A U.S. ENFORCER'S PERSPECTIVE: PROTECTING COMPETITION AND PROMOTING INNOVATION

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Keynote Remarks of Commissioner Terrell McSweeny[1]

Two years ago, we celebrated the 100th anniversaries of both the FTC and the Clayton Act, which created the U.S. Federal Trade Commission (FTC). The Sherman Act – America's first significant antitrust law – dates back to the end of the 19th century. Certainly, a lot has changed in the world over the past century. The global economy is increasingly interconnected. Information and goods move faster than ever. Because of this, it is sometimes said that competition in the so-called "new-economy" is different from competition in old-economy markets and that antitrust law and competition enforcers cannot keep pace with changes in high-tech markets.[2] Critics suggest that antitrust enforcers should *not* intervene in dynamic markets given the risk that even well-intentioned enforcement may do more harm than good.[3]

Here's what I believe: antitrust enforcers play a vital role in protecting competition and promoting innovation in the high-tech, digital economy – and must continue to do so. It is true that competition in certain digital and high-tech markets may operate differently from certain traditional markets. For example, pricing may play less of a role in many high-tech markets where products and services are frequently offered to consumers for "free." Economies of scale in consumption – commonly referred to as network effects – may play a greater role in certain digital markets. The effects of scale may make certain digital markets more susceptible to consolidation of market power. At the same time, entry may be easier in many digital markets compared to traditional markets that require substantial upfront investment in physical plants and equipment.

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[1] The views expressed in this paper are my own and do not necessarily reflect the views of the Commission or of my colleagues.

[2] *See, e.g.*, Ronald A. Cass, *Antitrust for High-Tech and Low: Regulation, Innovation, and Risk*, 9 J.L. Econ. & Pol'y 169 (2012-2013), http://heinonline.org/HOL/Page?handle=hein.journals/jecoplcy9&g_sent=1&collection=journals&id=177; Thomas A. Piraino, Jr., *A Proposed Antitrust Approach to High Technology Competition*, 44 Wm. & Mary L. Rev. 65 (2002), http://scholarship.law.wm.edu/wmlr/vol44/iss1/3.

[3] For a description of these arguments, *see* Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. Pa. L. Rev. 1663, 1671 (2013); Ilene K. Gotts, Scott Sher & Michelle Lee, *Antitrust Merger Analysis in High-Technology Markets*, 4 Eur. Competition J. 463, 464 (2008), https://www.wsgr.com/PDFSearch/sher1208.pdf.

These market factors are important. But our antitrust tools are flexible. So long as we are careful to apply them with sensitivity to the competitive dynamics of digital and high-tech markets, we do not need a different set of rules to address these factors – though we do need to be willing to use all the tools at our disposal.[4] And we absolutely should not turn a blind eye toward anticompetitive behavior in high-tech markets simply because we cannot predict the future with certainty or because they are fast-moving and dynamic. Doing so could not only result in harms to consumers and competition going unchecked, it could also harm innovation.

In this paper, I address a few of the key issues related to the role of competition enforcers in digital and high-tech markets. First, I emphasize the importance of the FTC's advocacy role in promoting innovation. Next, I comment on the use of innovation in market analysis and describe how innovation considerations often play an important role in merger review, even in cases where the agencies do not specifically define an "innovation" or "R&D" market. Third, I discuss the role competition enforcers play in achieving the appropriate balance between intellectual property protection and competition in order to optimize innovation.[5] Lastly, I address some of the potential antitrust frontiers in the digital world, including "big data" and some of the novel issues raised by pricing algorithms.

Advocating for Innovation & Disruption – And the Competition It Brings

Competition enforcers play an important role in promoting innovation by advocating for disruptive entrants. In this role enforcers like the FTC encourage the elimination of unnecessary barriers to competition and entry that can often be erected when incumbents and legacy industries control state or local regulatory processes. The FTC has a long history of advocating for competition at the state and local levels. When Internet retailers first began making sales to consumers, incumbent brick and mortar retailers sought regulatory protection against these new entrants in a number of markets. The FTC advocated against regulatory barriers to online entry in numerous markets from contact lenses to wine shipments.[6] The FTC has also promoted competition in health care by, among other things, advocating

[4] *See* Terrell McSweeny, Commissioner, Fed. Trade Comm'n, A Carpenter is Only as Good as Her Tools: The Importance of Using Our Full Toolbox as Antitrust Enforcers, Keynote Remarks at the Global Antitrust Enforcement Symposium (Sept. 28, 2015), https://www.ftc.gov/public-statements/2015/09/carpenter-only-good-her-tools-importance-using-our-full-toolbox-antitrust.

[5] *See United States v. United States Gypsum Co.*, 333 U.S. 364, 390-91 (1948) (observing that courts must "balance the privileges of [the patent holder] and its licensees under the patent grants with the prohibitions of the Sherman Act against combinations and attempts to monopolize"); *quoted in Federal Trade Commission v. Actavis, Inc.*, 570 U.S. __ at *9 (2013). As Judge Posner has explained, "[t]he patent and copyright laws try to strike the output-maximizing balance by giving the creator of intellectual property some but not complete protection from competition." Richard A. Posner, ANTITRUST LAW 247 (2d ed. 2001).

[6] *See, e.g.*, Staff of the Fed. Trade Comm;n, Possible Anticompetitive Barriers to E-Commerce: Contact Lenses (Mar. 29, 2004), http://www.ftc.gov/os/2004/03/040329clreportfinal.pdf; Letter from Susan Creighton, Director of

against certain barriers to health care delivery by non-physician providers.[7] Most recently, the FTC has submitted comments to multiple cities and taxicab authorities urging that regulations be limited to legitimate safety and consumer protection issues, and not impede competition from new ride-hailing platforms (such as those offered by Uber and Lyft).[8] FTC officials also recently criticized as "bad policy" state laws designed to protect the automobile dealership model from competition from Tesla's direct-to-consumer sales strategy – a new business model.[9]

The FTC also lends its expertise on competition to other government agencies considering issues that raise competition policy concerns. For example, last year the FTC submitted a comment to the Office of the National Coordinator for Health Information Technology (ONC), the U.S. federal entity charged with coordination of nationwide efforts to implement advanced health information technology and the electronic exchange of health information.[10] The FTC provided guidance on how to foster innovation and competition when designing rules to speed the adoption of interoperability standards. In so doing, the FTC contributed its considerable expertise in promoting competition in the health care sector to help ensure that the growing market for health IT systems is open to entry and innovation. The

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the Bureau of Competition, FTC, et al. to New York Assemblyman William Magee et al. (Mar. 29, 2004), http://www.ftc.gov/be/v040012.pdf;

[7] *See, e.g.*, Fed. Trade Comm'n Staff Comment Before the Louisiana House of Representatives on the Likely Competitive Impact of Louisiana House Bill 951 Concerning Advanced Practice Registered Nurses (April 20, 2012), http://ftc.gov/os/2012/04/120425louisianastaffcomment.pdf; Fed. Trade Comm'n Staff Letter to the Honorable Representative Jeanne Kirkton, Missouri House of Representatives, Concerning Missouri House Bill 1399 and the Regulation of Certified Registered Nurse Anesthetists (March 27, 2012), http://ftc.gov/os/2012/03/120327kirktonmissouriletter.pdf; Fed. Trade Comm'n Staff Letter to the Honorable Paul Hornback, Senator, Commonwealth of Kentucky State Senate, Concerning Kentucky Senate Bill 187 and the Regulation of Advanced Practice Registered Nurses (March 26, 2012), http://ftc.gov/os/2012/03/120326ky_staffletter.pdf; Fed. Trade Comm'n Staff Comment Before the Maine Board of Dental Examiners Concerning Proposed Rules to Allow Independent Practice Dental Hygienists to Take X-Rays in Underserved Areas (Nov. 16, 2011), http://ftc.gov/os/2011/11/111125mainedental.pdf.

[8] *See* FTC Staff Comment to the Honorable Brendan Reilly Concerning Chicago Proposed Ordinance O2014-1367 Regarding Transportation Network Providers (April 15, 2014), https://www.ftc.gov/system/files/documents/advocacy_documents/ftc-staff-comment-honorable-brendan-reilly-concerning-chicago-proposed-ordinance-o2014-1367/140421chicagoridesharing.pdf; FTC Staff Comments Before the District of Columbia Taxicab Commission Concerning Second Proposed Rulemakings Regarding Chapters 12, 14, and 16 of Title 31 (June 7, 2013), http://ftc.gov/os/2013/06/130612dctaxicab.pdf; FTC Staff Comments to the Honorable Debbie Ossiander Concerning AO NO. 2013-36 Regarding the Regulatory Framework for the Licensing and Permitting of Taxicabs, Limousines, and Other Vehicles for Hire in Anchorage, Alaska (Apr. 19, 2013), http://www.ftc.gov/os/2013/04/130426anchoragecomment.pdf FTC Staff Comments Before the Colorado Public Utilities Commission In The Matter of The Proposed Rules Regulating Transportation By Motor Vehicle, 4 Code of Colorado Regulations 723-6 (Mar. 6, 2013), http://ftc.gov/os/2013/03/130703coloradopublicutilities.pdf.

[9] *See* Andy Gavil, Debbie Feinstein, and Marty Gaynor, Who Decides How Consumers Should Shop?, Apr. 24, 2014, http://www.ftc.gov/news-events/blogs/competition-matters/2014/04/who-decides-how-consumers-should-shop.

[10] *See* FTC staff letter to Office of the National Coordinator for Health Information Technology, Apr. 3, 2015, https://www.ftc.gov/system/files/documents/advocacy_documents/ftc-staff-comment-office-national-coordinator-health-information-technology-regarding-its-draft/1504-roadmaphealth.pdf.

FTC has also encouraged the U.S. International Trade Commission (ITC) to consider the potential for anticompetitive hold-up under its statutory public interest factors.[11]

At its inception, the FTC was also endowed with the authority to study trends in the marketplace to inform itself and develop expertise as markets evolve.[12] This mandate has proven crucial to the FTC's ability to keep pace with new technology and the competitive implications of innovations. The FTC uses its authority in a variety of ways – such as by conducting workshops and soliciting comments from industry participants and studying industries using its 6(b) authority – to improve the FTC's base of knowledge and to add to the information that is available to policymakers, academics, industry participants, and the public at large. As part of this ongoing process, last year the FTC hosted a workshop entitled "The 'Sharing' Economy: Issues Facing Platforms, Participants, and Regulators."[13] A variety of panelists discussed the economics of platform design, as well as the benefits and potential challenges of current innovations in the sharing space. In particular, the panel explained the role of regulation in competition between incumbents and disruptive entrants. Entrants spoke of challenges in overcoming protectionist regulatory barriers erected at the behest of incumbents. On the other hand, certain incumbents expressed concern that new platform-based entrants were obtaining an artificial competitive advantage by evading regulations that applied to incumbent firms. While the circumstances in individual markets differ, consumers are best served when marketplace success is determined by competitive merit, rather than by unjustified disparate regulatory treatment of incumbents and entrants.

The FTC is currently using its authority to issue compulsory process to study trends in markets – its "6(b) authority" – to examine the activities and impact on innovation of patent assertion entities (PAEs). The activity of PAEs differs from the classic activity of other non-practicing entities (NPEs). NPEs do not themselves commercialize novel technologies, but they frequently develop and transfer these technologies. PAEs, by contrast, typically purchase patents from existing owners and seek to earn revenues by licensing (or litigating against) manufacturers that are already using the patented technology. There is much we do not understand about PAEs including their impact on competition and innovation. The FTC's report will help to fill this gap and allow industry participants, policymakers, and academics to gain a better understanding of the PAE business model.

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[11] *See* Fed. Trade Comm'n Statement on the Public Interest, In the Matter of Certain Gaming and Entertaining Consoles, Related Software, and Components Thereof, No. 337-TA-752, (U.S. Int'l Trade Comm'n filed June 6, 2012), https://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-comment-united-states-international-trade-commission-concerning-certain-gaming-and-entertaining/1206ftcgamingconsole.pdf.

[12] *See* Section 6(b) of the FTC Act, 15 U.S.C. § 46.

[13] *See* https://www.ftc.gov/news-events/events-calendar/2015/06/sharing-economy-issues-facing-platforms-participants-regulators.

Thus, at the outset, I think it is important to emphasize that the role of the FTC is not merely one of a reactive enforcer when it comes to promoting innovation. The U.S. antitrust agencies are frequently out in front, using the principles of competition law to help ensure that new and exciting ideas have the opportunity to succeed on their merits.

Considering Harms to Innovation in Merger Review

While we all agree that innovation is important, the circumstances that best promote innovation can be difficult to pin down. Economists have drawn no firm conclusions about the existence of a general relationship between market structure and innovation.[14] Yet in individual merger cases, innovation effects can be predicted with some degree of confidence. In these cases, antitrust enforcers should and do incorporate innovation effects into our analysis. For this reason, the revised 2010 Horizontal Merger Guidelines include a section that specifically addresses innovation effects.[15]

In a traditional commodity market – cement, for example – we generally can analyze the competitive effects of a merger by looking at price and quantity. If a particular merger is likely to raise prices or reduce quantity, we can be reasonably confident that that merger is anticompetitive. But for many digital markets, a traditional price-based approach to competition analysis may be ineffective. This is particularly true in what are known as two-sided markets, where one side may subsidize the prices users pay on the other side.

Indeed, in the digital context, there are a myriad of examples of products and services offered to customers for "free" – such as Internet search engines; social networks like Facebook and Twitter; booking engines such as OpenTable and Expedia; and even software such as Adobe PDF. Competition can be vigorous even where products or services are offered for free. Often that competition takes the form of innovation to provide customers with quality improvements or new products. The issue is whether to look just at price effects on the paying side of these platforms, or whether to consider harms –

[14] Economists have disagreed about the conditions that best foster innovation for over half a century. Joseph Schumpeter claimed that an innovator required some market power, whereas Kenneth Arrow argued that competition best promotes competition. *See* JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY, VIII (3d ed. 1950); Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609 (1962), as cited in David McGowan, *Innovation, Uncertainty, and Stability in Antitrust Law*, 16 Berkeley Tech. L.J. 729, 732 (2001).

[15] *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, 2010 HORIZONTAL MERGER GUIDELINES § 6.4.

such as to quality and innovation – on the free side.[16] The Guidelines' section on innovation makes clear that we look at both sides in the merger enforcement context.

This is precisely what the FTC did in its review of *Zillow-Trulia*, which the Commission voted unanimously to close last year. On the paying side of the platform, staff investigated whether a merged Zillow-Trulia would be able to profitably raise advertising prices to real estate agents. But staff also examined whether the merger would reduce the combined entity's incentives to innovate by developing new features attractive to consumers, ultimately concluding that it would not.[17]

The FTC routinely challenges mergers that would harm competition in the research and development of new drugs and treatments. In some situations, we may look specifically at an "innovation market" or "R&D market." But innovation is often a key factor in conventional antitrust analysis. When a firm is planning to enter or expand its presence in a particular market, there is often some meaningful innovation at the heart of that firm's business plan. Three recent examples from FTC enforcement proceedings illustrate this point.

The first is the Commission's challenge in late 2014 to Verisk Analytics' proposed acquisition of EagleView Technology. That case focused on the market for rooftop aerial measurement products, commonly known as "roof reports."[18] EagleView was the leading U.S. provider of these roof reports. Verisk was the leading provider of downstream software platforms, but had recently made a foray into the market for roof reports themselves. There was strong qualitative evidence that Verisk was uniquely well positioned to compete against EagleView in providing roof reports. One of the things the FTC examined was the likely future competition between the merging parties to offer customers ever more innovative products.[19] In particular, Verisk had invested in capturing higher-resolution aerial images than those used by EagleView, which promised even more accurate measurement tools for customers.[20] So while the

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[16] While two-sided markets may be more common in high-tech markets, they are hardly new. Newspapers and television programs are longstanding examples of two-sided markets. Antitrust has dealt with these issues in the past. Though they may be more common in the digital economy, this is not a radical enough event to abandon our current antitrust tools.

[17] *See* Statement of Commissioners Ohlhausen, Wright, and McSweeny Concerning Zillow, Inc. / Trulia, Inc., File No. 141-0214 (Feb. 19, 2015), https://www.ftc.gov/system/files/documents/public_statements/625671/150219zillowmko-jdw-tmstmt.pdf.

[18] Roof reports calculate roof dimensions from aerial images. These reports are used primarily for insurance purposes.

[19] Complaint, In the Matter of Verisk Analytics, Inc., and EagleView Technology Corp., Dkt. No. 9363 ¶ 40 (Dec. 16, 2014), http://www.ftc.gov/system/files/documents/cases/141216veriskcmpt.pdf.

[20] After the FTC filed for an injunction, the parties promptly abandoned the deal. Developments since that time have demonstrated the wisdom of the Commission's action. Verisk announced last year that it was accelerating its collection of high-resolution aerial images. In its press release, Verisk characterized its initiative as merely "the

FTC did not define an "innovation" market, innovation nonetheless played a crucial role in staff's analysis and in the decision to challenge the merger.

The second example is the FTC's challenge last year to the merger between Steris and Synergy, the second and third-largest sterilization companies in the world. Synergy did not operate in the United States, but company documents showed that it was working to introduce an innovative x-ray sterilization technology into the United States to compete against Steris. While other forms of sterilization exist in the United States, none of the existing market participants offered x-ray sterilization on a commercially significant scale. The Commission alleged that the merger would harm future competition by terminating Synergy's entry plans and would deprive customers of a promising new sterilization technology.[21]

Unfortunately, last September the district court judge denied the FTC's request for injunctive relief. The judge disagreed with the FTC that Synergy would have entered the United States with x-ray sterilization services within a reasonable amount of time to compete against Steris. The Commission subsequently dismissed the administrative action. While I disagreed with the district court judge's ruling, this matter nevertheless provides a concrete example of the Commission's willingness to take innovation and quality competition seriously by considering the potentially disruptive effects of new technologies.

The third example is the Commission's 2013 consent in the *Nielsen/Arbitron* matter. In that case, which was before my time at the Commission, the FTC required a divestiture of competitive assets because the merging parties were the best-positioned firms to develop a cross-platform audience measurement product increasingly sought by media companies and advertisers – even though that product had "yet to be developed and marketed."[22]

The Department of Justice (DOJ) also looks closely at innovation in its merger analysis. Two years ago, the DOJ prevailed in its challenge of Bazaarvoice's consummated acquisition of PowerReviews – a case that involved online product review and ratings platforms.[23] In that case, DOJ alleged that the two companies had previously engaged in "feature driven one-upmanship," and that the

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most recent step [in the company's] ongoing efforts" in the area, and cited Verisk's "long-term commitment to the highest-quality imagery and data." Verisk Press Release, Verisk Insurance Solutions Announces Expansion of Imagery Database, Aug. 4, 2015, http://www.verisk.com/press-releases-verisk/2015/august-2015/verisk-insurance-solutions-announces-expansion-of-imagery-database.html.

[21] Complaint, In the Matter of Steris Corp. and Synergy Health PLC, Dkt. No. 9365 ¶¶ 68-70 (May 29, 2015), https://www.ftc.gov/system/files/documents/cases/150529sterissynergypart3cmpt.pdf.

[22] Statement of the Fed. Trade Comm'n, In the Matter of Nielsen Holdings N.V. and Arbitron Inc., File No. 131-0058, at 1 (Sept. 20, 2013), http://www.ftc.gov/system/files/documents/cases/140228nielsenholdingstatement.pdf.

[23] *See U.S. v. Bazaarvoice*, 2014 U.S. Dist. LEXIS 3284 (N.D. Cal. 2014).

transaction "significantly reduced incentives to . . . invest in innovation."[24] The court in *Bazaarvoice* acknowledged that the social commerce industry was "at an early stage of development, rapidly evolving, fragmented, and subject to potential disruption by technological innovations" and that "the future composition of the industry as a whole is unpredictable."[25] Judge Orrick held, however, that "while Bazaarvoice indisputably operates in a dynamic and evolving field, it did not present evidence that the evolving nature of the market itself precludes the merger's likely anticompetitive effects."[26]

Even in dynamic markets, changes in market structure may be episodic and infrequent. Facebook's displacement of Myspace is often cited as an example of the tenuous position of seemingly dominant firms in digital markets. Over time, Facebook's market position has remained stable and arguably strengthened. Google has been the leading U.S. search engine for twelve years running and has accounted for over 60 percent of searches since 2008.[27] I am not suggesting that the continued success of either company is problematic in and of itself. My point is merely that industry structure may prove as durable in digital and high-tech fields as in "old economy" markets. It would be a mistake to view the mere *possibility* of disruptive entry as a reason to refrain from appropriate antitrust enforcement in digital and high-tech markets.

Stopping Conduct That Harms Innovation: The Intersection of IP & Competition

It is generally acknowledged that a careful balance is required between competition and intellectual property protections to optimize innovation and output. The fundamental question for policy makers is the degree of strength necessary for intellectual property protections. Ultimately, this is a decision for legislators. But it is the job of courts and agencies to seek an accommodation between antitrust and intellectual property protections in individual instances. From a competition perspective, intellectual property protections represent a valuable market correction that increases the incentives to create intellectual property. The optimal level of protection varies by the type of intellectual property and

[24] Complaint, *U.S. v. Bazaarvoice*, Inc., C-13-0133 ¶¶ 8, 62 (N.D. Cal. Jan. 10, 2013), https://www.justice.gov/atr/case-document/file/488911/download.

[25] *Id.* at *34.

[26] *Id.* at *261.

[27] Data from comScore. For a graph of historical U.S. search engine market shares, *see* Dan Frommer, *Google's growth since its IPO is simply amazing*, QUARTZ (Aug. 19, 2014), http://qz.com/252004/googles-growth-since-its-ipo-is-simply-amazing/.

underlying industry.[28] But a lawful patent or other IP right – a lawful monopoly – may nonetheless be used or extended in unlawful ways.

The FTC is confronting the question of how and where to draw the lines between competition and IP on a number of fronts – challenging anticompetitive reverse payments, studying the role played by PAEs, and ensuring that standard essential patents (SEPs) are used to encourage standard-setting and not to engage in "hold-up." Getting the balance right on these issues is important to promoting the dual goals of innovation and competition.

The Commission is probably most well-known for its work related to reverse payment settlements (or "pay-for-delay" agreements).[29] The settlement of a Hatch-Waxman patent infringement suit has the potential to cause competitive harm if the generic manufacturer agrees to delay its entry into the market in exchange for some sort of compensation from the brand name manufacturer that the generic could not have obtained even if it prevailed in the infringement litigation. In this situation, the brand and generic each make more money by sharing in the brand's monopoly profits instead of competing – reducing output and harming consumers who pay higher prices for prescription drugs.

For nearly two decades, the FTC has worked to stop anticompetitive reverse payment settlements. The Supreme Court's 2013 decision in Actavis was a major victory for the FTC because it confirmed the potential harm to competition from reverse payments. Developments since have been positive – the number of reverse payment settlements has decreased and more patent disputes are now being settled without reverse payments.[30]

Last year, the FTC secured a $1.2 billion settlement in *FTC v. Cephalon*, a case involving anticompetitive reverse payments that delayed generic competition for the blockbuster sleep disorder drug

[28] Patents generally offer protection for 20 years, although extensions of that term are granted in certain circumstances. Hatch Waxman, for example, provides for patent extensions to account for the time necessary to obtain FDA approval for pharmaceuticals. The Orphan Drug Act provides for seven years of exclusivity for specific indications following FDA approval, regardless of the drug's patent status. Copyright law generally protects the work of authors for life plus 70 years.

[29] Reverse payments are so-named because they involve the unusual circumstance of a plaintiff (the incumbent patent-holder) paying a defendant (the potential entrant) to settle litigation. The payment thus flows in the "reverse" direction of what one would commonly expect in a patent settlement.

[30] Press Release, Fed. Trade Comm'n, FTC Report on Drug Patent Settlements Shows Potential Pay-for-Delay Deals Decreased Substantially in the First Year Since Supreme Court's Actavis Decision (Jan. 13, 2016), https://www.ftc.gov/newsevents/press-releases/2016/01/ftc-report-drug-patent-settlements-shows-potential-pay-delay.

Provigil. Money will go to reimburse those who overpaid for Provigil.[31] As part of the settlement, Teva Pharmaceuticals, which bought Cephalon, also agreed not to use certain types of anticompetitive patent settlements going forward.

The FTC will continue to act when there is evidence that these types of reverse payments are anticompetitive. Just this spring, the FTC filed suit against Endo and several generic firms for entering into illegal reverse payment agreements to delay entry of generic versions of two drugs, Opana ER and Lidoderm.[32] Endo is the first FTC case that challenges a no-authorized generic (no-AG) commitment as a form of reverse payment. When a generic enters a market, the branded firm commonly introduces an "authorized generic" version of the drug, which it sells at a discount to the branded price as a way of recapturing some of the sales that it would otherwise lose to the generic entrant. By making a no-AG commitment, a branded firm gives up its right to market an authorized generic in competition against the entrant following the agreed-upon generic entry date.

The statutory and regulatory aspects of the pharmaceutical sector are unique. But the role that competition enforcers play in striking a balance between intellectual property and competition is not. The FTC has also been actively involved in study, advocacy and enforcement in the standard setting context – specifically examining the licensing of patents that are essential to standards, so-called standard essential patents or "SEPs" and the potential for patent-holders to use these SEPs for hold-up. At the outset, it is crucial to understand that a FRAND commitment is a voluntary commitment by a patent holder to license its intellectual property on fair, reasonable, and non-discriminatory terms in exchange for the inclusion of its technology in a standard. FRAND commitments arose organically among standard-setting organizations (SSOs) in order to mitigate hold-up, and were not imposed on SSOs by governments or other outside parties.[33]

Hold-up refers to the fact that the bargaining position of a patent-holder may increase considerably after a patent is included in the standard. Once firms begin to make investments to practice

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[31] *See* Press Release, Fed. Trade Comm'n, FTC Settlement of Cephalon Pay for Delay Case Ensures $1.2 Billion in Ill-Gotten Gains Relinquished; Refunds Will Go To Purchasers Affected By Anticompetitive Tactics (May 28, 2015), https://www.ftc.gov/news-events/press-releases/2015/05/ftc-settlement-cephalon-pay-delay-case-ensures-12-billion-ill.

[32] Press Release, Fed. Trade Comm'n, TC Sues Endo Pharmaceuticals Inc. and Others for Illegally Blocking Lower-Cost Generic Versions of the Branded Drugs Opana ER and Lidoderm (Mar. 31, 2016), https://www.ftc.gov/news-events/press-releases/2016/03/ftc-sues-endo-pharmaceuticals-inc-others-illegally-blocking-lower.

[33] U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 42 (April 2007) (describing FRAND licensing as an "SSO Method[] to Avoid or Mitigate Hold Up").

the standard, they become locked-in.[34] By taking advantage of this enhanced bargaining position, a standard-essential patent (SEP) holder can demand higher royalty rates, or other more favorable licensing terms, than it could have obtained before lock-in occurred. As Dennis Carlton has explained, once a patent is included in a standard, "the patent owner definitely has some additional market power conferred on him that he can exploit in the absence of a constraint on him."[35] That added market power derives from the value of the standard itself, rather than the value of the underlying intellectual property.[36]

Hold-up is a standard, straightforward concept in economics. Oliver Williamson won the Nobel Prize in economics in 2009 due in no small part to his work showing how opportunistic behavior such as hold-up can lead to inefficient economic outcomes.[37] Patent hold-up can hamper standard-setting efforts, distort incentives for innovation, and potentially lead to higher prices and reduced output for consumers.[38] Hold-up becomes an antitrust issue when parties obtain their leverage as a result of standard-setting, which substitutes collective decision making by competitors for the normal competitive process.

By making a FRAND commitment, an SEP-holder chooses to monetize its technology through licensing rather than through exclusion. This makes it inappropriate, in most circumstances, for an SEP-holder to seek injunctive or exclusionary relief. As Carl Shapiro has explained, "[t]he economics here clearly teaches us that exclusion orders or injunctions tip the balance of power in negotiations towards royalties that are excessive rather than just reasonable."[39]

The good news is that the SEP system works well overall. The Supreme Court's decision in *eBay Inc. v. MercExchange, LLC* "provides a framework for evaluating whether to issue an injunction in the

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[34] *See, e.g.*, FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 22 (March 2011).

[35] Economists' Roundtable on Hot Patent-Related Antitrust Issues, 27 ANTITRUST 11 (Sum. 2013).

[36] As a general principle, a FRAND rate should reflect value that the patented technology brings to consumers, relative to the other technologies available when the technology was chosen for the standard. *See, e.g.*, *Ericsson, Inc. v. D-Link Systems, Inc.* 773 F.3d 1201, 1235 (Fed. Cir. 2014) ("We further hold that district courts must make clear to the jury that any royalty award must be based on the incremental value of the invention, not the value of the standard as a whole or any increased value the patented feature gains from its inclusion in the standard").

[37] *See* Avanish Dixit, Remarks at the AEA 2011 Nobel Lunch Honoring Elinor Ostrom and Oliver Williamson, January 8, 2011, at 3, https://www.princeton.edu/~dixitak/home/NobelLunchTalkJan2011.pdf.

[38] *See, e.g.*, *Innovatio IP Ventures, LLC Patent Litigation*, MDL No. 2303, 2013 U.S. Dist. LEXIS 144061 *64 (N.D. Ill. Oct. 3, 2013) ("In light of all of the testimony, and particularly the evidence about Broadcom's real-world concerns about patent hold-up, the court concludes that patent hold-up is a substantial problem that RAND is designed to prevent"); *Microsoft Corp. v. Motorola, Inc.*, 2013 U.S. Dist. LEXIS 60233 *38 (W.D. Wash. Apr. 25, 2013) ("Hold-up can threaten the diffusion of valuable standards and undermine the standards-setting process).

[39] Economists' Roundtable on Hot Patent-Related Antitrust Issues, *supra note* 35, at 12. In the same roundtable, Dennis Carlton stated that "[a]llowing somebody to get an injunction or go to the ITC and get an exclusion order undercuts the whole purpose of FRAND. So except in special circumstances we should not allow it." *Id*.

standard-setting context."[40] The U.S. International Trade Commission is currently looking at evidence of hold-up and hold-out to determine when it is appropriate to issue an exclusion order in the presence of a FRAND commitment. Moreover, the vast majority of SEP licenses are successfully negotiated by parties today without involving the courts or the agencies. There is little reason to think that that will change. In the U.S., the courts are there to make a determination when private parties are unable to reach agreement on what a negotiated FRAND rate should be. This is not particularly different from the role courts play when parties are unable to agree on any other aspect of contract interpretation.

When courts have been asked to determine FRAND rates, their findings have tended to be substantially lower than the rates sought by the FRAND-encumbered SEP holders which suggests that hold-up has played a role in licensing negotiations. For example, in *Microsoft Corp. v. Motorola, Inc.* (W.D. Wash. Apr. 25, 2013), Motorola sought to exclude Microsoft's gaming consoles from the United States and demanded that Microsoft pay royalties of between $6–8 per console for the use of patents reading on the 802.11 and H.264 standards. The court determined that the FRAND rate was less than four cents per unit for the 802.11 standard, and less than one cent per unit for the H.264 standard. The cumulative FRAND royalty found appropriate by the court was approximately 1/150th the royalty sought by Motorola.[41] In *Realtek Semiconductor Corp. v. LSI Corp*., (N.D. Cal. June 16, 2014), LSI filed an action with the U.S. ITC seeking an exclusion order and then offered to license Realtek the underlying SEPs in exchange for a royalty that exceeded the selling price of Realtek's standard-compliant products. The federal district court determined that the cumulative FRAND royalty to which LSI was entitled was 0.19% of the selling price – less than 1/500th the amount that LSI had been seeking.[42] In both cases, the FRAND royalty rates offered by SEP-holders were orders of magnitude higher than what a neutral arbitrator found to be fair and reasonable.

When a licensing commitment to an SSO and its members is not honored, there may be a role for competition law. For example, in 2012, the FTC resolved an investigation involving Google/Motorola Mobility in which Motorola Mobility allegedly undermined the procompetitive standard-setting process

[40] ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 22, *supra* note 33.

[41] *Microsoft Corp. v. Motorola, Inc.*, 2013 U.S. Dist. LEXIS 60233* 303 (W.D. Wash. Apr. 25, 2013). The cumulative royalty of 4.026 cents was 1/149th the FRAND rate sought by Motorola. The court also calculated ranges of RAND rates. The sum of the "upper bound" of these ranges was just under 36 cents. This upper bound was less than 1/16th of the FRAND rate sought by Motorola.

[42] *Realtek Semiconductor Corp. v. LSI Corp*., 2014 U.S. Dist. LEXIS 81673 * 23 (N.D. Cal. June 16, 2014).

by committing to license on FRAND terms, and then seeking injunctions and exclusion orders against willing licensees.[43]

The U.S. antitrust agencies have been actively involved in efforts to contribute to an understanding of the standard-setting process and the role of FRAND commitments. The agencies published a joint report on antitrust and intellectual property in 2007.[44] The FTC published a further report on patent remedies in 2011.[45] The agencies have also provided Congressional testimony and the FTC has filed statements with courts and the U.S. International Trade Commission on issues related to standard-essential patents. [46]

Examining New Frontiers in a Digital World: Big Data & Algorithms

Big Data

Technological innovation has created several new frontiers in antitrust analysis. I will focus briefly on two: the competitive significance of "big data" and the role of algorithms and machine learning in high velocity computerized markets.

Big data is generally characterized by the "three Vs" – volume, velocity, and variety. Each of these categories is growing briskly – there is more data than ever before, companies can accumulate and analyze data faster than ever before, and increasingly sophisticated data analytics permit companies to combine and jointly analyze more previously disparate sources of data than ever before.[47]

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[43] Decision and Order, Fed. Trade Comm'n, In the Matter of Motorola Mobility LLC and Google Inc., Dkt. No. C-4410 (July 24, 2013), https://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolado.pdf.

[44] *See* ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS, *supra* note 33.

[45] *See* THE EVOLVING IP MARKETPLACE, *supra* note 34.

[46] *See, e.g.*, Fed. Trade Comm'n, Statement on the Public Interest, In the Matter of Certain Gaming and Entertainment Consoles, No. 337-TA-752 (U.S. Int'l Trade Comm'n, filed June 6, 2012), http://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-comment-united-states-international-trade-commission-concerning-certain-gaming-and-entertaining/1206ftcgamingconsole.pdf; Press Release, Fed. Trade Comm'n, FTC Testifies Before Congress on Standard Essential Patents and How Patent "Hold-Up" Affects Competition (July 30, 2013), http://www.ftc.gov/news-events/press-releases/2013/07/ftc-testifies-congress-standard-essential-patents-how-patent-hold. Other U.S. government agencies have also weighed in on the use of injunctions and exclusion orders in the SEP context. *See, e.g.*, U.S. Dep't of Justice and U.S. Patent & Trademark Office, Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments (Jan. 8, 2013), http://www.justice.gov/atr/public/guidelines/290994.pdf.

[47] *See* FED. TRADE COMM'N, BIG DATA: A TOOL FOR INCLUSION OR EXCLUSION 1-2 (Jan. 2016), https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf.

As companies continue to innovate in their collection and analysis of big data, we can expect big data to play a growing role in the competitive decision-making of more and more firms. This raises a question of how competition policy should treat this new business asset. Can "big data" constitute a relevant market and can "big data" be a barrier to entry? The short answer to both these questions is: yes. The longer answer is, quite appropriately, that it depends on the facts. Antitrust agencies take a case-by-case approach to looking at markets and potential barriers to entry. I am not aware of evidence today that warrants treating "big data" as a special case – either by inferring that it always conveys market power or operates as a barrier to entry on the one hand, or by categorically exempting it from antitrust scrutiny on the other. In the big data world, there's a lot of data that anyone can obtain for a fairly nominal cost. But there is also a lot of valuable data that *is* proprietary and could operate as a barrier to entry. It may be that an incumbent has significant advantages over new entrants when a firm has a database that would be difficult, costly, or time consuming for a new firm to match or replicate.

The FTC has treated data as a relevant market in one recent case and found it to be a barrier to entry in others based on the specific facts and circumstances related to competition in those markets. In *Dun & Bradstreet-Quality Education Data* (2010), the FTC determined that data, itself, was the relevant product. The FTC found that the parties "were the only significant U.S. suppliers of [K-12] educational marketing data."[48] Other sources of marketing data were not close substitutes "because of their more limited coverage, reduced functionality, and less frequent updating."[49]

In *Nielsen-Arbitron* (2013), the FTC determined that the proprietary data of Nielsen and Arbitron was a key input to offering downstream cross-platform audience measurement services. The parties had "the most accurate and preferred sources of individual-level demographic data for [television and radio] audience measurement purposes."[50] In other words, it would be difficult for other firms to replicate the data generated internally by Nielsen or Arbitron. The FTC found access to television audience data with individual-level demographic information to be a significant barrier to entry.[51] The consent required

[48] Analysis of Agreement Containing Consent Order to Aid Public Comment, In the Matter of The Dun & Bradstreet Corporation, Dkt. No. 9342, at 1 (Sept. 10, 2010), https://www.ftc.gov/sites/default/files/documents/cases/2010/09/100910dunbradstreetanal.pdf.

[49] *Id.* The FTC found two "significant barriers to entry" related to data provision: (1) the "time and cost to develop a database with market coverage and accuracy comparable to MDR or QED's pre-merger databases"; and (2) "the need to obtain a reputation for data quality." *Id.* The consent agreement required Dun & Bradstreet to divest an updated and augmented K-12 database, together with Quality Education Data's brand name and associated intellectual property, to a competitor in the K-12 data market. *Id.* at 2.

[50] Analysis of Agreement Containing Consent Order to Aid Public Comment, In the Matter of Nielsen Holdings N.V. and Arbitron Inc., File No. 131-0058 (Sept. 20, 2013) at 2, https://www.ftc.gov/sites/default/files/documents/cases/2013/09/130920nielsenarbitronanalysis.pdf.

[51] *Id.* at 3.

divestiture of assets related to Arbitron's cross-platform audience measurement business, including data from Arbitron's representative panel.

The FTC treated data as an input in the market for electronic public records services for law enforcement customers in *Reed Elsevier-ChoicePoint* (2008). Reed Elsevier's Lexis-Nexis and ChoicePoint were the largest suppliers of public records services, with a combined 80% market share. The FTC found that the parties' combination of data and analytics were unique among electronic public records services. Law enforcement customers demanded "the most complete database of public records" and "sophisticated search algorithms . . . that identify and display non-obvious relationships between records."[52] Other firms also possessed what could be described as the public records version of "big data." But the quality of those (in terms of breadth and depth), and the analytics offered in connection with those data were insufficient to enable those other firms to compete effectively for law enforcement customers.[53]

On the flip side, the FTC decided to close its *Google-DoubleClick* investigation in 2007.[54] Staff examined whether the combination would enhance Google's power in the ad intermediation market and concluded that it would not. The FTC found that "neither the data available to Google, nor the data available to DoubleClick, constitutes an essential input to a successful online advertising product."[55] These examples highlight the fact that there is no one-size-fits-all approach to data holdings, and that appropriate antitrust analysis to this issue is a fact-specific enterprise.

As businesses come to rely increasingly on big data, privacy and data protection concerns have become frequent topics in discourse about competition policy. Some have suggested that competition law should focus more on privacy and data protection issues in analyzing platforms and other high-tech industries. Others, particularly in Europe, have suggested that competition law should be used as a tool to improve privacy and data protections for consumers.

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[52] Analysis of Agreement Containing Consent Order to Aid Public Comment, In the Matter of Reed Elsevier and ChoicePoint, File No. 081-0133 (Sept. 16, 2008) at 2, https://www.ftc.gov/sites/default/files/documents/cases/2008/09/080916reedelseviercpanal.pdf.

[53] Entry/expansion within a two-year time horizon was unlikely because existing firms "would need to improve their software and underlying analytics substantially, increase the breadth and depth of their public records data, and overcome [reputational barriers]." *Id*. at 3. The consent required ChoicePoint to divest assets related to its relevant law-enforcement related electronic public records services to Thomson Reuters.

[54] Google was the dominant provider of "sponsored search advertising" – and, through its AdSense network, was also an ad intermediary. DoubleClick was a leading ad server – a company that manages the selection, delivery, and placement of advertisements for publishers and advertisers.

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

In general, I see antitrust review and broader policy concerns regarding privacy and data protections as two separate, but important issues. The U.S. antitrust agencies routinely analyze non-price considerations where there is evidence that those non-price considerations are important to competition. The FTC has yet to challenge a merger specifically based on the likelihood that it would lead to a diminution in privacy protections, but we have recognized the possibility that consumer privacy can be a non-price dimension of competition.

Absent a clear nexus to competition, however, privacy and data protection concerns are best handled as consumer protection issues.[56] For example, in *Facebook-WhatsApp* (2014), staff from the FTC's Bureau of Consumer Protection (BCP) focused on how the merger would affect the promises that WhatsApp had made to consumers about the limited nature of the data it collects, maintains, and shares with third parties – promises that exceeded those of Facebook at the time the merger was announced. BCP concluded it was appropriate to alert the companies about these privacy concerns and assure the public that the protections of applicable law, including Section 5 and a 2011 FTC order against Facebook, would apply to WhatsApp's data.[57] This was a consumer protection issue, and it was handled appropriately as such. On the competition side, our Bureau of Competition staff allowed the transaction to proceed with no conditions.

Similarly, concerns were raised last year regarding RadioShack's proposed sale of its database of customers as part of its ongoing bankruptcy proceedings. Several states objected to the proposed sale on the grounds that RadioShack had promised customers that it would not resell customer data to third parties.[58] Our BCP director, Jessica Rich, wrote a letter acknowledging the "special circumstances"

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[56] Our agency has evolved into the premier privacy enforcer through our existing consumer protection authorities. Since we brought our first data privacy case over a decade ago, the FTC has brought more than 50 cases alleging violations of consumers' privacy. Additionally, the FTC has used its convening power to hold workshops and issue reports on leading data issues. Our recent report entitled "Big Data: A Tool for Inclusion or Exclusion?" examined how the uses of big data affected consumers – particularly vulnerable groups and protected classes. FED. TRADE COMM'N, BIG DATA: A TOOL FOR INCLUSION OR EXCLUSION (Jan. 2016), https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf. The report found, that while there are readily identifiable pitfalls in the use of big data which could result in discriminatory effects, there are existing legal protections to ensure we do not diminish hard won protections as Big Data usage becomes more prevalent.

[57] Letter from Jessica Rich, Director, Bureau of Consumer Protection, Fed. Trade Comm'n, to Erin Egan, Chief Privacy Officer, Facebook, and to Anne Hoge, General Counsel, WhatsApp Inc. (April 10, 2014), https://www.ftc.gov/system/files/documents/public_statements/297701/140410facebookwhatappltr.pdf.

[58] *See* Megan Geuss, *FTC Proposes a Compromise so RadioShack Can Sell Consumer Data*, ARS TECHNICA, May 18, 2015, http://arstechnica.com/tech-policy/2015/05/ftc-proposes-a-compromise-so-radioshack-can-sell-consumer-data/.

involved in a bankruptcy proceeding and providing guidance on how RadioShack might transfer customer information in a manner consistent with the promises it had made to consumers.[59]

The European Data Protection Supervisor has recently suggested that consumers do not appreciate the actual costs associated with "free" products – and that "it may therefore be necessary to develop a concept of consumer harm, particularly through violation of rights to data protection, for competition enforcement in digital sectors of the economy."[60] I'm open to the possibility that consumers may systematically underestimate the effects of privacy or data protection practices – or that they may simply make the rational decision that it isn't worth the time to fully evaluate those costs. The FTC has advocated for greater transparency and choice for consumers with respect to privacy and data protection policies, including recommending that Congress consider enacting general privacy legislation, data security and breach notification legislation, and data broker legislation.[61]

At the same time, I believe that it is dangerous to engage in competition analysis based on what we think consumers *should* want or value, independent of market realities. To do so is to cross the line from antitrust enforcement to market regulation. However well intentioned, I do not believe that this is the appropriate role of antitrust law.

If market participants are competing on the basis of privacy or data policies to attract consumers, that would certainly be an element of our competition analysis. But if they *aren't*, and if there isn't evidence that those dimensions are particularly relevant to competition, then using competition law to address privacy or data issues is like trying to force a square peg into a round hole. To the extent that there is a problem, it should be solved through legislation, regulation, or consumer protection law enforcement – not using the antitrust laws to solve a policy issue they are ill-suited to address.

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[59] Letter from Jessica Rich, Director, Bureau of Consumer Protection, Fed. Trade Comm'n, to Elise Frejka, Founding Member, Frejka PLLC (May 16, 2015), https://www.ftc.gov/system/files/documents/public_statements/643291/150518radioshackletter.pdf.

[60] Preliminary Opinion of the European Data Protection Supervisor, Privacy and Competitiveness in the Age of Big Data: The Interplay between Data Protection, Competition Law and Consumer Protection in the Digital Economy ¶ 71 (Mar. 2014), https://secure.edps.europa.eu/EDPSWEB/webdav/shared/Documents/Consultation/Opinions/2014/14-03-26_competitition_law_big_data_EN.pdf.

[61] *See, e.g.*,FED. TRADE COMM'N, PROTECTING CONSUMER PRIVACY IN AN ERA OF RAPID CHANGE: RECOMMENDATIONS FOR BUSINESSES AND POLICYMAKERS (2012), https://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-report-protecting-consumer-privacy-era-rapid-change-recommendations/120326privacyreport.pdf; FED. TRADE COMM'N, DATA BROKERS: A CALL FOR TRANSPARENCY AND ACCOUNTABILITY (2014), https://www.ftc.gov/system/files/documents/reports/data-brokers-call-transparency-accountability-report-federal-trade-commission-may-2014/140527databrokerreport.pdf.

Algorithms

The rise of high-velocity computerized markets also present a new frontier for antitrust enforcers. Last year, DOJ brought a case for price fixing against two e-commerce sellers who agreed to align their algorithms to increase online prices for their goods – posters.[62] In that case humans reached an agreement to use technology to fix prices – but how should antitrust enforcers handle situations in which the human role is less clear? Traditionally, there are three challenges to maintaining a collusive scheme: (1) detecting cheating among participants, (2) responding to new market developments, and (3) avoiding detection by antitrust officials. Algorithms could be used in an attempt to overcome these challenges, such as by automating conspirators' responses to changing market developments or speeding them up, mitigating the need for ongoing coordination between the participants.

There is also a possibility that, as algorithms become more sophisticated, they may be more likely to engage in consciously parallel behavior. Professors Maurice Stucke and Ariel Ezrachi co-authored a recent paper on artificial intelligence and the enforcement challenges that may be raised by collusion involving pricing algorithms.[63] They suggest that it may be difficult to challenge algorithms engaged in conscious parallelism under current laws absent awareness or anticompetitive intent by the humans using the technology. They urge policymakers to recognize the "dwindling relevance of traditional antitrust concepts of 'agreement' and 'intent'" in the digital age.[64]

An increase in the sophistication of pricing algorithms could also lead to narrower product market definitions in the future. Under the 2010 Horizontal Merger Guidelines, we specifically evaluate the possibility of price discrimination against targeted customers. Big data and algorithms enable sellers to more effectively target and price discriminate against specific customers. Thus, even though a company may not have been able to effectively target certain consumers for higher prices in the past, that in itself is no guarantee that it may not be able to do so in the future. Data are becoming more robust and algorithms are becoming more powerful.

The use of algorithms also raises significant consumer protection issues, most notably the potential for price discrimination based on suspect classifications – even in the absence of a specific intent

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[62] *See* Press Release, U.S. Dep't of Justice, Former E-Commerce Executive Charged with Price Fixing in the Antitrust Division's First Online Marketplace Prosecution (Apr. 6, 2015), http://www.justice.gov/opa/pr/former-e-commerce-executive-charged-price-fixing-antitrust-divisions-first-online-marketplace.

[63] *See* Ariel Ezrachi & Maurice E. Stucke, Artificial Intelligence & Collusion: When Computers Inhibit Competition (U. Oxford Centre for Competition Law and Policy, Working Paper CCLP (L) 40, 2015), https://www.law.ox.ac.uk/sites/files/oxlaw/cclpl40.pdf.

[64] *Id*. at 37-38.

to engage in that discrimination. Earlier this year, the FTC put out a report entitled "Big Data: A Tool for Inclusion or Exclusion." The report highlights the broad benefits for consumers through the use of big data sets and algorithms, but it also notes the downsides that come if the data are flawed or if the algorithm makes poor decisions about consumers.[65] While we can expect increased technological innovation in the development and use of algorithms, we must carefully analyze their impact from both a competition and consumer protection perspective to ensure that specific innovations do not have the intended or unintended consequence of harming consumers.

Conclusion

As we advance further into the 21st century – complete with its brave new world of innovation, big data, and novel technology – we will face new challenges as competition enforcers. We must be mindful of these challenges, yet we must also continue to be aggressive in advancing our mission to protect consumers and to promote competition.

[65] For example, if a credit-scoring program only offers prime credit deals to graduates of four-year colleges because of how the algorithm was designed, then it is likely that some very good consumers will never have the opportunity to use that product. There can also be cases where protected classes receive very different search results than others. In these cases, I think it is important that companies approach these issues with an open mind and bring in a level of understanding. Algorithms are an efficiency, but they should not negate human judgment or human wisdom.