance.

Well, that would be true if we stubbornly stick to market share as the most important indicator of dominance. However, let's look back at the key ingredient of a dominance finding: independence. Dominant companies can act independently of competitors, customers and consumers because they are not constrained by the market. It's essentially an economic situation which allows you to be completely numb and unresponsive to market forces. It allows you to profitably raise price, limit output, suppress innovation, reduce the variety or quality of goods or services and deprive consumers of choice. In light of Apple taking the lion's share of profits in the mobile economy, how likely is Google's ability to totally neglect the Apple ecosystem, the demands of app developers and the wishes of Android users? In a multi-sided market setting, one unhappy side will very quickly translate into other sides becoming unhappy, straining the whole ecosystem and pushing consumers towards the competing ecosystem. And that is not to mention that the overall flexibility of the Android ecosystem diminishes Google's ability to exert control over the final Android experience users get on their mobile devices.

It is worthwhile to highlight that while the "Apple factor" is probably the single most important reason not allowing Google to act independently and ignore the wishes of its various platform constituencies, both Google and Apple cannot ignore dynamics of global mobile economy markets. The ACCC, in the proceeding mentioned above, raised this point quite convincingly in saying that "[d]espite Apple and Google currently holding strong global positions in the market for smartphone operating systems, it is a highly dynamic market marked by the frequent emergence of new players and rapid shifts in market share" (para. 94). It bolstered this point by adding that:

> Whilst the ACCC accepts that there are some barriers to switching between devices or operating systems, the dynamic global market for smartphone operating systems is characterized by high levels of innovation, fluctuating market shares, and entry and exit. (para. 250).

Frankly, that does not sound like a market that is constrained by the abusive behavior of a dominant company.

While the true degree of Google's economic and competitive independence is key to the Android case, let me just mention a few words on market shares in dynamic online platform markets. The European Commission summed up that matter in its *Microsoft/*

11 See Parker, M. Which mobile operating system is best? Android vs iOS vs Windows 10 Mobile. Published February 16, 2016 at: http://www.trustedreviews.com/opinions/which-mobile-operating-system-is-best.

12 Australian Competition and Consumer Commission. Draft Determination from November 29, 2016. Bendigo and Adelaide Bank & Ors – Authorisation – A91546 & A91547. Available at: http://registers.accc.gov.au/content/index.phtml/itemId/1197444/fromItemId/278039/display/acccDecision.

Skype decision[13] quite nicely, even if primarily related to consumer communications services:

> Market shares only provide a limited indication of competitive strength in the consumer communications services markets. [C]onsumer communications services are a nascent and dynamic sector and market shares can change quickly within a short period of time. Furthermore, almost all communications services are offered free of charge. (para. 78).

In reference to this paragraph, the Commission went on to stress that "market shares are not the best proxy to evaluate the market power of providers of consumer communications services and they only give a preliminary indication of the competitive situation in these dynamic markets" (para. 99).

If one were to replace the words "consumer communications services" with the words "mobile operating systems" in that sentence, it would still make a lot of sense.

V. CONCLUDING REMARKS

The relevance of the Android investigation goes far beyond the alleged anti-competitive conduct Google is accused of. Despite being in its infancy, this case is set to say a lot about how the Commission intends to enforce competition rules in dynamic, multi-sided platform settings. In the mobile economy, it is inconceivable how one would apply competition rules without regard to the "Apple factor." Apple's fully integrated iOS experience is a clear competitive constraint on Android raising the stakes for Google to keep its mobile OS as integrated and attractive as possible. This, coupled with the overall flexibility Android leaves to third parties like OEMs and mobile operators, makes a finding of dominant position, i.e. a situation of economic independence, highly questionable.

13 Commission Decision in Case COMP/M.6281 *Microsoft/Skype*. (October 7, 2011). Available at: http://ec.europa.eu/competition/mergers/cases/decisions/m6281_924_2.pdf.

THE GOOD, BAD AND UGLY IN COMPETITION LAW ENFORCEMENT: OBSERVATIONS FROM THE TECHNOLOGY SECTOR

BY TIMOTHY COWEN[1] & STEPHEN DNES[2]

I. INTRODUCTION

Increasingly widespread adoption of competition laws around the world has masked significant divergence in the enforcement practices under which the laws are enforced. Despite widespread agreement on the benefits to consumers and the economy from market-based approaches, there remains significant variation in how best to design and deliver those efficiency benefits as a matter of institutional practice. These differences in enforcement can have a dramatic impact on the impact of the law and the scope for the law to achieve the market performance improvements sought. In some cases, this enforcement context can even predominate over the rule itself, raising serious questions about whether there is a need to consider aspects of existing enforcement with a view to a more streamlined approach that would allow doctrine, and not formality, to predominate.

This article seeks to identify what works well in competition law enforcement, and what drives and distinguishes good performance from less desirable outcomes. To do so, it analyses the application of competition law to technology and communications markets. This choice of focus reflects particularly pronounced issues that have arisen in relation to problematically slow enforcement mechanisms, which have the effect of frustrating the law. In a world where much value and growth is tied up in technology platforms and other technology products, these questions are very pressing, not least because of significant barriers to entry and expansion that can result from the mismatch between a principled and pro-competitive legal rule, and enforcement mechanisms that do not always deliver on the promise of the substantive rules. The article concludes with some practical suggestions highlighting areas for potential reform that might help to address some of the identified issues in the disjunction between substantive rules and their enforcement in fast-paced markets, with an emphasis on small but significant changes that could be applied to administrative procedures.

II. ENFORCEMENT ISSUES IN TECHNOLOGY MARKETS

At the outset, the importance of competition law enforcement in technology markets bears significant emphasis, because of significant distinguishing factors when compared with other markets. First, the paramount role of innovative industries in driving economic growth would suggest a pronounced role for analysis of market performance in the sector. Perhaps more importantly, significant differences in the competition dynamics of technology products, if compared with other more traditional "smokestack" industries, suggest a need for prompt and effective enforcement if the law is to have any significant

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impact on market performance. This distinguishes the technology markets from other sectors in which more reactive postures might pose fewer issues.

Significant differentiating factors in technology markets arise primarily from the role of platform dynamics, and the scope for leveraging strategies in upstream and downstream markets to be more successful than in other contexts. It may be helpful briefly to recap these factors, before moving on to consider how they fit into the picture of current enforcement patterns.

A. Platform Products

Platform products are common in technology markets, and tend to display so-called "two-sided" market dynamics. This means that the value of the product to one group of users varies with its adoption by others. A relatively early example is the telephone: there would be little use in a telephone exchange connected to users in the single digits, and value increases as more join the exchange. The problem has become significantly more pronounced with the passage of time. Where once a telephone exchange might have taken some time to construct, leaving time for regulation, modern platforms like social media sites, advertising platforms, and electronic marketplaces arise very quickly. This means that, if an exclusionary strategy is possible, market power can arise well before any authority can address the issue, as the market tips towards a predominant platform. A practical example is the difficulty in switching to an alternative social media network: although Twitter, Instagram and Facebook might display a degree of interchangeability for some uses by some users, it is doubtful that switching between them is seamless, and it seems very clear that a platform comes to enjoy a predominant position for a use; it is likely that a degree of market power results because switching is likely imperfect. Once again, transaction costs associated with technology products impede switching, it being unlikely that any group of users could realistically recreate the platform they wish to use.

The conventional response that in the case of fast-moving markets the "perennial gale of creative destruction," with competition "waiting in the wings" that can be relied upon to uproot market power contains a degree of truth in that no private monopoly is ever likely indefinitely to last. If taken too far, however, this observation contains scope to beg the underlying question, which is whether competition rules can sometimes help ease entry barriers and market power, improving market performance. Even if some technology markets display lower entry barriers than some "smokestack" industries, it would seem ambitious to claim that all technology markets display this dynamic, that is, that the only enduring barriers to entry in them are government restrictions, and that no private restrictions affect the market. If indeed there are market power issues and imperfect entry dynamics, competition law would seem to be needed just as in any other industrial sector. Yet the speed with which tipping can occur raises a fundamental problem in enforcement dynamics, if the enforcement is too slow to react before tipping occurs, as expanded in further detail below.

B. Upstream and Downstream Effects

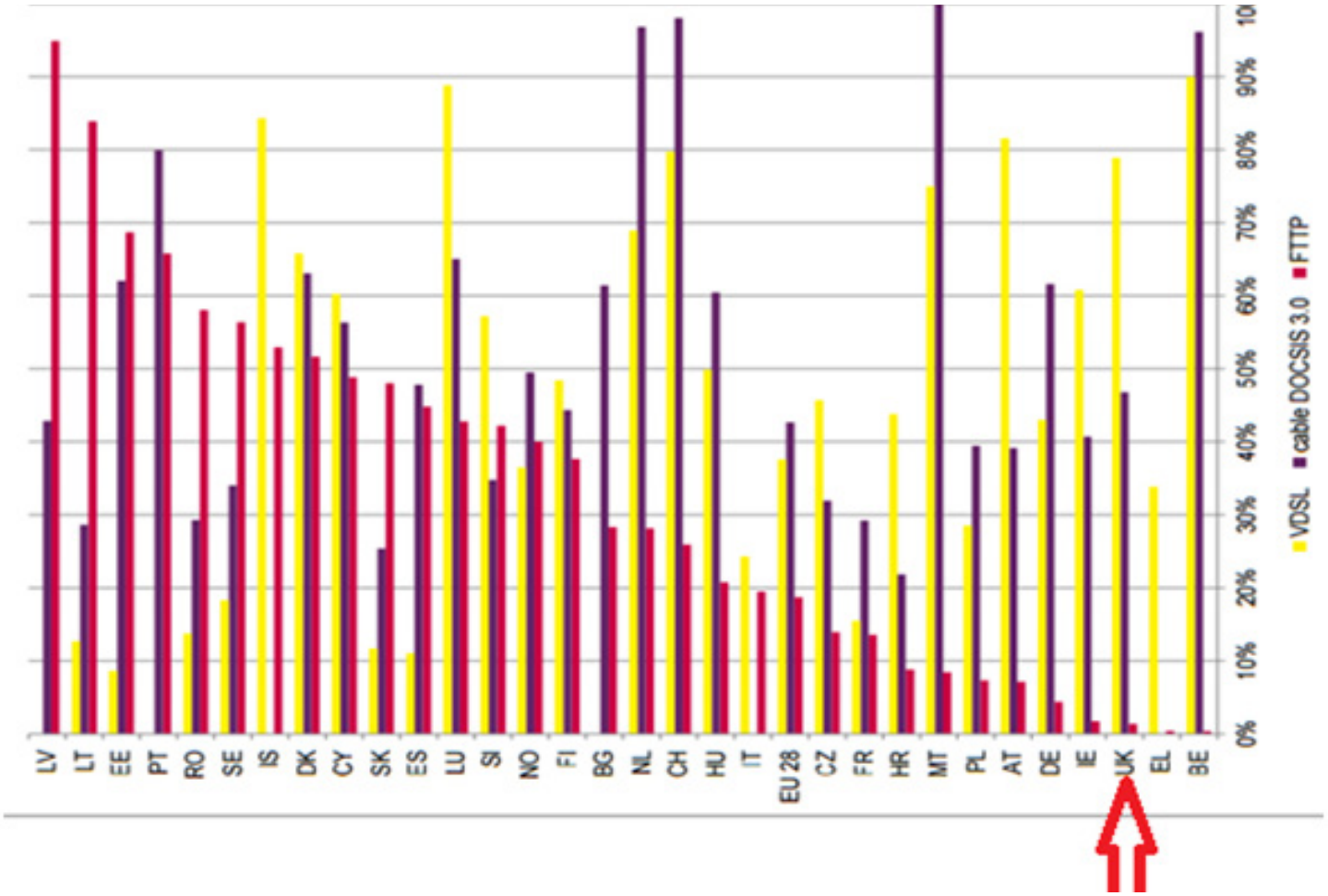
Alongside issues with increased transaction costs from complexity and switching, market power issues are especially pronounced in some technology industries because of the upstream and downstream impact of restrictive practices in those industries. Many readers will be familiar with noted examples of "technological tying" in which competition authorities and courts have considered the gatekeeper effect some technology companies have because of market power from sources like electronic platforms and installed bases of equipment. Where an expansive installed base of equipment requires a particular product, significant market distortions can be seen in repeated and successful attempts to lever the market power that can result from this position. An installed base of equipment might have significant service requirements, for instance, meaning that a more efficient provider would need access to the equipment to offer that greater efficiency to the market. It would seem relatively uncontroversial to suggest that these upstream and downstream markets require some review to account for the possibility that the party creating the dominant product does not extend its market power into related markets.

In theory, it may be true that a perfect market could sometimes discipline a leverage strategy to a degree, under the so-called "one-rents" theory under which monopoly profits can be extracted only once, and are not accentuated by tying where a (significant) range of assumptions hold. One could even argue the slightly extreme claim that the monopoly profits simply encourage entry by others into the marketplace. But once again and as with the platforms, the underlying assumption in having a competition law is that these mechanisms are not perfect, and that some (not all) markets require supervision to ensure that entry remains possible, to prevent the very poor market performance that might otherwise occur. Thus, the argument that technological tying is of lesser concern appears to assume away the underlying problem: in some markets, imperfect competition exists, and should be addressed if unduly restrictive practices accentuate market power issues – even if care is needed to intervene sensibly and only when there is a real problem.

Between them, the presence of platform dynamics and the pronounced upstream and downstream foreclosure risks in technology markets pose a range of enforcement issues. The most significant is that enforcement needs to be quick to capture market dynamics before tipping towards a dominant platform occurs.

III. ASSESSING ENFORCEMENT PERFORMANCE IN TECHNOLOGY MARKETS

If issues with foreclosure are well-known, an interesting question is why some regulators appear to deal with them better than others. A classic example of these issues can be seen in the roll-out of the latest communications technology, known as Next Generation Access ("NGA"). Significant differences have arisen in the adoption of the latest fiber optic communications technologies, as can be seen in the table below. It shows significant divergence in the roll-out of a new technology product, in this case the latest generation of fiber optic networks, known as Fibre to the Premises ("FTTP"):



NGA coverage by technology in European countries as of 2014

Source: BEREC Report BoR (16) 96 Challenges and drivers of NGA rollout and infrastructure competition

As communications specialists will know, great significance exists in running fiber optic cables all the way to premises, because of the scope to achieve vastly increased connection speeds by dispensing with copper connections; the connection comes to be limited by electronics attached to the fibers, rather than the inherent frictions in a copper connection.

Although there is some scope to argue that markets would display a degree of divergence, perhaps reflecting different demand and supply profiles, the scale of divergence in the above chart is extremely striking: it would appear that, by adopting different regulatory approaches, dramatic differences in the adoption of a very important new communications technology have resulted. In turn, all of the productivity that feeds off of connectivity, including the platform and component markets mentioned above, will have different performance prospects, reflecting divergent investment responses from industry. The main question for our analysis is what drives divergence as seen above. The article will consider this with primary reference to the enforcement history in the UK.

The UK entry in the above chart is highlighted because of the very striking position of the UK towards the end of the table. This will strike communications law experts and those with a knowledge of regulatory history, because of the UK's prominent role as an early liberalizer of telecommunications in which markets should, *ceteris paribus*, perhaps have developed more quickly and to greater sophistication than in other markets. The lagging performance above therefore raises questions: what has worked, what has not, and why?

Indeed, the question has some political currency following the UK's vote to leave the EU, which has heightened attention to market performance questions. It appears that the Prime Minister, Teresa May and her senior colleagues consider that following decades of regulatory and competition law enforcement, the outcomes can be improved. These outcomes raise daily complaints in the press, some of which are raised in colorful ways. Reflecting latent demand for better connectivity, particularly in regional markets, retired colonels in Surrey and small businesses in Birmingham all ask: "Where's the fiber?," and "What happened to all the money spent on high speed internet access?" Most strikingly of all, the Countryside Alliance characterizes the problem as "rural gymnastics" and asks why the people in the country have to perform gymnastic routines to obtain a (mobile) phone signal?

To answer these questions, one needs to consider what has worked well alongside areas where regulatory enforcement seems slower and less responsive to the needs of a competitive marketplace.

IV. WHAT HAS WORKED WELL?

Essentially, the above table represents a series of regulatory responses to the same problem, based on the same laws, and resulting in what can be seen as counterfactual criticisms of UK implementation of the same telecoms regulatory framework which we see working elsewhere. The first point to note is that the move to market-based approaches has seen significant improvements over the earlier, monopoly position, but that this has been distributed unevenly because of the paramount importance of suitable regulation across jurisdictions, which varies by location and drives divergent market performance.

In terms of outcomes, it is not unfair to say that what worked well is what was done outside the UK. Indeed, the UK liberalized telecommunications at an earlier stage than the rest of the EU, mostly in the 1980s rather than the late 1990s, and initially generated investment in world leading mobile and internet technologies ahead of other, non-liberalized countries. The UK was well ahead of the rest of Europe when the 1998 package of telecommunications laws was passed. Also, in many ways, the system of the opening up and liberalization of markets subject to regulation which was pioneered in the UK was successfully exported to the EU and further afield. In the early 1990's UK companies such as Vodafone, BT, and Cable and Wireless faced competition at home (from cable and mobile companies as well as content companies such as Sky and others) and stood to gain most from liberalization of markets internationally. The 1998 regime created an EU-overseen enforcement system designed to safeguard investment and increase competition. The irony is that this seems to have worked better in application in markets other than those on which it was arguably modeled.

V. WHAT HASN'T WORKED WELL?

While UK companies such as Vodafone and BT and others have benefitted from liberalization abroad, the above table shows how little investment the UK has seen since 1998, from being at the forefront of liberalization and investment and competition, to its current position as third from bottom in Europe.

It is now clear that the reasons for the current position arise from the regulatory system and the choices that have been made. Demand in the UK is arguably ahead of many EU countries. Finance is available from similar sources and could have been provided in similar ways. However, the regulatory system and decisions taken outside the UK where the regulators sought to promote competition at the lowest level in the supply chain (down to the level of access ducts and poles), has generated more investment and more competition at the infrastructure level than in the UK. In terms of the competition law doctrine outlined above, they have considered benefits in related markets from investment, and sought to lower barriers to investment to stimulate a competitive response that drove wider social benefits.

Looking at the EU data outside the UK, it is clear that this in turn stimulated a competitive response from the incumbents. It could have provided a case study for PhD level regulatory policy scholarship, save for the fact that BEREC and Analysis Mason have already completed their review. Indeed, the Commission's latest communication on the subject, released on September 14, 2016, places great emphasis on the significance of the competitive response seen:

> Analysis of trends in technology and demand indicates that provision of many products, services and applications will only be sustainable where optical fiber networks are deployed up to a fixed or wireless access point close to the end user.

The answer proposed by the Commission is more investment in fiber optic connections, especially where needed for 5G mobile internet connectivity, with very high speed fixed wireless access in less densely populated areas. Private investment is being fostered, adopting the approach taken by countries such as Sweden to open up access to the infrastructure needed to lower barriers to entry. The Commission notes:

> Effective access to civil infrastructure such as ducts and poles held by undertakings with significant market power unleashes competitive and investment potential, and should be the first remedy considered for bottleneck problems.

Sweden welcomed the Commission's position, but the idea of opening up or unbundling a vertically integrated entity to promote alternative infrastructure investment is hardly a new idea. The curiosity is why simple steps to lower barriers to entry are proving elusive as between different enforcement patterns.

A. Delaying Tactics

Turning from the base layer of telecoms infrastructure to technology more generally, it is worth expanding the question from the above enquiry as to why an effective and easily implemented pro-competitive measure was unevenly applied. Here, we encounter a more fundamental problem in the enforcement pattern: it is far too slow to keep pace with the technologies in question, given their tendency to tip toward a dominant provider.

At the heart of this essay is an observation that the current antitrust and regulatory system doesn't work well in promptly addressing established issues. In short, it is simply too slow. If we start with the proposition that some enforcement of competition law is implied by the choice to have competition law, rather than not to have competition law, the most pressing question becomes whether the enforcement pattern provides credible deterrence in a hypothetical case where harm is clearly established.

While there are an increasing number of cases meaning that there is some detection and some redress, they remain heavily dependent on authority action for follow-on claims. The current problem is, however, that public enforcement can be cripplingly slow to meaningful deterrence. Beyond the telecoms layers, Microsoft, Intel and Google, affect many other sectors and involve huge factors of production; and yet the Microsoft investigation took 10 years, and the Google investigation continues, 10 years on.[1] Although much can be debated in such cases, it seems very difficult to believe that a final determination could not have been made in the timeframe involved.

It is a simple and small point but is critical to enforcement success in fast moving markets with tipping dynamics: if it is right to have a law, it cannot be the case that five years are needed to come to a position on whether the law was broken, much less ten. The result is that the letter of the law is undermined by serious delay issues in enforcement discretion.

B. Ex-Ante vs. Ex-Post Enforcement Mechanisms

The result is especially problematic if a parallel with sector-specific regulation is drawn. Speed was supposed to be part of the system of industry-specific regulation. Industry-specific regulators were designed to understand the sectors and markets that they regulate. The assumption was that sector specific regulation would be more targeted and faster at resolving issues than general competition authorities.

Yet contemporary practice greatly understates this dynamic, and the line between generalist and specialist enforcement has blurred. As an opening observation, the system of regulation and antitrust now both operate in much the same way, following extensive investigation and consultation. This takes a considerable amount of time. The result is that there is no meaningful difference between *ex-post* and *ex-ante* systems of antitrust or regulation when looked at from the perspective of a market participant or end customer. Indeed, the courts are now routinely quicker at resolving disputes than either sector-specific regulators or competition authorities.[2]

Take the *Microsoft* case: it took 10 years to establish that Microsoft was dominant in operating systems for PCs and was bundling its media player with its dominant operating system. The facts were non-controversial, and it should have been possible to decide the matter one way or the other in much less time. Looking to the *Intel* case, the issues and judgment calls were fairly clear cut and it is not unreasonable to think that the issue could have been decided one way or the other based on a timely and sensible assessment of the available evidence.

Currently the leading cases involve Google. There are many aspects of Google's behavior that are under scrutiny. For example, Google is alleged to self -promote its own apps on the Android operating system through a series of exclusivity agreements with handset makers that may prevent other apps being provided on that operating system. No one (except perhaps Google) is seriously arguing that Google is not dominant in online search: It has held a position of (super) dominance with over 90 percent market share for over 10 years. It is accused of distorting search results and promoting its own products across a range of on line sectors, both with relation to Android and in search results themselves. It has also entered exclusivity agreements with a small number of preferred on line advertising agents. It has exclusivity agreements with mobile handset producers, provides operating system software free of charge on condition that its applications and only its applications appear on the home screen of smart phones. These are not new issues or complicated problems; in fact, following the *Microsoft* case the law on them was carefully defined, taking some time and expense. Nonetheless, the cases drag on.

The effects of these activities distort what users can find, leading to monopoly profits because of the market dynamics outlined above. Imagine the boost to the economy if users had an undistorted view of the internet. This would be possible if the authorities enforced the law swiftly, providing practical meaning to the letter of the law rather than rewards from seriously delayed enforcement.

C. Promoting Regulatory Competition

The Commission might wail about EU exclusive jurisdiction on cases they are already looking into, but ten years to take action is far too long and a radical approach in the UK or other member states at na-

1 The EU Commission investigation is considering acts in its ongoing, current investigation which took place as long ago as 2006.

2 See for comparison the fast track Competition Appeal Tribunal process, the availability of interim relief in access/abuse cases before the High Court, and compare with EU investigations of technology sector matters such as *Microsoft, Intel, Google*, or, in a UK context, the OFT's 7+ year investigation of CityHook.

tional level might spur action to introduce an element of competition into enforcement. The French and German competition authorities are known to be frustrated by the lack of action, and this frustration is met by those facing exclusionary tactics from dominant online platforms. For instance, News Corporation complained recently about Google news aggregation, which also affects other news services, and many other sectors are affected, from maps and images to navigation systems.

If the above sounds harsh, consider the question in the following way: could the EU Microsoft case have been any clearer in its desire to protect a fringe of potentially more efficient competitors in related markets, from the risks of exclusion by a dominant platform? In fact, the point that EU competition law objects to this type of tying was clearly established as a matter of law. But the quickest glance at the state of many contemporary online marketplaces immediately reveals that the enforcement pattern is not applying the same stricture, which dominates the substance of the rule.

D. Who Bears the Enforcement Risk?

If the regulators in the EU and UK are moving slowly, do the regulates not also share the blame? BT was notorious in the 1980's and early 1990's for its regulatory policy of "walking slowly backwards." That isn't the current strategy but if the regulators are only "walking slowly forwards" what can we expect to see as outcomes? The tyranny of the status quo would seem to be a distinct possibility, driven by inertia.

Another significant factor in the problem derives from enforcement risk. Imagine for a moment that a new entrant with a more efficient product in a market historically dominated by a vertically integrated monopolist faces an exclusionary tactic. Here, the delay identified above is compounded by cost risks. New entrants face capital risk, especially when compared with dominant incumbents. They have limited time and money for private enforcement or making claims and complaints. Costs of court action can be significant under national rules that require the unsuccessful party to bear costs risks if they fail.

This means that plaintiffs claiming abuse can face ruination for asserting their rights, even where the claim is strong. It is, of course, normal to bear some cost risk and the risk of false positives must be managed. But the current state of play is far too cautious, as can be seen in the immense difficulty in litigation succeeding. It cannot be that all of these claims are incorrect; if that were so, the logical response would be to abolish the competition law. What starts to become ever clearer is that an enforcement pattern is robbing the law of its meaning.

E. A Wider Compliance Issue?

Broadening the issue to regulation of market more generally, are we seeing a problem that is a product of the system more generally? For example, how long after the financial crash did anyone take action against the concentrated financial system and a number of traders in banks who were rigging the markets? Does the fact that it took a long time to bring the players to account indicate a systemic issue with enforcement against dominant companies?

A particularly interesting aspect of the current environment is that there is renewed interest in sensible regulation in cases of market power. Perhaps the strongest evidence for this lies in a recent call in the Economist newspaper for responsive regulation in cases where markets do not measure up to their perfect ideal:

> [The theory] says that in a competitive market, prices are a signal of the marginal value of goods to consumers as well as the marginal cost of goods to producers. Indeed it goes further. When prices (and wages) are set in free and competitive markets, the economy's resources are allocated "efficiently." In other words, no person can be made better off without making someone else worse off. In this theoretical Utopia, markets cannot be too free.
>
> The theory is beautiful, and thus seductive. But it does not reflect any world that real people live in or might live in. There are several big objections to the free-market-as-nirvana view of economics. One is that some firms inevitably have market power. General-equilibrium theory assumes perfectly competitive markets made up of businesses that all set prices at marginal cost. In reality some industries will have a few number of large firms, either because of economies of scale or because of "network effects," which mean the more customers flock to a platform, such as Facebook, the more useful it is to others. Such firms have enough muscle in the marketplace to sell above their marginal cost; they can also pay below-market wages (so-called "monopsony" power). Such sand in the wheels is fatal to the socially efficient outcome of general-equilibrium theory… Dealing with such "market-failure" problems requires judicious regulation.

A powerful contrast exists between this renewed awareness of the importance of some degree of sensible regulation, and the extreme cases of delay and incumbent advantage outlined above.

VI. WHAT CAN BE LEARNED FROM THE EXPERIENCE?

If enforcement needs to speed up and to pay more attention to meaningful redress in the worst cases, one approach would be to move toward what is sometimes called a "gardening" approach: weeds that choke beneficial plants need to be weeded out.

A more fundamental enforcement question relates to how active that gardening role needs to be. At the risk of mixing metaphors, is it enough to do a spot of gardening from time to time, or is more active supervision required? In other words, is the game one of cricket, with a passive umpire, or is the better approach the more active role of the referee in a game of European soccer? On this approach, the EU cases above would seem to fit the stereotype of a cricket referee, and may be far removed from a more active approach.

One possibility, much practiced in other jurisdictions, would be to maintain vigilance through a system of market monitoring. In a sense, this was always the idea with the specialist regulators referred to above, and the specialized appeal mechanisms made available to them. Following the analogy, the cricket umpire essentially stands still. The referee is concerned to ensure fair play but is often misled by the professional foul. Perhaps modern games require modern technology and modern technical aids to assess breach of their rules. Cops and robbers involves enforcement with modern tools by those on patrol, who track what is happening and are vigilant to ensure that the law is observed.

Regulators must of course take care to ensure that they are not inadvertently harming markets, and to rely on evidence. Yet it is perfectly possible for a well-designed regulator to take a more active approach to evidence gathering and assessment. Although most regulators keep some level of detail on market dynamics on file, there may be scope to increase analysis of market performance to allow timelier responses. Indeed, the common deregulatory complaint that intervention is too competitor-driven might be addressed by keeping tabs on which markets are working well in a more detailed way. This is common in other walks of life, notably in finance where market modeling is critically important to investment decisions, because of the scope for market power to affect those decisions. Expanding the scope for this type of pro-active market assessment and monitoring might help address serious issues with delay, and ensure that enforcement follows those areas where market power issues are the most keenly felt.

It is important to emphasize that what is being said here is not a charter for widespread and indiscriminate intervention in markets: No intervention at all is needed where markets are working well. But the serious delay in recent cases and the very patchy enforcement pattern amounts to a systemic failure to enforce the law in cases where market power issues are significant, and the theory above faces the problems that even the Economist is flagging.

VII. SPECIFIC RECOMMENDATIONS

- Revisions to turnover-based tests. Companies with radically new and exciting technologies are acquired by dominant ones before they have high turnovers. They may have potential for high market power and hence be very valuable. Here, the recent moves in the EU away from mechanical application of turnover rules seems wise, and might be replicated in jurisdictions persisting in tests based solely on turnover.

- Increased attention to vertical foreclosure risks. A recurrent theme in technology cases is the increased risks of vertical foreclosure in markets with super dominant players and significant entry barriers. Analysis should reflect these increased risks, which are an order of magnitude greater than they were during the period when Chicago school thinkers called vertical foreclosure theories into question. Facebook, with over 2bn users is arguably dominant in social media. Google holds a market share above 90 percent in online search in Europe. Market power on the scale held by some platforms may be persistent and pose a serious exclusion risk to new entrants and their investors. Care is needed to adjust analysis to the fact that some vertical effects may now be considerably larger than horizontal effects, and deserve more analysis: the exact opposite of the familiar case in less concentrated markets of the twentieth century, in which concerns from horizontal effects were more likely to predominate.

- Pro-active *ex-ante* market monitoring. Lack of change means that the authorities are organized much as they always have been. They may organize into industry focused investigation teams. They may not. They don't require their teams to understand the market developments every hour of every day, indeed, not until after the fact. Typically investigation takes place only once the claim is made or complaint received, but there is no reason not to monitor performance in a sensibly designed way to ensure that the maximum efficiency benefits are seen from the application of the law. An additional benefit is that existing knowledge of the state of play would significantly undermine strategic abuses of information flows and document production, because a significant picture about what is happening in the marketplace would already exist to test against the market investigation rather than starting over.

- Forward-looking analysis of customer demand. A critically important instance of pro-active monitoring is the need to consider nascent demand in markets that may already be distorted. Seeing "demand" other than in terms of existing "products" is a difficult thing to do but mistakes are inevitable in a system that examines everything with evidence of what has in the past fulfilled demand, without appreciating what that demand is and what could substitute for previously supplied products. The problem is compounded where the focus is on existing production channels rather than what customer behavior and demand suggests is desired.

- Supply side analysis of customer demand. From failure on the demand side there is then failure to assess and gather information and evidence from the supply side: forward looking authorities could be gathering and monitoring and horizon scanning: they need to do that to avoid being trampled by "unicorns" (Tech companies worth over £1bn) as well as "Purple Elephants" (tech companies being suddenly huge companies trampling all before them).

- Time limits and page limits. The inability of the backward looking information gathering systems to properly gather data is compounded by industry specific regulators having extraordinarily long consultation processes; over a year is not uncommon. Modern market analysis should be monitored by antitrust officials dedicated to following market developments and should be available as it is published by investment analyst and market research organizations, as would happen routinely in business analyses of market dynamics.

- Business strategy review. Ten years ago, there was much discussion of the abolition of notification systems. The issue is now less prominent, but the issue has not gone away and it remains the case that a carefully designed notification system is capable of helping to manage streamlined enforcement, and might be strongly preferable to a ten year investigation after the facts. Thought could helpfully be given to means for dominant companies aiming for efficiency improvements to communicate this clearly to the authorities through a (meticulously streamlined) notification mechanism. An incidental but important benefit is that management might be more alert to foreclosure issues as well.

- Prompt redress means decisions in a matter of weeks, not months. Another current problem is imposed on the regulators and antitrust authorities: the time taken in antiquated processes and administrative procedures internally is at least in part there because of the need to operate within an antiquated legal system. They have to operate within our general administrative law, through a crushingly slow court system and its venerated processes and timescales. Why do courts close in the summer? The modern business world does not take August off, but many regulators and courts still do. The default should be swift and sure justice unless there is a good reason for delay, which cannot simply, is the difficulty in finding cover. If we care about economic growth and productivity, this needs to change.

In summary, the theory is that existing laws can be applied to the technology sector, or possibly any sector moving at internet speed, without much change to the letter of the law: it is only necessary to change some elements of enforcement, and even then, the changes needed are not especially great to avoid the risk that enforcement has become so slow that it has dominated the letter of the law, at least in technology markets.

What would be reformed? Firstly, change to process and practice. Practice, process and simple things like types of data, length of submission, speed of authority response—with timescales and penalties for breach—would help. The output has to be faster decision making and a true "rule of law." Secondly incentives such that being a lawbreaker pays needs to change. Greater emphasis on incentives for compliance and reward for good behavior are vital. The costs of the system are unbalanced and operate against the smaller player who is often the innovator. Stricter and swifter enforcement should trigger investment and certainty of outcomes can help make worthwhile, sustainable businesses that compete on their merits not their market power or the size of their legal budget. Finally, the enforcement system can be assessed in terms of improvements in certainty for investment which should lead to productivity improvements and stronger economic performance with all the benefits this increased efficiency can bring.

Would it be that difficult to change?

GEO-BLOCKING BETWEEN COMPETITION LAW AND REGULATION

BY GIORGIO MONTI[1] & GONÇALO COELHO[2]

I. INTRODUCTION

The Digital Agenda is one of the key pillars of the EU's industrial policy. One of its aims is to strengthen the creation of a single market and one of the issues that the Commission proposes to tackle is geo-blocking. This refers to practices by sellers which make it costly or impossible for consumers with residence in one Member State to obtain goods and services from other Member States as well as the rerouting of customers away from websites hosted in other Member States to a website hosted in the Member State from where they are based (e.g. customers in Italy rerouted from a ".pt" version of an online store to its ".it" version) without their consent. Based on the welfare enhancing effects of a single market, the Commission is keen to deepen this integration as consumers move to using the internet to secure services and make purchases using this channel.[3] In this paper we outline the Commission's regulatory efforts to enhance cross-border trade through the use of competition law and a rich package of proposals for secondary legislation. We argue that the regulatory framework looks like an important first step, but that it does not go far enough to address this issue and that there must be enforcement capacity to yield meaningful results. By rushing the geo-blocking agenda without adequately addressing these pitfalls, the EU risks undermining another of its flagship projects, adding to the increasing concerns about the end of roaming charges by June 2017 introduced by Regulation 2015/2120.[4]

II. CROSS-BORDER PURCHASES

The problem identified by the Commission is easily stated: "53% of EU citizens buy online, but only 16% do so cross-border."[5] From the perspective of competition law, certain steps have been taken to facilitate cross-border purchases, reflecting the Commission's longstanding interest in using competition law to challenge industry strategies designed to partition the single market. The most relevant initiative is the control of distribution agreements when the manufacturer tries to prevent distributors from selling in countries other than that where they are based. The Block Exemption Regulation for Vertical Restraints states that agreements which restrict the territories or the customers to whom a distributor may sell are "hardcore restric-

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3 M. Monti, A New Strategy for the Single Market (May 9, 2010) Section 2.3.

4 "Row Over EU Mobile Roaming Rates Threatens to Push Phone Bills Up" The Telegraph December 2, 2016: https://www.euractiv.com/section/digital/news/eu-considers-concession-to-telecom-firms-to-end-roaming-charges/.

5 Commission Staff Working Document, Geo-Blocking Regulation Impact Assessment SWD (2016) 173 final, page 8.

tions" and their inclusion negates the benefit of exemption and it is highly unlikely that an individual exemption may be tolerated.[6] Certain exceptions are available, in particular for those who sell through exclusive distribution agreements, where it remains possible for a manufacturer to assign exclusive territories for dealers, but even here each dealer must be free to make passive sales into other territories. The Commission has made great efforts to explain how the passive/active sales distinction works in the Guidelines that accompany the Block Exemption Regulation. The Commission starts from the premise that all distributors should be free to use the internet, and that selling goods on the internet is a passive sale, even if this means that the buyer is able to reach customers in other Member States. The Guidelines suggest that automatic re-routing of customers to another website or blocking a sale when a foreign credit card is issued are actions that may not be tolerated and would constitute prohibitions of passive sales.[7] However, certain uses of the internet would qualify as active sales, for instance, paying a search engine to advertise when the user is based in another Member State.[8]

EU competition law also acts to favor cross-border sales in an indirect way: allowing distributors to use the internet. In *Pierre Fabre*, the Court found that a requirement that the buyer may only sell goods through a physical store to be restrictive by object for not affording distributors the chance to use the internet.[9] This was followed by a spate of decisions by the French National Competition Authority curtailing similar restrictions in a number of economic sectors. There is a delicate balance to strike here: on the one hand the manufacturer is keen to have a bricks and mortar store that enhances the aura of luxury or the perception of quality of the goods it sells, while on the other the Commission favors the use of on-line sales, which may run against the commercial strategy of businesses. In the Guidelines the tension is resolved by allowing the manufacture to request certain quality standards to be applied by on-line sales platform that mimic the quality standards that manufacturers require for physical shops.[10] However, the German competition authority has gone further, challenging also those manufacturers who, under the cloak of a selective distribution system, tried to ban online marketplaces like Amazon or eBay from distributing their goods. The approach in Germany has been uneven and we expect the Court of Justice to shed some light now that a case concerning a luxury cosmetics manufacturer's bans on sales via third-party online platforms has been referred from the Frankfurt Court of Appeals.[11]

While the judgment of the court will shed more light on the way that distribution agreements may be controlled to facilitate cross-border sales, it is harder to use competition law to request an unwilling merchant to make sales in other Member States when this is their individual choice and not the result of an agreement. Only dominant players may find their unilateral choice to engage in geo-blocking challenged under the competition rules.[12] This is where the Commission's recent proposals fit in. The most important of which is the proposed geo-blocking Regulation.[13] In a nutshell, the Regulation targets certain forms of unilateral conduct that make it difficult for consumers to obtain goods offered for sale in other Member States. Article 3 regulates access to websites: it forbids a trader from refusing to make a sale based on the nationality or place of residence of the purchaser and it forbids automatic re-routing on the basis of nationality or place of residence (e.g. a customer in Portugal wanting to access a website like amazon.co.uk cannot be redirected to amazon.pt). Article 4 identifies three scenarios where a trader cannot discriminate between customers on the basis of their residence: (i) sale of physical goods when the trader is not involved in delivering the product to the Member State of the customer; (ii) the provision of electronic services (other than copyright protected works, which are excluded); (iii) services provided by a trader in a member State different from that of the customer's residence. The latter could include car hire services, where the Commission found that there was discrimination when a consumer ordered a car from another Member State. It isn't particularly clear how valuable the first two prohibitions are. In the first the buyer still must arrange for delivery separately, so its success depends, *inter alia*, on the lowering of the costs of cross-border parcel delivery;[14] while in the second, excluding copyrighted works appears to limit the scope of application significantly. Article 5 appears to be more valuable in that it forbids discrimination on the basis of the payment method selected by the buyer.

Those familiar with the Services Directive might comment that there is not much more in this Regulation, and they would be right: the justification for adding this Regulation is the finding that the exceptions available under the Services Directive have dented its market integration potential. One might wonder whether a revision of that Directive might not be a more coherent way of legislating.

6 Regulation 330/2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and concerted practices [2010] OJ L102/1, Article 4.

7 See e.g. Case COMP/37975 *Yamaha* (July 16, 2003) paragraphs 107-109.

8 Vertical guidelines, paragraph 53.

9 Case C-439/09 *Pierre Fabre Dermo-Cosmétique SAS* [2011] I-09419, paragraph 47.

10 Vertical guidelines, paragraph 54.

11 Case C-230/16, *Coty Germany* (case in progress).

12 Joined Cases C-468/06 to C-478/06, ***Sot. Lelos kai*** *Sia EE* [2008] I-07139; Commission Decision from 14.4.2010 in Case 39351 – *Swedish Interconnectors.*

13 Proposal for a Regulation on addressing geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC COM(2016) 289 final.

14 The Commission has tackled this issue through the proposed Regulation on cross-border parcel delivery, released on May 25, 2016. This is designed to increase price transparency and thus stimulate competition in this market.

In addition, other proposals are designed to accompany this one: a proposal on cross-border parcel delivery tries to generate more transparency so that the better deal may be found, and some other Directives on consumer protection try to harmonize rules governing the sale of digital content and distance sales.

The package of reforms as a whole tries, on the one hand to prevent suppliers from geo-blocking and on the other to encourage consumers to buy abroad. However, it is not clear if these measures will suffice. First of all, the scope of coverage of the geo-blocking Regulation excludes many of the copyrighted works that consumers are most likely to buy online and for which comparing offerings across Member States would be beneficial.

Second, the Regulation has no public enforcement structure of its own to secure compliance. This could reveal problematic since it is unlikely that a single consumer denied the benefit of a cross-border shopping experience will use the legal system to obtain a marginally cheaper product. Indeed, in the transport sector, similar obligations to avoid geo-blocking or price discrimination have been in the books for some time without any real impact. However, the Regulation is supposed to be read in conjunction with the proposal for a revised Regulation on Consumer Protection Cooperation that seeks to strengthen the cross-border enforcement mechanism for consumer claims. This proposal goes as far as establishing a mechanism of attributing the competent authorities the right of ordering the trader responsible for the infringement to provide the consumers with monetary compensation, a function that is normally a prerogative of the judiciary (Article 8(2) (n)). Competent authorities will also have the powers to request information from domain registrars, internet service providers and banks to track financial flows and identify infringers more easily (Article 8(2)(b) and (c)); carry-out dawn raids (Article 8(2)(d)); and suspend or shutdown a website (Article 8(2)(g) and (l)).

III. COPYRIGHTED WORKS AND GEO-BLOCKING

The reason why the proposed geo-blocking Regulation excludes copyrighted works is that handling these is a hot potato.[15] Again, let's start with competition law. Readers may recall the *Murphy* case.[16] Here, the Football Association Premier League ("FAPL") complained about publicans buying decoders in Greece and using these to show premier league football matches in British pubs, thereby avoiding Sky's high fees for the same service sold to UK customers. In a nutshell, the FAPL argued that allowing for the resale of the card decoders marketed in Greece would undermine the geographical exclusivity of its licenses and consequently the value of its rights. This would result in a race to the bottom whereby the broadcaster with the cheapest decoders could become the pan-European broadcaster, *de facto*, creating EU-wide licenses.[17] The Court was not receptive to this policy argument and ruled in a manner that generally favored publicans, finding infringements of Articles 56 and 101 TFEU, confirming that agreements forbidding passive sales restrictive of competition. However, this was a pyrrhic victory for publicans since the Court concluded that the retransmission of the broadcast in the UK had a profit-making nature and amounted to a transmission to a new public, i.e. to a group of potential viewers that had not been taken into consideration when the right holders authorized the communication in Greece. Hence, the publican was still in breach of Article 3(1) of the Copyright Directive and could not get away with showing the FAPL matches using the imported decoders.[18] Ms. Murphy's only victory was to escape criminal charges since Article 56 was found to preclude national legislation that makes it unlawful (and even a crime) to import foreign decoders giving access to a broadcasting service from another Member State (even if the publican used for commercial purposes and under false identity and address to circumvent the territorial restrictions at stake). It is therefore unsurprising that the FAPL merely amended its licensing contracts in ways that makes it able to continue to restrict cross border sales and it is fighting and winning cases against other publicans.[19] One way of doing so is including certain FAPL copyright logos on the broadcast image so that anyone showing such a video is breaching that copyright.[20] Moreover, according to one report, FAPL is even reducing the services available to foreign buyers of football matches to deter passive sales of foreign broadcasts into the UK market, leaving consumers in these countries worse off.[21]

More recently, the Commission issued statements of objection about the agreements between the Hollywood majors on one side and Sky UK on the other. The concerns arose from two aspects of these contracts: (a) a broadcaster obligation, by which Sky UK undertook not to respond to requests from consumers outside the UK and Ireland (the territories for which Sky UK holds a license) and (b) a Hollywood major obligation, by which the owner of the copyright undertook to prohibit other EEA broadcasters from responding to unsolicited requests coming from consumers in the UK and Ireland. The result of these clauses is of concern to the Commission for it partitions the internal market, preventing for example a UK consumer from buying pay TV services from another jurisdiction. One of the

15 For an excellent discussion of the issues discussed here see P. Ibáñez Colomo "Copyright Licensing and the EU Digital Single Market Strategy"LSE Law, Society and Economy Working Papers 19/2015.

16 Joined Cases C 403/08 and C 429/08, *Football Association Premier League Ltd and Others v. QC Leisure and Others* (C-403/08) and *Karen Murphy v. Media Protection Services Ltd* (C-429/08), [2011] 2011 I-9083.

17 Ibid, paragraph 43.

18 Ibid, 195-198 and 205-206.

19 For an informative overview, see:http://www.twobirds.com/en/news/articles/2014/global/broadcasting-post-murphy-the-territorial-tv-sports-licensing-landscape.

20 *Football Association Premier League Ltd v. Luxton* [2014] EWHC 253 (Ch).

21http://ec.europa.eu/sport/news/2014/docs/study-sor2014-final-report-gc-compatible_en.pdf page 102.

majors (Paramount) has secured a commitment decision, which has two dimensions: (i) in new licensing agreements the two offending obligations are removed; (ii) for existing licensing agreements Paramount agreed not to act on or enforce those obligations.[22] It isn't particularly clear what beneficial effect this commitment can have. Under copyright law, the holder of an exclusive license in the UK (e.g. Sky UK) is free to rely upon its copyright to forbid the broadcasting of the film in question from another source. Thus, the passive sale cannot be made into the territory assigned to Sky UK, unless Sky UK decided to forego enforcement action, which is unlikely. Likewise, if a buyer in France wants to secure a pay TV contract from Sky UK, nothing stops the copyright holder in France from challenging that conduct; matters would differ if there were no copyright holder in France, in which case the passive sale would not be in breach of any other licensee's interests, and this may be the consumers the Commission wishes to protect.

In sum, while the approach found in the CJEU and Commission brings some pleasing symmetry with the competition law rules that apply to non-copyrighted goods & services (active sales may be prohibited, passive sales must be allowed), it does not actually resolve the market failure that the Commission identified, because the commitments are only entered into with Paramount and not with the licensees in the Member States. Matters may differ when the passive sale is denied by a firm holding a dominant position because then it may be possible that reliance on copyright law for exclusionary purposes might constitute an abuse of dominance,[23] but one would be hard pressed to find dominance in these settings.

Given the *Murphy* case's landmark hardline view over absolute territorial protection based on copyright, it was unsurprising that the Commission announced in 2015 that a broader reform of the system of cross-border distribution of audiovisual and media content could be envisaged, and now we have on the table a Proposal for a Regulation "on ensuring the cross-border portability of online content services in the internal market."[24]

Consumers expect to have ubiquitous access to online content services regardless of national borders. However, the existing copyright framework often frustrates such expectations by permitting Member States and copyright holders to geo-block access to online content services along national lines. Thus, consumers, often cannot access online content services when traveling to a country different from that of their residence. Having considered that there is a market failure in terms of portability, the Commission took the initiative of proposing a Regulation that contributes for the removal of the existing barriers in the Internal Market. The Commission identifies the current hurdles to portability of online content services in the recitals of the Proposal. Firstly, online services often involve content that is copyright-protected and subject to licensing on a territorial basis. Secondly, even when the online content is not copyright protected *per se* (e.g. sporting rights), the transmissions of such content end up involving elements that are copyright-protected such as music or images. The bundling of non-copyright copyright-protected elements (e.g. the European Champions League opening song), therefore results in the geo-blocking of the online content altogether.

The Commission analyzed three possible avenues of intervention for addressing the portability issue. The first one consisted in offering guidance to the relevant stakeholders, encouraging online content service providers to allow for cross border portability of those services. The second option consisted in applying the rules of the State of the consumer's residence in terms of provision, access and use of the online content service. Finally, option three, in addition to applying the rules of the country of the consumer's residence, would impose an obligation upon online content service providers to ensure portability of those services and establish that any contractual restrictions limiting portability would be unenforceable. The Proposed Regulation embodies the third option because it is the one that better safeguards the interests of consumers while imposing marginal consequences for the industry since it neither challenges the territoriality of the licenses nor expands the range of users of the service.

Moreover, the Proposal does not set quality requirements for the service in cross-border portability so the industry costs should be limited to the authentication of user's residence. Hence, the quality settings applicable in the country of residence are not subject to cross-border portability, even though the service provider is nonetheless bound to the duty of informing the subscriber on the quality of delivery when the service is accessed in a different Member State.

The Proposal is applicable to all enterprises alike with the Commission arguing that, given the limited costs of the Proposal, there is no need to exempt SMEs from its scope. Furthermore, since many of the online service providers concerned are SMEs, the objective of the portability proposal would be seriously hindered otherwise.

Pursuant to the Portability Regulation, subscribers of online content services delivered on a portable basis will be able to continue receiving those when they are temporarily present in another Member States different from the residence one. The right to cross-border portability is provided both in relation to paid and free online content services. However, in the case of free content, the service provider is only obliged to give cross-border portability to the service once the subscriber's residence is verified after registration on the respective service website.

In a nutshell, the Portability Proposal creates a legal fiction whereby the consumption of the copyright-protected content is deemed to occur in the country of residence of the subscriber. This fiction enables the legislator to circumvent the hurdles posed by copyright legislation since it does not require any exception to the rules of territorial licensing.

22 http://europa.eu/rapid/press-release_IP-16-2645_en.htm

23 However, even here the case law does not yet stretch this far.

24 COM(2015) 627 final.

It is important to interpret the Portability Proposal considering the *Murphy* case. At first sight, the Portability Proposal seems to be simply restating the *Murphy* ruling: if the online content service is to be enjoyed by a consumer and not being broadcast to a different public, then, cross-border portability cannot be prohibited either by law or by contract. However, it can also be argued that the practical effect of the Portability Proposal is to limit the *Murphy* ruling by applying the consumer's country of residence rules. In this scenario, the Commission would be betraying rather than developing *Murphy*. In fact, in *Murphy*, the Court of Justice did not restrict the universe of potential subscribers to those who could already access it. Quite the contrary; the Court argued that such geographical restriction went beyond what was necessary to protect the content of the intellectual property right. Under this interpretation, consumers already benefitted in theory from the right to access online content services available only in other Member States subject to the limits imposed by the Copyright Directive (that is, provided they view the content themselves and not show it to others for gain). If that were the case, the Portability Proposal represents a victory for the industry, which manages to push-back the potentially most negative consequences stemming from *Murphy* by limiting its duties to only having to offer cross-border portability to its current subscribers. A more charitable reading is that the Portability Proposal is a first step before further legislative measures are introduced. It would not be the first time that opening up a sector to competition is achieved in gradual steps to allow industry to readjust to new market configurations facilitated by EU law.[25]

IV. CONCLUSIONS

The proposals that have come out certainly try and reduce geo-blocking beyond the results that may be achieved by the application of EU competition law. The regulatory framework builds on competition law and bans unilateral conduct by any dealer even absent market power. This in itself should give us pause for thought: if dealers (without collusion) appear unwilling to facilitate sales outside their borders in spite of the significant gains that they could make, what is holding them back? A diagnosis of this phenomenon is crucial to assess the likely success of the measures discussed here.

If traders enjoy greater profits by keeping markets segmented, then the approach proposed can serve some useful purpose by banning certain practices. However, absent the capacity to deter through public enforcement it is not clear whether any tangible results may be achieved. This is why it is vital that, if the regulatory framework discussed above is implemented, that it is accompanied by the proposals to bolster consumer protection agencies, so that these rules may be enforced appropriately. As we have noted above the proposal for revisiting the Regulation on Consumer Protection Cooperation would give consumer agencies a range of enforcement powers and also facilitate cross-border cooperation. While this seems necessary to ensure that the prohibitions on geo-blocking are enforced, a note of caution is warranted: even in competition law, as we have seen above it is only a limited number of national competition authorities that have taken action against distribution agreements restricting on-line sales. Thus one has to wonder how far public enforcement will serve as a sufficient deterrent across the EU.

However, if traders geo-block because of path dependence or the fear of legal risks that arise from making sales to buyers outside their jurisdiction, then the regulatory framework should work towards providing incentives for traders and minimizing those perceived risks. In this case, prohibitions are less likely to be successful than measures that target the most common fears faced by traders. In this context harmonizing consumer protection laws further may be a preferable pathway to stimulate more cross-border sales.

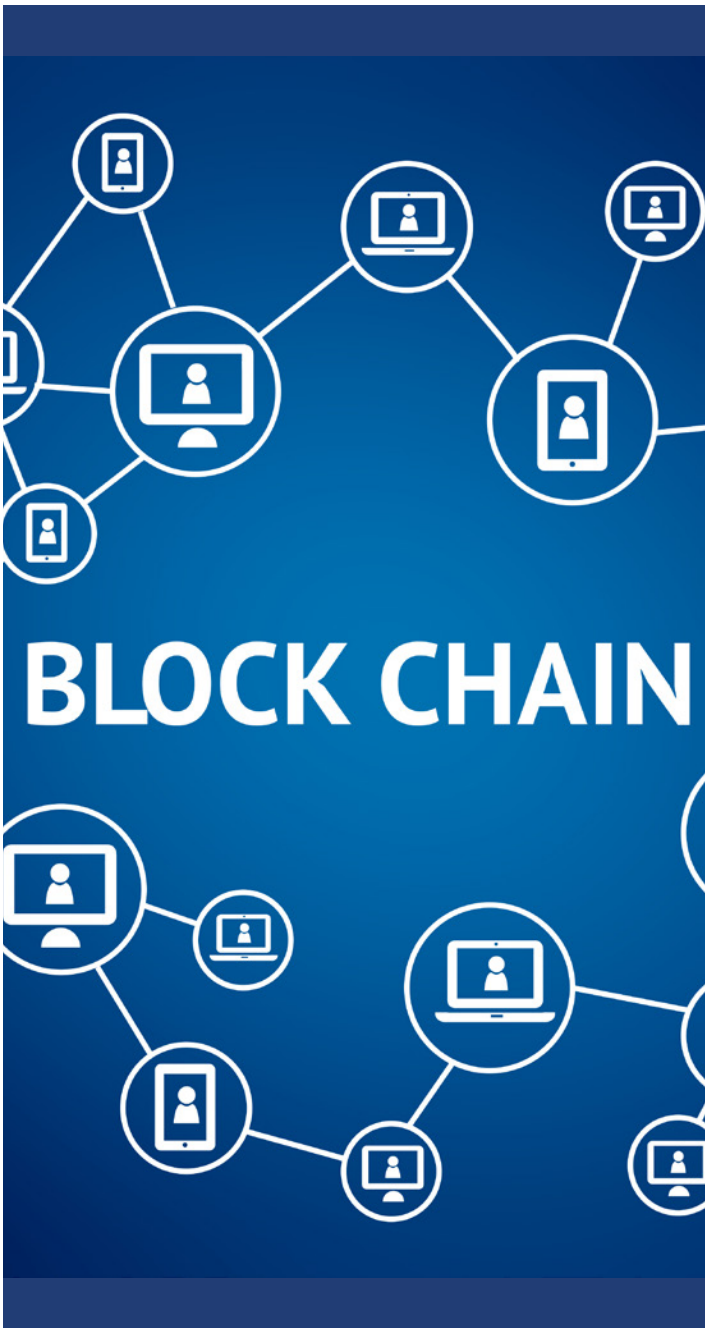
Looking forward, it looks as if we will see a continuation of a twin-track approach: on the one hand the Commission's preliminary findings in the E-Commerce sector inquiry suggest that antitrust enforcement activity may pick up given that contractual and unilateral geo-blocking initiatives have been found to persist.[26] On the other, running such cases will give the EU added leverage to press for regulatory solutions and can bolster the chances of the measures discussed above being agreed.

25 Recall the gradual opening of telecommunications markets, for example.

26 European Commission,Preliminary Report on the E-commerce Sector Inquiry, SWD(2016) 312 final.

ENFORCEMENT AND COMPLIANCE IN A BLOCKCHAIN(ED) WORLD

BY AJINKYA M. TULPULE[1]



I. INTRODUCTION

Most legal professionals have come across the term "blockchain"or "bitcoin" through client interaction, formal training or news updates. The topic has also been covered by industry publications, websites, magazines and journals which helpfully explain what a blockchain is, what it does and how it could bring revolutionary changes to business structures. Legal articles, however, are limited in scope. Most discuss the application of blockchain technology in financial services for e-commerce, reducing transaction costs and simplifying audit trails and regulatory reporting. Few publications, if any, discuss the changes blockchain technology could bring to competition enforcement and competition compliance procedures. This article looks to fill this identified gap and hopes to reach out to technology enthusiasts and competition professionals alike.

In the paragraphs that follow, I first define key terms to ensure a common understanding of relevant concepts. I then explain the potential benefits of blockchain technology in the enforcement of competition law followed by a few examples of how blockchains could be used to implement robust compliance policies.[2] A key assumption I have made in this article is that most, if not all, businesses move to a blockchain environment in the near future; similar to the uptake of accounting software or the World Wide Web today.

II. KEY TERMS

In order to unlock the potential of blockchain technology in the enforcement and compliance realms, we need a level of familiarity with the technology and the jargon used to describe its various aspects such as "distributed ledgers," "permissioned blockchains," "permissionless blockchains" and "smart contracts."

A "distributed ledger" is a ledger of transactions that exists simultaneously on multiple devices. The benefit of a distributed ledger is that no single undertaking is in control of the verification process before an entry is made onto the ledger. Similarly, no single undertaking can amend, delete or change the contents of such a ledger. If a merchant wishes to use a distributed ledger to record transactions, all devices hosting that ledger need to verify the authenticity of the transaction and agree on incorporating it into the ledger. Once incorporated, it is nearly impossible to change any details since that change will have to be made on all copies of that ledger, i.e. on all devices, at the same time. Blockchains are a type of distributed ledger.

1 Ajinkya M Tulpule holds experience in both, competition law and technology matters. The views expressed here belong to the author alone and do not reflect the views of the FCA.

2 Arguably blockchain technology could also be used to counter bribery, fraud and money laundering, but these topics are outside the scope of this article.

A blockchain is generally defined as "a shared digital ledger, or a continually updated list of all transactions, where the decentralized ledger keeps a record of each transaction that occurs across a fully distributed or peer-to-peer network."[3] The term blockchain comes from the process of adding blocks of cryptographically signed data to form a perpetual and immutable chain of records.[4] Each transaction is assigned a unique set of characters called hash ID and multiple transactions are clumped together to form a digital block. Each block connects to the immediately preceding block and the immediately subsequent block creating the chain.[5] There are multiple such blockchains, the most well-known blockchain is the bitcoin blockchain.

A key feature of blockchain technology is its verification process, which requires some form of consensus. For example, the bitcoin blockchain requires a minimum of 51 percent of all computing power on that network to verify the authenticity of each transaction before it is permitted to complete and get added to the bitcoin ledger. If a transaction fails to meet the 51 percent threshold the transaction is denied and, therefore, not added to the bitcoin ledger. The consensus mechanism for a blockchain may depend on whether the blockchain is permissioned or permissionless, among other factors. In a permissioned blockchain, members of that blockchain network can restrict who may participate in the consensus mechanism. Members can also restrict who can create smart contracts on that blockchain for logic optimized transactions. In a permissionless blockchain, on the other hand, any member of the public can participate in the consensus mechanism and create smart contracts. Bitcoin, for example, uses a permissionless blockchain.

"Smart contracts" are a piece of computer code capable of verifying, executing and enforcing a set of instructions.[6] The computer code reviews a pre-determined set of inputs, matches them against conditions written in the code and allows a transaction to be executed only if all necessary conditions are met. For example, a smart contract installed by a seller can check incoming purchase orders for compliance with the sales contract in the real world and release a batch of products for shipping to the customer if the purchase order matches the terms of sale agreed with that purchaser. Blockchains can store a range of records including payment transactions, sales records, purchase history, corporate accounts, retail pricing history as well as future changes to pricing. It can also record non-transactional data such as title records, trademark and patent information, minutes of meeting, calendar entries, annual reports and travel logs to name a few.

III. COMPETITION ENFORCEMENT USING BLOCKCHAINS

The European Commission's staff working paper on best practices for the submission of economic evidence and data makes three seemingly obvious yet important points. First, "most competition or merger investigations involve (1) collecting data, (2) analyzing data, and (3) drawing inferences from data."[7] Second, "economic analysis plays a central role in competition enforcement [because] economics as a discipline provides a framework to think about… [how] each particular market operates and how competitive interactions take place."[8]

Economic analyses involve large volumes of quantitative datasets and econometric models based on these datasets are used to explain parties' actions on the market; in the case of mergers, possible future actions on the market.[9] Here, the European Commission makes its third seemingly obvious yet important point: "not all facts can be observed or measured with high accuracy and most-datasets are incomplete or otherwise imperfect."[10] This is where blockchain technology can truly add value.

The most pertinent utility of a blockchain in competition enforcementis likely to be for the provision of large volumes of transactional and non-transactional data which has been generated contemporaneously with underlying commercial transactions and enjoys a high level of reliability. I argue that this utility can extend across merger control, cartel investigations and, at a minimum, for monitoring commitments in abuse of dominance matters.

A. Application in Merger Control

Competition lawyers are all too familiar with the varying levels of digital systems employed by undertakings for maintaining business records. The IT systems installed by an undertaking usually depends on its size, industry and of course budgetary constraints. Competi-

3 Alan Morrison, Blockchain and smart contract automation: Blockchains defined, PwC (2016), available at: http://www.pwc.com/us/en/technology-forecast/blockchain/definition.html.

4 Oliver Wyman,Blockchain in Capital Markets: The Prize and the Journey, (2016) page 5, available at: http://www.oliverwyman.com/content/dam/oliver-wyman/global/en/2016/feb/BlockChain-In-Capital-Markets.pdf.

5 See https://blockchain.info/ for a live stream of transactions made using blockchain technology. The transaction list that is constantly refreshing under the header "Latest Transactions"are real-time transfers of value that are being verified and incorporated to the bitcoin ledger. You may click on any of these transactions to view its hash ID.

6 See Smart Contracts Explained, available at: http://www.blockchaintechnologies.com/blockchain-smart-contracts.

7 See Best Practices For The Submission Of Economic Evidence And Data Collection In Cases Concerning The Application Of Articles 101 And 102 TFEU And In Merger Cases, DG Competition Staff Working Paper, page 14 available at: http://ec.europa.eu/competition/antitrust/legislation/best_practices_submission_en.pdf.

8 Ibid., page 3.

9 Economic analyses are frequently used to define relevant markets, identify counterfactuals and to conduct substantive competition assessments for both behavioral and transactional matters.

10 Ibid., page 17.

tion authorities, as a result, witness a varying level of complexity and sophistication in the quality of empirical economic evidence submitted by merging parties. Two recent merger decisions best demonstrate the difference between enterprise data management systems: *Olympic/Aegean Airlines*[11] and *Ryanair/Aer Lingus.*[12]

In its final decision in *Olympic/Aegean Airlines*, the European Commission highlighted the "poor quality, incomplete and/or inaccurate" nature of market data and found that this was partly because the directional data and time of purchase data was not available from at least one of the parties and also because the "ferry operators' database are not as developed as the sophisticated systems/databases used by airlines." It was, therefore, not possible for the Commission to rely on an econometric analysis containing so few observations as "such an econometric analysis would not be robust enough … for the standards of the Best practices for the submission of economic evidence."

In this decision, the Commission also set out three pre-conditions that must be met before complex inferences can be drawn from a sophisticated empirical analysis:

- all necessary data must be available to implement the chosen empirical methodology and the available data must be of adequate quality

- empirical analysis necessarily involves the use of historical data and for the data to be usable in merger cases it needs to be a good indicator of the likely impact on future competition, and

- there should be sufficient variability in the data to identify references for comparison.

After repeated submissions from the parties, the Commission distinguished its decision in *Ryanair/Aer Lingus* by explaining that the "data [in *Ryanair/Aer Lingus*] was complete, accurate, and adequate for the methodologies for which it was used."[13]

However, even in *Ryanair/Aer Lingus* the Commission admitted that it had to cope with a specific problem concerning the gathering of relevant evidence. The Commission commented that although "the transaction is likely to have an effect on more than 14 million passengers travelling with the Merging Parties' airlines, these are largely individual customers that could not be contacted by the Commission by way of the classic investigative techniques (questionnaires, telephone interviews) in a meaningful way."[14] Also, footnote 95 in the decision explains that the Commission's price correlation analysis was limited to only 17 routes because it did not have sufficient data for the remaining routes.

11 Case No COMP/M.5830 – *Olympic/Aegean Airlines* (2011).

12 Case No COMP/M.4439 – *Ryanair/Aer Lingus* (2007).

13 Ibid.

14 Ibid.

Blockchain technology is unlikely to replace all traditional sources of market data for the better part of the next decade. However, assuming a majority of undertakings eventually transition onto blockchain platforms, it will better populate the target dataset and speed up data collection to result in a more informed, robust and accurate competition assessment. Further, the speed and granularity of data collection will be matched by its reliability. Transaction data held on blockchains is created contemporaneously with the associated commercial transaction in real time and, therefore, provides a much clearer picture of the conditions of the market that exists at a specific point in time. Also, reliability of blockchain data could be further improved through the use of checkpoints on blockchain networks, which will allow business systems to recognize all transactions up to the checkpoint as being valid and irreversible. If any member of that network tries to fork the blockchain prior to the checkpoint, the system will not permit it.

With respect to the specific cases discussed above, if the relevant undertakings were using blockchain technology, the Commission would have had access to the necessary pricing data for all routes and ports as well as sales data from airlines, travel agents and even consumers to gain a more comprehensive understanding of competitive dynamics. Further, since blockchains can store more than just pricing data the Commission could have viewed legal agreements in the real world that underlie each transaction in the blockchain world. This would provide an unprecedented level of insight and granularity into every undertaking's commercial transactionsfor a specific timeframe. The level of granularity and reliability promised by blockchains is likely to find favor with economists and lawyers conducting quantitative analyses such as price correlation analysis, past shocks analysis and demand estimation.

It is important to note at this point that blockchain data does not necessarily mean a different result; but it does mean a more informed result.

B. Application in Cartel Investigations

When competition authorities wish to detect cartels and investigate potential infringements, they experience information asymmetry. This is because cartels are by their very nature secretive and most competition authorities do not have access to an undertaking's contracts, arrangements or financial and transactional history. Since the information held on a permissionless blockchain falls in the public domain and can be viewed by anyone, I expect most undertakings to gravitate towards permissioned blockchains for maintaining business records. As a result, unless all undertakings across all sectors grant all competition authorities ongoing access to their blockchain network, it is unlikely to be of much assistance for cartel detection.

However, an area where blockchains can impact cartel enforcement is in the submission of leniency applications and concomitant formal investigations. In most cases, applicants for lenient treatment under competition laws need to provide vast amounts of

information on the alleged cartel to convince the authority that an anti-competitive arrangement exists, identify the cartel members with a level of certainty and provide all available evidence on the functioning of the cartel. Using blockchain technology, leniency applicants will be able to provide access to a live data stream on all relevant transactions falling within the alleged cartel arrangement. A "live data stream" as opposed to past transaction data is analogous to watching a football game live on TV as opposed to a stack of photographs of the gameafter it has ended. Such live streaming can greatly increase a competition authority's visibility over an alleged cartel arrangement allowing it to reach certain conclusions before initiating a formal investigation and committing additional resources.

By way of example, the OFT's investigation into retail tobacco sales would have looked very different if it had access to transactional data from all relevant undertakings on their respective blockchains. The information asymmetry between OFT and participants of the alleged cartel became very clear at the appellate stage where the OFT's evidence was limited to an expert report from Professor Greg Shaffer, some key correspondence, corporate leniency statements and a witness statement from Fiona Bayley, a Sainsbury's tobacco buyer during the relevant time period. ITL's evidence bank, on the other hand, included 12 witness statements, expert reports from a number of consultancies and, more importantly, empirical analysis based on 36 million price data points. The empirical evidence in this case helped prove that there were lower price increases during the period of the alleged infringement than afterwards. Arguably, if the OFT could access all relevant transactional data on tobacco prices before, during and after the relevant time period as part of the leniency application, it may have amended its theory of harm before issuing a statement of objections; it may have also decided to close its investigation and not issue a statement of objections altogether. This would have led to some resource savings on both sides.

The link between the evidentiary standard applicable to a competition authority and its proposed theory of harm is best explained in *Tetra Laval*. In this case, the Court of Justice held that "[where] the claims of cause and effect are dimly discernible, uncertain and difficult to establish…the quality of the evidence… is particularly important."[15] The Court's approach has developed since *Tetra Laval* and it is now well accepted that the strength of evidence required to show the existence of an infringement should be directly proportional to the complexity of the proposed theory of harm. Therefore, once blockchain technology is adopted by a majority of businesses, we can expect competition authorities to propose increasingly complex theories of harm and defense counsel and accompanying economists will need to gear up to raise robust defenses.

C. Application in Monitoring Commitments

Accepting commitments is one of several ways a competition authority may conclude a formal investigation into abuses of dominance. Commitments are voluntarily offered by parties and become legally binding once accepted by the competition authority. Although commitment decisions do not make a finding of infringement, parties run the risk of incurring enforcement actions and financial penalties if they fail to comply with these commitments. So far, there has only been one instance at the EU level where a breach of commitments was discovered and penalized.

In 2013, the Commission penalized Microsoft EUR €561 million for failure to comply with its commitment to offer a "choice screen" allowing consumers "to choose in an informed and unbiased manner which web browser(s) they wanted to install."[16] The penalty imposed on Microsoft was based on gravity of the infringement, duration of the infringement, deterrent effect as well as cooperation offered by Microsoft.

Smart contracts based on blockchain technology could have avoided the infringement from occurring in the first place. For instance, a smart contract could be designed so that software releases only take place if they are also compliant with binding commitments to competition authorities. This would have required Microsoft's in-house team to ensure that the relevant commitments are coded into the company's smart contract for future operating system releases. Moreover, smart contracts are highly customizable and could be designed to only review sales made to EU consumers.Therefore, if Microsoft offers a variation of the choice screen commitment in multiple jurisdictions, they could be quickly and easily "localized" so that relevant jurisdictional requirements are met. Finally, the distributed ledger system of the blockchain would mean Microsoft would have a record of every transaction compliant with EU commitments (and similar commitments made in other jurisdictions) where this information could easily be shared with the Commission by granting them access to "MS-Blockchain." The automation of certain compliance functions would not only result in significant cost savings, but also in lower penalties through increased transparency and cooperation. Interestingly, using blockchains can also lead to resource savings at the Commission allowing it to focus its attention on other pressing matters.

Another potential benefit is in the transfer and licensing of standard essential patents. Patent rights can be saved on a permissionless blockchain ledger that will allow members of the public to view certain details, for example, the current owner of the patent, its transfer history and that any potential restrictions attached to it. A properly created smart contract for patent transfers can ensure that any potential restrictions attached to the patent are transferred to the purchaser. The smart contract can also be set to automatically remove these conditions once they expire in line with the Commission's decision. In 2007 IPCom acquired various patents in mobile telephony from Robert Bosch GmbH ("Bosch"), which included the patent for GSM and WCDMA standards. Bosch held essential patents in GSM and WCDMA standards given its role in developing

15 *Commission of the European Communities v. Tetra Laval BV,* Case C-12/03 P (2005) at para 44.

16 Case AT.39530 - *Microsoft* – Tying (2013).

these standards as a member of the European Telecommunications Standards Institute and had committed to granting irrevocable licenses on FRAND (fair, reasonable and non-discriminatory) terms and conditions. In 2009, more than two years after the patents were acquired by IPCom, the Commission engaged IPCom in discussions to ensure it honored Bosch's FRAND commitments. In a blockchain environment these commitments could be hardcoded into the relevant smart contract so that competition authorities and sectoral regulators do not need to spend resources ensuring they are passed on to the purchase with every transfer.

The above examples show that data on a blockchain can bring about a real change in the way competition law is enforced. As with current technologies, enforcement in a blockchain(ed) world is only as good as the data management systems adopted by undertakings.

IV. COMPETITION COMPLIANCE USING BLOCKCHAINS

Infringements of competition law can have serious consequences; ranging from monetary penalties of up to 10 percent of worldwide turnover, imprisonment of individuals, disqualification of directors and damage to reputation. In the UK and EU there is also an increased focus on follow-on private actions, which in some cases has led to significant award for damages.[17] Finally, agreements with infringing provisions may be declared wholly or partially invalid and unenforceable.

A robust compliance program not only helps avoid infringements from occurring, but also to reduce penalties if they do occur. To this end, blockchain technologies have the potential to provide an additional layer of compliance for undertakings. This could be achieved in a number of ways.

- **Pricing control**: Businesses are increasingly cross-border with their customer base in a number of jurisdictions. A direct result of this expansion is the associated management and control of offshore offices and staff. In these circumstances, undertakings may utilize a range of pricing models for their products depending on local demand patterns, distribution costs, market conditions in each region, etc. Indifferent towards the pricing policy an undertaking may select, placing sale contracts on a permissioned blockchain will help the central compliance function ensure that prices in a particular region do not fall below the average variable cost for that region (where the undertaking is likely to be dominant) or that product features comply with binding commitments (if any have been agreed with local competition authorities). The increased visibility over remote offices will also allow the compliance function to detect anomalous pricing patterns that are not linked to cost structures, corporate policy or prevailing local market conditions and raise queries early.

- **Trade associations**: Information exchanges through trade associations have long plagued market participants as a potential hotbed for competition enforcement. This is because members of the trade association often sit on governing committees and have access to sensitive data belonging to competitors. A permissioned blockchain, however, could be used to avoid inadvertent infringements by limiting the dissemination of information while a smart contract collates data from all undertakings and generates aggregate, anonymized industry trends. Full access to the smart contract could be limited to the trade association's external counsel, advisors or specific individuals within specific members. This will also help ringfence sensitive data to IT personnel or compliance managers within specific members while being immune to the risk of rotating board or committee memberships seen in most trade associations.

- **Smart employment contracts**: There has been some industry discussion around increasing the effectiveness of in-house compliance programs by requiring all employees to undergo competition training and tying the payout of performance based bonuses only if training is completed. Commenting on the effectiveness of these measures is outside the scope of this article; however, if such a system were implemented on a blockchain, it could be done using a "smart employment contract" that will only release bonus payments if the system detects that training modules have been completed to a satisfactory level, perhaps the bonus payment could be made in a cryptocurrency such as bitcoin?

The above list is not exhaustive and there will be a range of other benefits and applications for blockchain technology as the technology itself develops over the next decade. Further, the importance of specialized legal advice cannot be understated as it remains a key requirement to ensure that blockchain networks and smart contracts satisfy the relevant competition concerns and are regularly modified to align with developing case law.

17 *Sainsbury's Supermarkets Ltd v. MasterCard Incorporated and Others*, Case 1241/5/7/15 (T), Competition Appeal Tribunal (2016).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