

Beyond *Microsoft*: Intellectual Property, Peer Production and the Law's Concern with Market Dominance

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I. INTRODUCTION

In the last decade, cases arising at the interface between intellectual property rights (“IPRs”) and antitrust/competition law (“the Interface”) seem invariably related to subject matter which pre-existing IPRs have expanded to encompass.¹ These have sprung from technological advances, as well as the purported need to preserve the ability of owners to take advantage of their investments, and thereby their incentives to innovate for the benefit of society.² The growth of IPRs has occurred despite doubts that have been raised as to the force of these justifications fuelling its growth.³ As IPRs are strengthened, lengthened, and expanded over new categories of works, a concern arises that intellectual property (“IP”) owners have an unprecedented ability to distort competition in the marketplace.⁴ At the heart of the Interface arguably lies the issue of refusals to license.⁵

¹ These cases include IPRs over databases and software. *See* United States v. Microsoft, 253 F.3d 34 (D.C. Cir. 2001); *Attheraces Ltd. v. British Horseracing Bd.*, [2007] EWCA (Civ) 38 (Eng.) (horseracing data); Case C-241/91, *Radio Telefis Eireann v. Comm’n*, 1995 E.C.R. I-743 (television program schedules); Case C-418/01, *IMS Health GmbH v. NDC Health GmbH*, [2004] E.C.R. I-5039 (German pharmaceutical market data); Case T-201/04, *Comm’n v. Microsoft*, 2004 E.C.R. II-4463.

² It has been argued that digitization and the Internet allowed instantaneous perfect replication. IPRs therefore had to grow. *See* JESSICA LITMAN, *DIGITAL COPYRIGHT* (2001). In 2005, the U.S. Supreme Court expanded the Copyright Act to cover a form of liability it had never before recognized in the context of copyright—providing technology that induces copyright infringement. *MGM Studios v. Grokster, Ltd.*, 545 U.S. 913, 940 n.13 (2005) (ruling against Grokster’s peer-to-peer file sharing program).

³ *See* DON TAPSCOTT & ANTHONY D. WILLIAMS, *WIKINOMICS: HOW MASS COLLABORATION CHANGES EVERYTHING* 179 (Portfolio 2006). In the case of software, product life-cycles have historically been somewhere between 5 and 15 years. Still, copyright protection of computer programs follows today the same terms as those of any artistic work and is currently multiple times over product lifetimes. YALE M. BRAUNSTEIN ET AL., *Economics of Property Rights as Applied to Computer Software and Data Bases*, in *TECHNOLOGY AND COPYRIGHT* 231, 241–42 & n.11 (George P. Bush et al. eds., 1979) (questioning whether efficiency gains would outweigh administrative costs of multiple protection terms in copyright legislation). Recently, leading U.S. economists published a well-argued note in a legal case challenging the copyright term extension in the United States from 50 to 70 years. *See, e.g.*, Brief for George A. Akerlof et al. as Amicus Curiae Supporting Petitioners, *Eldred v. Ashcroft*, 239 F.3d 372 (2003), available at <http://eon.law.harvard.edu/openlaw/eldredvashcroft/supct/amici/economists.pdf>.

⁴ The Directorate-General for Competition recognizes that “[t]he impact of intellectual property rights on expansion and entry depends on the nature and actual strength of the intellectual property right held by the allegedly dominant undertaking.” *DG Competition*

Anticompetitive abuses involving refusals to supply licenses may occur when the dominant undertaking denies an actual or potential licensee access to an input to exclude it from participating in an economic activity.⁶ IPRs are legal barriers and may limit the number of market participants. Foreclosure may be of concern to competition law when efficient rivals are discouraged from entry or encouraged to exit.⁷ The ability for IP owners to do so stems from their market power, typically characterized by sustained high levels of market shares,⁸ as well as barriers to entry and expansion faced by competitors. Antitrust authorities look at whether the latter would have been sufficiently immediate and persistent to prevent the abuse of market power.⁹ This area is highly contentious because in some cases, antitrust/competition policy requires dominant undertakings to grant competitors access to valuable IPRs in order to ensure that effective competition is maintained.¹⁰ This raises the question of whether and how

Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses, at 13 (2005), available at <http://ec.europa.eu/comm/competition/antitrust/art82/discpaper2005.pdf> [hereinafter *DG Competition Paper*].

⁵ Refusals to license generally occur where a company that has exclusive control over a scarce resource owns access that is indispensable to compete in the same market or closely related market. The undertaking takes advantage of such a strategic position and employs it in order to preserve or strengthen its dominant position in that market or to acquire it in the second-related market.

⁶ Refusals to supply can take several forms. It can be a simple refusal (halting existing supplies or refusing to deal) or a constructive refusal (pricing so that it becomes economically unviable for the buyer to continue its activities, calculated delays in supplying, exclusive dealing or tying arrangements). It can also be horizontal (where the dominant undertaking attempts to exclude a rival at its own level in the supply chain) or vertical (where the dominant undertaking attempts to exclude a active or potential participant in a downstream market).

⁷ That is not to say that any time an efficient rival is discouraged from entry or encouraged to exist there is a foreclosure and/or an abuse because of IPR. However, it is a weighty factor affecting the conclusion of the analysis.

⁸ See *Commission Notice on the Definition of the Relevant Market*, 1997 O.J. (C 372) paras. 54–55.

⁹ E.U. authorities recognize that this assessment depends on the characteristics and dynamics of the market—factors such as capacity constraints, the history of frequent and successful entry and entry costs. *DG Competition Paper*, *supra* note 4, at 13–14.

¹⁰ An additional explanation for this conflict stems from competition law's focus on attaining competitive market conditions not particular outcomes, as opposed to intellectual property law's preoccupation with ensuring the optimum amount of innovation. Competition law assumes that deterring monopolies will lead to the

antitrust/competition law can be used to counterbalance informational bottlenecks that could become a form of abuse.¹¹ There is a need for clear and economically robust rules to regulate the amorphous boundaries of innovation.

United States jurisprudence has a long history of examining such issues in sectors involving IPRs as well as more traditional infrastructure.¹² It has settled on a deferential approach. In the absence of immediate consumer harm, antitrust law is reluctant to

attainment of economic efficiency, while intellectual property law assumes that efficiency will be achieved only if regulators correctly estimate the proper mix of incentive and access to copyright as needed to provide the optimal amount of innovation. See David McGowan, *Regulating Competition in the Information Age: Computer Software as an Essential Facility Under the Sherman Act*, 18 HASTINGS COMM. & ENT. L.J. 771, 773–74 (1996); Thomas F. Cotter, *Intellectual Property and the Essential Facilities Doctrine*, 44 ANTITRUST BULL. 211, 227–28 (1999).

¹¹ See, e.g., Frank L. Fine, *European Community Compulsory Licensing Policy: Heresy versus Common Sense*, 24 NW. J. INT'L L. & BUS. 619, 620 (2004) (describing “a stormy debate on both sides of the Atlantic as to whether compulsory licensing, on antitrust grounds, is an appropriate means of breaking monopolies that owe their existence, to a large extent, to the ownership of valuable intellectual property”); see also Alberto Heimler & Antonio Nicita, *Intellectual Property Right-Based Monopolies and Ex-Post Competition: Some Reflections on the Essential Facilities Doctrine*, at 26–28 (2000) (noting the growing number of cases involving IPRs and competition law).

¹² Section 2 of the Sherman Act punishes, with a fine or by imprisonment or both, “monopolization” and “attempts to monopolize.” Monopolization occurs when the owner wilfully acquires monopoly power in the relevant market or maintains the power without any superior product, business acumen, or historic accident. See *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1353 (Fed. Cir. 1999). American antitrust treatment of monopolization cases in general tends to focus its attention exclusively on the market where the conduct under analysis displays its effects. This means that the monopolization claim under § 2 will be framed (as monopolization or attempt to monopolize) pursuant to the degree of market power held by the company in the market that will be ultimately affected by the anticompetitive conduct. Attempt to monopolize regards conduct that aims at achieving monopoly power in a certain market. These are harder to prove because every firm tends to achieve a position of strength in the market. Thus liability is found when there is proof of: 1) predatory or anticompetitive conduct, 2) a specific intent to monopolize, and 3) a dangerous probability of success. *Spectrum Sports Inc. v. Shirley McQuillan*, 506 U.S. 447, 455–56 (1993); see, e.g., *Verizon Commc'ns Inc. v. Law Offices of Cutris V. Trinko, L.P.*, 540 U.S. 398 (2004); *United States v. Terminal R.R. Ass'n of St. Louis*, 224 U.S. 383 (1912); *Indep. Serv. Orgs. Antitrust Litig.* CSU, LLC. v. Xerox Corp., 203 F.3d 1322 (Fed. Cir. 2000); *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195 (9th Cir. 1997); *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147 (1st Cir. 1994); *BellSouth Adver. & Publ'g Corp. v. Donnelley Info. Publ'g, Inc.*, 719 F. Supp. 1551 (S.D. Fla. 1988).

compel access where an owner unilaterally refuses to license.¹³ Proof of such approach is evident in *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*. (“*Trinko*”), where the Supreme Court held that a company with monopoly power had no duty to open an infrastructural facility to its competitors because compelling it to share the source of its own advantage lessens the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities.¹⁴ This suggests that U.S. jurisprudence accepts the philosophy that markets are best placed to determine an efficient equilibrium.

On May 1, 2002, the Federal Trade Commission (“FTC”) and U.S. Department of Justice (“DOJ”) conducted a round of hearings on single firm conduct with respect to refusals to deal.¹⁵ The discussion focused on views on the nature of IPRs compared to property rights, as well as on the conditions to rebut a presumptively valid justification for an owner to refuse access to its IPRs. This was followed by another round of hearings on July 18, 2006.¹⁶ This discussion focused on proposed tests, as well as

¹³ The *locus classicus* of this is *Data Gen. Corp.*, 36 F.3d at 1186–87, where the court held: 1) neither the antitrust nor IP legislation worked to erode the scope of other, 2) the limited copyright monopoly was based on Congress’ intent that the right to “exclude others from using their works creates a system of incentives that promotes consumer welfare in the long term by encouraging investment in the creation of desirable artistic and functional works of expression,” and 3) IPRs, although granted by the State, were not exempt from the application of antitrust law. See Emanuela Arezzo, *Intellectual Property Rights at the Crossroad Between Monopolization and Abuse of Dominant Position: American and European Perspectives Compared*, 24 J. MARSHALL J. COMPUTER & INFO. L. 455, 505 (2006) (noting that “the United States intends to protect competition by preserving a dominant firm’s incentives to compete and innovate; in order to do so, U.S. antitrust authorities think it is necessary not to force a dominant firm to deal or to license its competitors because they fear this might reduce its incentives to invest and compete to gain a monopolistic position”).

¹⁴ 540 U.S. 398 (2004) [hereinafter *Trinko*].

¹⁵ Participants in this session discussed “the extent to which refusals to license intellectual property create competitive concerns, how recent case law on refusals to license is being interpreted, and whether this recent case law appropriately balances the interests of intellectual property law and antitrust law.” A list of the participants, as well as a transcript of the proceedings can be found at <http://www.ftc.gov/opp/intellect/detailsandparticipants.htm#May%201> (last visited Oct. 12, 2007).

¹⁶ Federal Trade Commission/Department of Justice Hearings, Federal Trade Commission, <http://www.ftc.gov/opa/2006/07/section2july.htm> (last visited Oct. 12, 2007).

on the competence of courts to determine harm to markets and consumers and to regulate the terms of access. There was also recognition that economic analysis has not developed sufficiently to provide clear rules.¹⁷

The E.U. has chosen a different approach to regulating innovation. Influenced by the German ordoliberal school, it sees competition law as an instrument to ensure freedom of action and participation from all market players.¹⁸ It has developed tests to determine when an IPR owner exceeds the basis of IPRs granted to it. An IP owner had the duty to license its IPRs where refusing access to indispensable proprietary content would stifle a new product from being offered in a related market for which there was real consumer demand.¹⁹ As economic theory was introduced into European competition analysis, its tests became more ambitious. Most recently in *Commission of the European Communities v. Microsoft*, the Commission was purportedly able to weigh the loss in incentives to the owner to innovate by providing access against an aggregate gain in incentives to innovation in the relevant

¹⁷ Jeffrey K. Mackie-Mason, *What to Do About Unilateral Refusals to License*, Federal Trade Commission, <http://www.ftc.gov/opp/intellect/020501mackie2.pdf> (“The optimal balance between innovation incentives and protection against static monopoly harm is not knowable to any reasonable degree of precision. Economists may be able to identify some special cases in which the desired rule is unambiguously knowable, but these cases will be few.”).

¹⁸ The core principles and ideas of the ordoliberal school can be found in: DAVID GERBER, *LAW AND COMPETITION IN TWENTIETH CENTURY EUROPE* 241–46 (Oxford University Press, 2001) (1998). In essence, ordoliberal theory focuses on the importance of a stable and transparent framework of rules for the efficient functioning of a private market economy, as embodied by the notion of “complete competition” in which no firm can engage in abuses of monopoly positions and other forms of coercion in a given market, emphasizing the need for the state to ensure that the free market produces results close to its theoretical potential. Article 82 of the E.C. Treaty governing this area of European competition law provides a list of examples of abusive conduct, but E.C. founders purposefully left both the concepts of dominance and of abuse to be further developed by the Court of Justice and Member State courts. *See* Treaty Establishing the European Community, art. 86, Mar. 25, 1957, 298 U.N.T.S. 3. [hereinafter E.C. Treaty] This was similar to the Warren Court’s antitrust populist approach which focused on freedom of action but with concern focused on autonomy for small players in market.

¹⁹ Case C-241/91, *Radio Telefis Eireann v. Comm’n*, 1995 E.C.R. I-743 at para. 2.

markets identified.²⁰ At the time of this writing, the Court of First Instance has not pronounced on the substantive merits of the case.

In December 2005, the European Commission initiated a public consultation to review the application of Article 82 of the E.C. Treaty to exclusionary abuses and treatment of refusals to license, followed by a public hearing on June 14, 2006.²¹ It adopted an effects-based analysis grounded on economic principles rather than per se prohibitions, which was roundly welcomed.²² However, respondents were also concerned that an effects-based analysis would be hard to implement.²³ There were numerous requests for clearer rules to assist businesses in self-assessments of lawful conduct,²⁴ including “white areas.”²⁵ DG Competition has indicated that IPRs and their effects will be carefully evaluated.²⁶

²⁰ Case C-3/37.792, *Comm’n v. Microsoft*, 2004 E.C.R. at para. 782. Intriguingly, an observation has been made that “[t]he possibilities of even the US and EU to influence the behavior of the world’s biggest computer and software companies are limited.” MIKKO VÄLIMÄKI, *THE RISE OF OPEN SOURCE LICENSING: A CHALLENGE TO THE USE OF INTELLECTUAL PROPERTY IN THE SOFTWARE INDUSTRY*, 79 n.207 (Helsinki, ed., Turre Publishing 2005).

²¹ Exclusionary abuses refer to “behaviours by dominant firms which are likely to have a foreclosure effect on the market . . . to actual or potential competitors and which ultimately harm consumers.” *DG Competition Paper*, *supra* note 4, at 4.

²² See, e.g., Baker & McKenzie Response to DG Competition’s Article 82 Consultation, 1 (Mar. 31, 2006), <http://ec.europa.eu/comm/competition/antitrust/art82/076.pdf> (stating that “we welcome the proposal by DG Competition to adopt an effects based approach grounded on foreclosure analysis. While we comment on how the Paper should be clarified and expanded, we agree with the broad thrust of the Paper in applying economic principles to Article 82”).

²³ See, e.g., *Common Position of Cercle de l’Industrie on Revision of the Application of Articles 82 EC Treaty to Exclusionary Abuses*, para. 9 (Mar. 31, 2006) [hereinafter *Common Position of Cercle*], http://ec.europa.eu/comm/competition/antitrust/art82/008_en.pdf.

²⁴ This is supported by DOUGLASS C. NORTH, *STRUCTURE AND CHANGE IN ECONOMIC HISTORY* 162–66 (W.W. Norton & Co., 1981).

²⁵ See *Common Position of Cercle*, *supra* note 23, at para. 28.

²⁶ According to the DG Competition, it is “sufficient” that competitors are “disadvantaged and consequently compete less aggressively . . .” while E.U. “enforcement policy toward refusals to supply will take into account both the effect of having more short-run competition and the possible long-run effects on investment incentives” though less weight will be given to future efficiencies compared to present efficiencies. *DG Competition Paper*, *supra* at note 4, paras. 58, 213. See also Arezzo, *supra* note 13, at 457 (asserting that “European antitrust law has endorsed a more restrictive attitude, holding that when exceptional circumstances do exist, the exclusive

However, as in the U.S., a concern has also been expressed that economic theory in this area had not developed to an extent where the impact of such refusals can be sufficiently understood for regulators to intervene with confidence.²⁷

These actions of the Commission and the responses thereto are important and have contributed to an understanding of the Interface. Nevertheless, beyond a rough measure, there are still difficulties in deciding when and whether it is right for mandatory access to be granted to IPRs. Moreover, the approaches to solving this puzzle are likely to be heavily influenced by socio-economic infrastructures including fairly entrenched views about the role of capitalism and socialism.²⁸ Solutions will not come easily and, even if forthcoming, might not be consistent in different jurisdictions.

It will continue to be important to try to work out the test for dominance and with it, the role of IPRs in the antitrust and competition law context. But, it is possible also that non-legal and non-traditional economic development will make it more likely that economic dominance will be less likely to occur in market situations. This means that it is possible that collective social and economic activities without traditional economic incentives will make it more likely that competitiveness and consumer welfare will thrive in markets driven by IP products and services.

Up to now the market, and together with it the propretisation of information, have become integral mechanisms to efficiently allocate scarce resources. Economic rewards have been considered

faculty of the IP-owner can be curtailed in favor of a more competitive structure of the market”).

²⁷ See *Public Hearing on Article 82 Before the European Comm'n* (14 June 2006) (testimony of Damien Geradin, Global Competition Law Centre), available at http://ec.europa.eu/comm/competition/antitrust/art82/en_42.wmv.

²⁸ For example, the DOJ and FTC have adopted a decidedly more capitalistic approach, preferring not to disincentivize IP owners with vague and complicated rules. In doing so, there is a risk that the state of innovation may reflect the reality of geopolitics that too much information will be controlled by the hands of a select few. DG Competition has been influenced by a more socialist perspective of IP ownership, and a general distrust for broad IPRs. Thus dominant IP owners are under a “special responsibility” not to distort the competitive structure, weakened by their presence, further by abusing their dominance. Commission Decision 98/531/EC, 1998 O.J. (246), para. 267.

necessary to promote the creation of artistic or inventive works. But there is evidence that the needs for those economic rewards are changing. We know that some creativity such as cave drawings has been historically without the need for personal economic incentives. But dissemination of creative works almost always required incentives and operate through a downward dissemination of information goods. For some time, there has been evidence that at least some types of creativity and dissemination do not fit into this traditional mould. Open source is perhaps the most well-known example.

The law has often lagged behind technology and economic changes. The law of the Interface is no exception. Thus, while competition authorities in the U.S. and E.U.—both global leaders in IP and competition policy—apply themselves assiduously to the task of ironing out the analytics of abuses of dominant positions including the refusals to license,²⁹ the world had moved quietly and quickly forward.

In 2006, Time Magazine selected “You” to be Person of the Year.³⁰ It did so because it saw “collaboration on a scale never seen before . . . wresting power from the few and helping one another for nothing and how that will not only change the world, but also change the way the world changes.”³¹ Traditionally, the sunk costs of innovation and commoditization were generally high in nearly every commercially valuable IP market.³² IP markets are traditionally organized along national boundaries according to strict hierarchical lines of supply, and customers and consumers are confined to relatively limited economic roles—whether as passive consumers or corporate customers trapped beneath IP

²⁹ See *supra* notes 5–10 and accompanying text.

³⁰ Lev Grossman, *Time’s Person of the Year: You*, TIME, Dec. 13, 2006, available at <http://www.time.com/time/magazine/article/0,9171,1569514,00.html>.

³¹ *Id.*

³² DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANISATION 531 (Pearson 2005) (1990) (citing examples of investment outlays by major multinationals as a percentage of revenue: “In 2002, Microsoft (software) (invested) 15.2%; Advanced Micro Devices, 30.3% (microprocessor chips); Biogen (biotechnology), 32%”).

owners in organizational hierarchies.³³ Owners with substantial market power could exclude competitors by unilaterally refusing to license their proprietary content in primary or secondary markets.³⁴ Barriers to entry were high, and the risk of consumer harm could be great. Antitrust analysis took place in these paradigmatic, vertical silos of innovation.

While these vertical hierarchies remain, changes in technology are giving rise to new models of production based on collaboration and self-organization rather than on hierarchy and control.³⁵ Technology has “increase[d] access to information, and [brought] us closer to” an ideally “efficient, frictionless global market.”³⁶ Ordinary individuals have platforms to collaborate and share content at very little cost.³⁷ Critically, it potentially reduces the reliance on dominant firms and markets to respectively create and trade the goods and services they desire, and with them the anticompetitive market effects of a refusal to license.³⁸

This new mode of innovation and value creation is called “peer production” or “wikinomics.”³⁹ Peer production has reached a

³³ IP exploitation is essentially based on two rights which have been codified in national legislation through the impetus of international treaties. The first is the right to own and sell ideas. The second is the right to control the use of those ideas after sale. These create vertical relationships which content protected by IP is traded on the marketplace for payment, whether in the form of a royalty or a license fee. As an example, see Accenture Global Convergence Forum 2005: Plenary Session, *available at* http://www.accenture.com/Global/About_Accenture/Business_Events/By_Industry/Communications/DigitalMeet.htm (noting that “in the current value chain in the digital world we look for content creation to come from the media and entertainment industry, distribution from the communications and retail world, while end users are dependent on consumer electronics for delivery”). See also RICHARD WHISH, *COMPETITION LAW* 734 (Oxford University Press 2005) (1989) (“Generally speaking, intellectual property rights are the product of, and are protected by, national systems of law, although the growth of international commerce has resulted in an increasing measure of national cooperation.”).

³⁴ See *DG Competition Paper*, *supra* note 4, at 67–69.

³⁵ See generally TAPSCOTT & WILLIAMS, *supra* note 3.

³⁶ THOMAS L. FRIEDMAN, *THE WORLD IS FLAT: A BRIEF HISTORY OF THE TWENTY-FIRST CENTURY* 237 (Farrar, Straus & Giroux 2006) (2005).

³⁷ TAPSCOTT & WILLIAMS, *supra* note 3, at 12.

³⁸ FRIEDMAN, *supra* note 36, at 93–95.

³⁹ The term “peer production” describes what happens when masses of people and firms collaborate openly to drive innovation and growth, and was coined by Professor Yochai Benkler in his 2003 paper, *Coase’s Penguin, or Linux and the Nature of the Firm*. See Yochai Benkler, *Coase’s Penguin, or, Linux and the Nature of the Firm*, 112 *YALE*

tipping point where new forms of mass collaboration are changing the production and exploitation of IP. Economies of scale and scope—which gave dominant undertakings a highly developed distribution network and wide geographical coverage—are vanishing.⁴⁰ In other words, capacity constraints due to the prohibitive cost of sunk investments are becoming less important. The power to disseminate products and ideas rather than just passively consuming them fundamentally reshapes the flow of innovation.⁴¹ Critically, it potentially reduces the reliance on dominant firms and markets to respectively create and trade the goods and services they desire, and with them, the anticompetitive market effects of a refusal to license.⁴² It follows that if there is an alternative system of innovation that creates more market players on a continuing basis, it should result in less dominance and, consequently, less need for intervention by competition authorities in IP markets.

II. WIKINOMICS: ANOTHER WAY FORWARD?

Peer production is emerging as an alternative model of innovation that harnesses human ingenuity efficiently and effectively. Two examples are open source⁴³ and crowd-sourcing.⁴⁴

L.J. 369, 375 (2002). The term “wikinomics” was coined by Don Tapscott and Anthony D. Williams. *See generally* TAPSCOTT & WILLIAMS, *supra* note 3.

⁴⁰ TAPSCOTT & WILLIAMS, *supra* note 3, at 10–11.

⁴¹ Michael Sandel observed that this phenomenon was first identified by Karl Max and Friedrich Engels in the *Communist Manifesto*, published in 1848. While the shrinking and flattening of the world constitute a difference of degree from what they saw happening then, it is nevertheless part of the same historical trend they observed—the inexorable march of technology and capital to remove all barriers. *See* FRIEDMAN, *supra* note 36, at 234.

⁴² As Thomas Friedman put it, “communities of geeks are now collaborating to design new software and then to upload it to the world. . . . The genesis of the flat world platform not only enabled more people to author more content, and to collaborate on that content. It also enabled them to upload files and globalize that content . . . without going through any of the traditional hierarchical organisations or institutions.” FRIEDMAN, *supra* note 36, at 93–94.

⁴³ Wikipedia describes “open source” as “a set of principles and practices that promote open access to the design and production of goods and knowledge. The term is most commonly applied to the source code of software that is made available to the general public with relaxed or non-existent intellectual property restrictions. This allows users to

The collective knowledge, capability, and resources embodied within broad horizontal networks of participants can be mobilized to accomplish more than one firm acting alone. More importantly, the ability to integrate the talents of dispersed individuals and organizations could potentially mitigate the anticompetitive effects of refusals to license by dominant undertakings.⁴⁵ Indeed, it may reshape the strategies through which dominant undertakings exploit their IPRs, so that instead of refusing access, they actively seek out other stakeholders to in a new model of collaborative proprietary innovation. It is important to clarify, however, that peer production does not merely encompass altruistic community efforts like those from the contributors of Wikipedia or some open source software projects. As will be seen, peer production also offers a platform for commercially viable, sometimes highly successful, business models.⁴⁶

At least two factors made this possible. First, in the 1990s, Windows-enabled computers made it possible for individuals to author their own content from their desktops in digital form.⁴⁷ With the steady advance of telecommunication, they were able to

create software content through either incremental individual effort or through collaboration.” Open source, Wikipedia, http://en.wikipedia.org/wiki/Open_source (last visited Oct. 7, 2007).

⁴⁴ Wikipedia describes “crowd sourcing” as “a neologism for the act of taking a job traditionally performed by an employee or contractor, and outsources it to an undefined, generally large group of people in the form of an open call. . . . In some cases the labor is well-compensated. In other cases the only rewards may be kudos or intellectual satisfaction. Crowdsourcing may produce solutions from amateurs or volunteers working in their spare time.” Crowdsourcing, Wikipedia, http://en.wikipedia.org/wiki/Crowd_sourcing (last visited Oct. 7, 2007).

⁴⁵ As Thomas Friedman put it, “Everywhere you turn, hierarchies are being challenged from below or are transforming themselves from top-down structures into more horizontal and collaborative ones. ‘Globalization’ . . . is not simply about how governments, business, and people communicate, not just about how organizations interact, but is about the emergence of completely new social, political, and business models. . . . [T]here is something about the flattening of the world that is going to be qualitatively different from the great changes of previous eras: the speed and breadth with which it is taking hold. The introduction of printing happened over a period of decades and for a long time only affected only a relatively small part of the planet. . . . This flattening process is happening at warp speed and directly or indirectly touching a lot more people on the planet at once.” FRIEDMAN, *supra* note 36, at 48–49.

⁴⁶ See, for example, *infra* Parts II.A.2 and II.B.2.

⁴⁷ See FRIEDMAN, *supra* note 36, at 54–55.

disseminate their own digital content in new ways to many more people. At the same time, computers became cheaper and more available all around the world. There was also an explosion of software that allowed work to be dissected, sent for remote development, and reassembled.⁴⁸ People discovered that they could connect their computers to their telephones and emails through the Internet. The diffusion of computer, faxes, Windows, and modems connected to a global telephone network came together in the 1990s to create a basic platform that started the global information revolution.⁴⁹

Second, the dotcom bubble that stimulated the overinvestment in fibre-optic cable communications allowed competitors and consumers to use networks to link to Internet services.⁵⁰ Glass and radio waves are woven into intercontinental fibre-optic nerves that wire up disparate individual undertakings into a grand network.⁵¹ Unlike the first generation of companies, companies today can plug-and-play because a lot of the essential infrastructure is free.⁵²

⁴⁸ *See id.*

⁴⁹ *See id.* at 53. From a geopolitical perspective, the opening up of China, India, and Eastern Europe coincided with the growth of the global communications platform. There was nothing to stop the digital representation of everything—words, music, photos, data, and video—and the global exchange of all that digital information. This coincidental breakthrough suddenly gave individuals both reach and scale—reach because they could create content in so many new and different ways, and scale because they could share their content with so many more people. *See id.* at 51–52.

⁵⁰ The dot com bubble happened shortly after Netscape went public in 1995 and made the Internet accessible to everyone. The more alive the Internet was, the more different people demanded computers, software, and telecommunications networks that could easily digitize words, music, data, and photos and transport them through the Internet to anyone else's computer. In that year, another catalytic event took place. Windows '95 was rolled out with a built-in browser that allowed all PC applications to interact with the Internet. This set off an explosion in demand for all things digital and sparked the Internet boom, because everything was going to be digitized and transported and sold on the Internet. Then the demand for Internet-based products and services would be infinite. As investors watched this mad rush to digitize, they realized that the demand for web service companies and fiber-optic cables to handle all the digital stuff was going to be limitless. It sparked an overinvestment in fiber-optic cables which dramatically drove down the cost of making a phone call or transmitting data anywhere in the world. And thus was the dot com bubble born. *See id.* at 57–66.

⁵¹ *See id.* at 66–69.

⁵² *See id.* at 181. The ready availability of well-honed and free Linux software, the Apache Web server, the MySQL database, and the PHP and Perl scripting languages—collectively known as the LAMP stack—means significantly lower capital investments.

The Internet significantly lowered entry barriers. From this came a collaborative interface for wikinomics—a global, Web-enabled platform for multiple forms of collaboration.

A. Schumpeter, Creative Destruction, and Wikinomics

Underlying the trade-off between free competition and exclusive IPRs is Joseph Schumpeter's theory that it may sometimes be necessary to forego static efficiency for greater gains in dynamic efficiency.⁵³ Schumpeter described the process of "creative destruction" and the dynamics of innovation as the most important drivers of the competitive process.⁵⁴ Technical progress makes market power a temporary phenomenon, more than compensating for static welfare losses.⁵⁵ Further, without proper regard for incentives, the result of competition will be insufficient innovation. It follows that since innovation is the engine that

See LAMP (software bundle), Wikipedia, [http://en.wikipedia.org/wiki/LAMP_\(software_bundle\)](http://en.wikipedia.org/wiki/LAMP_(software_bundle)) (last visited Oct. 7, 2007); *see also* Plug-and-play, Wikipedia, <http://en.wikipedia.org/wiki/Plug-and-play> (last visited Oct. 7, 2007).

⁵³ Static efficiency occurs when firms compete within an existing technology to streamline their methods, cut costs, and drive the price of a product embodying that technology down to something close to the cost of unit production. Static goals lead to a focus on short-run marginal cost, to the exclusion of long run efficient capital investments in research and development ("R&D"). Static efficiency is a powerful force for increasing consumer welfare, but economists tell us that an even greater driver of consumer welfare is dynamic efficiency. Dynamic efficiency refers to gains that result from entirely new ways of doing business. *See generally* JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (Harper & Brothers Publishers, 2d ed. 1947).

⁵⁴ *See id.* at 82–85. Creative destruction is describes the process of transformation that accompanies radical innovation. In Schumpeter's vision of capitalism, innovative entry by entrepreneurs was the force that sustained long-term economic growth, even as it destroyed the value of established companies that enjoyed some degree of monopoly power. "Economists are at long last emerging from the stage at which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. However, it is still competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organisation in particular, that practically monopolizes attention. But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but competition from the new commodity, the new technology, the new source of supply, the new type of organisation . . . —competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profit and outputs of existing firms but at their foundations and their very lives." *Id.* at 84.

⁵⁵ *See id.* at 97 n.13.

powers competition and ensures consumer welfare, the goal of competition law should be to encourage broad IP protection to foster and support firms' incentives to innovate.⁵⁶ While Wikinomics might call into question to some extent Schumpeter's view on the need for incentives for innovation, it might prove him right on the role of creative destruction. In any case, Wikinomics has the potential to supercharge the process of "creative destruction" in at least some IP markets. The most important question is whether Wikinomics will lead to a transformation of the competition-law landscape. Below the question is asked in the context of some landmark cases and new factual scenarios.

1. *Microsoft*

In the E.U. *Microsoft* case, the Commission found that Microsoft was a "superdominant" undertaking which used its market power to exclude competition and destroy the incentive for competitors to innovate.⁵⁷ It found that in the past, Microsoft competitors were deterred from introducing new application programs for the Microsoft workgroup server operating systems.⁵⁸ This is because if they now did not have interface protocols for Windows, their only market was Microsoft who might buy it and introduce it into the system.⁵⁹ Moreover, the Commission did not disclose its interface information to competitors who could or had

⁵⁶ Phillip Beutel, *The Intersection of Antitrust and Intellectual Property Economics: A Schumpeterian View*, in *ECONOMICS OF ANTITRUST: NEW ISSUES, QUESTIONS, AND INSIGHTS*, 133, 133 (Lawrence Wu ed., 2004).

⁵⁷ Case COMP/C-3/37.792, *Comm'n of the European Comtys. v. Microsoft Corp.*, 2004 O.J. (L 32) para. 435 ("Microsoft, with its market shares of over 90%, occupies almost the whole market—it therefore approaches a position of complete monopoly, and can be said to hold an overwhelming dominant position."). It should be recognized from the onset that the Commission took great care in preparing its case against Microsoft, even subjecting the file to peer-review. VALENTINE KORAH, *INTELLECTUAL PROPERTY RIGHTS AND THE EC COMPETITION RULES* 166 (Hart Publishing 2006).

⁵⁸ Workgroup server operating systems be understood as software that manages the sharing of the resources of several computers within a linked network. The operating system processes raw system data and user input, and responds by allocating and managing tasks and internal system resources as a service to users and programs of the system. See generally, WILLIAM STALLINGS, *OPERATING SYSTEMS, INTERNALS AND DESIGN PRINCIPLES* (Prentice Hill, 2005).

⁵⁹ See Case COMP/C-3/37.792, *Comm'n v. Microsoft*, 2004 O.J. (L 32) paras. 453, 779.

designed competing programs. This locked consumers into Microsoft's server market.⁶⁰

In an interim hearing, the Court of First Instance denied Microsoft's request for a stay of the Commission's fine of nearly €500 million, the largest ever imposed on a single firm.⁶¹ However, what was perhaps more important to Microsoft is that the CFI also denied its request for a stay of the Commission's order for Microsoft to disclose interface information on reasonable and non-discriminatory terms.⁶² Specifically, the Commission ordered Microsoft to disclose to competitors the interface specifications of the Windows workgroup server operating systems so as to enable them to achieve full interoperability with Microsoft's desktop Windows operating systems.⁶³ The Commission in *Microsoft* opined that since access to the source code was not being required, Microsoft's fears of cloning were not justified.⁶⁴ It followed that Microsoft's incentives to innovate would not be affected.⁶⁵ This order covers past, present, and future Microsoft products without any time limitation.⁶⁶ This means that Microsoft must continually update this information as it brings to market new versions of its products. This remedy has been criticized as extraordinary, both in terms of the significant loss in the strategic value of its copyright and trade secrets as but also the fact that competition authorities are involved in the first

⁶⁰ See *id.* at para. 694. It should be recognized from the onset that the Commission took great care in preparing its case against Microsoft, even subjecting the file to peer-review. See KORAH, *supra* note 57, at 166.

⁶¹ KORAH, *supra* note 57, at 150; see also *Microsoft hit by record EU fine*, CNN.com, available at <http://edition.cnn.com/2004/BUSINESS/03/24/microsoft.eu/> (Mar. 25, 2004).

⁶² KORAH, *supra* note 57, at 162.

⁶³ Case COMP/C-3/37.792, *Comm'n v. Microsoft*, 2004 O.J. (L 32) para. 999.

⁶⁴ *Id.* at paras. 713–22.

⁶⁵ *Id.* at para. 729. But see KORAH, *supra* note 57, at 162 (saying that: “the incentive must have been considerably reduced”). And if Microsoft's cutback on R&D is anything to go by, Korah is probably right. Microsoft's Annual Reports for 2000 and 2005, available at <http://www.microsoft.com/msft/ar.mspx> (last visited Oct. 8, 2007) (showing that Microsoft reduced R&D expenditures from \$3.775 million in 2000 to \$1.241 million in 2005).

⁶⁶ Case COMP/C-3/37.792, *Comm'n v. Microsoft*, 2004 O.J. (L 32) paras. 1000–03.

place in determining how much a company should disclose.⁶⁷ This contrasts with the result in the U.S. DOJ antitrust action against Microsoft, where the DOJ made similar claims against but were only able to achieve more modest results.⁶⁸ Microsoft's conduct reduced the incentives of competitors and potential competitors to undertake R&D because "they know that Microsoft will be able to limit the rewards from any resulting innovation"⁶⁹

However, the theory that market power can be leveraged to significantly stifle innovation may now be questionable as an absolute rule. Since the elimination of Netscape,⁷⁰ Microsoft did not experience any real competition in the Web browser market.

⁶⁷ See Ian S. Forrester, *Article 82: Remedies in Search of Theories?*, 28 FORDHAM INT'L L.J. 919, 927, 931 (2005) (drawing a parallel with *Syfait v. GlaxoSmithKline AVEE*, Case C-53/03, 2005 ECR I-4609 where "GSK, a pharmaceutical company, [was] under an affirmative duty to supply unlimited orders from wholesalers active in the trade of certain prescription drugs from low-price to high-priced Member States," but distinguishing *Microsoft* because it goes further and represents the most expansive inroad of E.C. competition law enforcement into the protection of IPRs in Community legal history).

⁶⁸ Essentially, the U.S. case revolved around the allegation that Microsoft had illegally tied its operating system to its Internet browser, thereby extending its monopoly power in both markets. The DC Circuit Court of Appeals found that Microsoft prevented computer manufacturers from modifying or removing pre-bundled icons. *See United States v. Microsoft Corp.*, 231 F. Supp. 2d 144, 202 (D.D.C. 2002). In addition, the court found that Microsoft entered into agreements with Internet Access Providers and Independent Software Vendors to promote its browser exclusively, and also to use its Java Virtual Machine instead of Sun Microsystems' Java programming. *Id.* The trial ended in settlement, with Microsoft agreeing not to prohibit computer manufacturers and vendors from adding features that could divert users away from Microsoft products. Final Judgment, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. 2002), available at <http://www.usdoj.gov/atr/cases/f200400/200457.htm>. The agreement also prohibits Microsoft from entering into exclusionary agreements with Internet Access Providers prohibiting the use of products that compete with Microsoft's products. *Id.* Microsoft also cannot discriminate against internet access providers, independent software vendors, and internet content providers who choose to use competing products. *Id.* Finally, the agreement also stipulated that Microsoft disclose to Independent Software Vendors how its operating system interoperated with its middleware products. *Id.* This allows competitors to use Windows for their own programs. *Id.* In contrast, the E.U. investigations were more narrowly tailored to issues of server compatibility and the bundling of its media player software with its Windows operating system. *See generally* Case COMP/C-3/37.792, *Comm'n v. Microsoft*, 2004 O.J. (L 32).

⁶⁹ Complaint at 12, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. 1998), available at <http://www.usdoj.gov/atr/cases/f1700/1763.htm> (last visited Oct. 5, 2007).

⁷⁰ Mozilla, Wikipedia, <http://en.wikipedia.org/wiki/Mozilla> (last visited Oct. 5, 2007).

In 2004, Netscape was reborn as Firefox, an open-source Web browser.⁷¹ Firefox allows users to alter the code and create plug-ins and customized “extensions” that can then be downloaded by any user.⁷² Web-surfers adopted Firefox rapidly, despite Internet Explorer coming pre-installed with every copy of Microsoft’s dominant Windows operating system. And Firefox is a viable alternative to Windows Internet Explorer.⁷³ Downloads have continued at an increasing rate; as of February 2007, Firefox had been downloaded over 300 million times.⁷⁴ Internet Explorer has

⁷¹ “The Firefox project went through many versions before 1.0 was released on November 9, 2004. In addition to stability and security fixes, the Mozilla Foundation released its first major update to Firefox 1.5 on November 29, 2005. On October 24, 2006, Mozilla released Firefox 2. This version includes updates to the tabbed browsing environment, the extensions manager, the GUI, and the find, search and software update engines; a new session restore feature; inline spell checking; and an anti-phishing feature which was implemented by Google as an extension and later merged into the program itself.” See Mozilla Firefox, Wikipedia, <http://en.wikipedia.org/wiki/Firefox> (last visited Oct. 5, 2007).

⁷² For example the Bugmenot feature allows users to bypass compulsory registration for sites such as the New York Times. It automatically enters account details from its database, so that users do not have to go through the entire registration process. Bugmenot.com, Frequently Asked Questions, <http://www.bugmenot.com/faq.php> (last visited Oct. 9, 2007).

⁷³ In same year Firefox was introduced, Forbes called Firefox “the best Web browser.” Arik Hesseldahl, *Better Browser Now The Best*, FORBES, Sept. 29, 2004, available at http://www.forbes.com/2004/09/29/cx_ah_0929_tentech.html (last visited Oct. 5, 2007). PC World named Firefox the “Product of the Year” in 2005 on their “100 Best Products of 2005” list. PCWorld.com, The 100 Best Products of 2005, <http://www.pcworld.com/article/id,120763-page,12/article.html> (last visited Oct. 2, 2007). After the release of Firefox 2 and Internet Explorer 7 in 2006, PC World reviewed both and announced that Firefox was the better browser. Erik Larkin, *Radically New IE 7 or Updated Mozilla Firefox 2—Which Browser Is Better?* PC WORLD, Oct. 24, 2006, available at <http://www.pcworld.com/article/id,127309-pg,1-RSS,RSS/article.html> (last visited Oct. 9, 2007). A report in mid-2006 by OneStat stated that almost 13% of Internet users around the world now use Firefox, up from 8% in 2005. Melissa Tan, *How to switch to Mozilla Firefox*, STRAITS TIMES INTERACTIVE, Apr. 3, 2007, available at <http://www.straitstimes.com>.

⁷⁴ Mozilla Firefox, *supra* note 71. This number does not include downloads using software updates or from third-party websites. They also do not represent a user count, as one download may be installed on many machines, or one person may download the software multiple times. Mozilla Vice President of Products Christopher Beard estimates that Firefox had 70 million to 80 million users as of October 2006. Elizabeth Montalbano, *Final Version of Mozilla Firefox 2 Available Today*, PC WORLD, Oct. 24, 2006, available at <http://www.pcworld.com/article/id,127603-c.mozilla/article.html> (last visited Oct. 5, 2007).

seen a steady decline of its usage share since Firefox's release.⁷⁵ With Microsoft releasing version 7 of Internet Explorer ("IE7") that same month, Firefox's share growth might have been expected to slow, but IE7 has instead gained share mostly at the expense of older versions of IE.⁷⁶

What is perhaps more remarkable about Firefox is that two people in particular are most responsible for the browser's success: a 19-year-old Stanford sophomore and 24-year old New Zealander working in an open-source community for free, starting from both ends of the world and without having ever met, produced a browser that took 15% of the browser market in about three years.⁷⁷ This raises the question whether any analysis of Microsoft's market power as a vertical silo of innovation would be accurate today without taking into consideration peer produced alternatives such as Firefox.

2. *Trinko*

In *Verizon Communications Inc. v. Law Offices of Curtis v. Trinko, LLP.*, Verizon was the incumbent local exchange carrier ("ILEC") in New York.⁷⁸ The 1996 Telecommunications Act requires that ILECs sell unbundled parts of their local networks at cost to competitive local exchange carriers ("CLECs"), so that ILECs share their networks to give new competitors a toehold in

⁷⁵ According to Dutch web analytics firm OneStat, by July 2006, Firefox was the second most widely-used browser, with 12.93% of global usage share, a percentage that has remained steady. OneStat.com, *Mozilla Firefox Global Usage Share Remains Stable*, http://www.onestat.com/html/aboutus_pressbox44-mozilla-firefox-has-slightly-increased.html (last visited Oct. 5, 2007). By December 2006, according to data made available by U.S. firm NetApplications, Firefox's market share had grown to 14% globally. Gregg Keizer, *Firefox Continues Growth*, PC Chat, Jan. 17, 2007, <http://www.pcchatshow.com/articles/showarticle.php?ArticleID=642>.

⁷⁶ Gregg Keizer, *Despite 100 Million IE 7 Installs, Microsoft's Browser Still Loses Ground*, INFORMATIONWEEK, Jan. 16, 2007, available at <http://www.informationweek.com/news/showArticle.jhtml?articleID=196901142> (last visited Oct. 10, 2007).

⁷⁷ Int'l Monetary Fund, *Transcript of an IMF Book Forum—The World Is Flat: A Brief History of the Twenty-First Century*, Apr. 8, 2005, available at <http://www.imf.org/external/np/tr/2005/tr050408bf.htm> (last visited Oct. 9, 2007).

⁷⁸ 540 U.S. 398, 401 (2004) [hereinafter *Trinko*].

the market.⁷⁹ The Federal Communications Commission asserted that Verizon breached its duty by inadequately providing access to the customers of its CLEC competitors, one of which is AT&T.⁸⁰ Trinko was an AT&T customer.⁸¹ Trinko alleged that Verizon discouraged customers from becoming or remaining customers of CLECs like AT&T, and claimed that Verizon's breach of its duties under the Telecommunications Act to grant access to AT&T constituted an antitrust violation.⁸² While the Supreme Court ultimately found that Verizon had no duty to license,⁸³ it again raises the question how the analysis of the case would have been altered when viewed through the lenses of wkinomics.

Since its inception, companies have charged for communications by telephones based on the length of time and distance across which the call was made. However, this pricing scheme might not last much longer. In 2003, Niklas Zennström and Janus Friss founders of the file sharing application Kazaa, launched Skype.⁸⁴ Skype's software harnesses the collective computing power of peers, allowing them to speak with each other free of charge via the Internet.⁸⁵ Skype competes against existing open Voice over Internet protocol service ("VoIP") providers.⁸⁶

⁷⁹ *See id.*

⁸⁰ *See id.* at 403, 413.

⁸¹ *Id.* at 404.

⁸² *See id.* at 404–05.

⁸³ *See id.* at 415–16.

⁸⁴ Skype, <http://www.skype.com>; About Skype, <http://about.skype.com/>; Jeremy Caplan, *Bringing TV to the Web*, TIME, Mar. 1, 2007, available at <http://www.time.com/time/nation/article/0,8599,1595049,00.html> (last visited Oct. 5, 2007).

⁸⁵ Skype Help, http://support.skype.com/?_a=knowledgebase&_j=subcat&_i=3 (follow link "What is Skype").

⁸⁶ VoIP allows consumers to make phone calls over the Internet by turning voices into data packets that are sent down Internet networks and converted back into voices on the other end. Anyone who subscribes to the service through a phone company or private operator can receive unlimited local and long-distance phone calls, via the Internet—over his personal computer, laptop, or PDA—with just a small microphone attachment. *See* Federal Communications Commission Consumer Facts, *Voice over Internet Protocol (VoIP)*, <http://www.fcc.gov/cgb/consumerfacts/voip.pdf> (last visited on Oct. 5, 2007). In contrast, "Skype operates on a peer-to-peer model, rather than the more traditional server-client model. The Skype user directory is entirely decentralised and distributed among the nodes in the network, which means the network can scale very easily to large

Skype's business model creates a self-sustaining telecommunications system that requires no central capital investment. Skype went from 100,000 to 100 million registered users in two years, and was acquired by eBay for US\$2.0 billion in 2005.⁸⁷

Today, "Skype claims that about 30% of Skype accounts are business accounts."⁸⁸ Internet communications in business reduce costs and increase productivity within a company. It also promotes collaboration among a company's different groups that may be located in different locations, and enhances the way a company communicates with its suppliers, vendors, and customers. Skype's broad feature set of voice and video calling, conference calling, instant messaging, and file transfer is applicable in many of these situations.⁸⁹ At present, every business and personal phone call to anywhere in the world is as cheap as a local call.⁹⁰ As consumers get more choices, the competition will be such that the negative effects of undertakings refusing access to CLECs like AT&T will be diluted. "What phone companies will compete over, and charge for, will be the the add-ons."⁹¹ While customers may not pay for calls, they will pay for premium services such as making calls to a landline network or for voice and video messaging.

sizes" See Skype, Wikipedia, <http://en.wikipedia.org/wiki/Skype> (last visited Oct. 5, 2007).

⁸⁷ Nate Mook, *eBay Acquires Skype for \$2.6 Billion*, BetaNews.com, Sept. 12, 2005, http://www.betanews.com/article/eBayAcquires_Skype_for_26_Billion/1126540985 (last visited Oct. 11, 2007); see Tom Sanders, *Skype Signs Up 100 Millionth User*, Computing.co.uk, May 1, 2006, <http://www.computing.co.uk/vnunet/news/2155074/skype-signs-100-millionth-user> (last visited Oct. 11, 2007). In February 2007, Skype reported its 500 millionth user download. See Paul D. Kretkowski, *Skype Roadmap 2007*, VOIP NEWS, Feb. 20, 2007, <http://www.voip-news.com/interviews/skype-qa-oberg-022007/> (last visited Oct. 5, 2007).

⁸⁸ See Kretkowski, *supra* note 87.

⁸⁹ "Skype already has more than 50 leading hardware manufacturers producing more than 160 Skype Certified devices and accessories, including desktop Internet phones, cordless phones, headsets and WiFi phones. In addition, Skype for Windows Mobile works on more than 120 different Pocket PC and Smartphone devices. In fact, it has been downloaded more than 5 million times, making it one of the most popular Windows Mobile applications to date." *Id.*

⁹⁰ Voice Over IP, Wikipedia, http://en.wikipedia.org/wiki/Voice_over_IP (last visited on Oct. 6, 2007).

⁹¹ Posting of Bill Binning to Jaduka blog, <http://blog.jaduka.com/archives/34-Its-the-Services,-Stupid!.html> (Feb. 27, 2007, 8:41 EST) (quoting FRIEDMAN, *supra* note 36).

But even as peer-to-peer internet telephony wires consumers to anyone in the world with a phone, the causeways of information become ever wider. The WiFi⁹² revolution allows consumers to use Skype on mobile devices.⁹³ Yet even now, WiFi could be made obsolete by the presence of WiMax⁹⁴ processors which will have the potential to cover a much greater range than WiFi—in the order of several kilometres.⁹⁵ This means that our mobile communication lines may soon take place over peer-to-peer network providers like Skype rather than LECs. But Skype is not without its potential antitrust controversies. “Skype has been criticized over its use of a proprietary protocol, instead of an open standard . . . since this makes it much more difficult, if not impossible, for other developers to interact with Skype.”⁹⁶ Some have theorized that the decision was made to prevent competition over business with SkypeOut,⁹⁷ which “allows Skype users to call traditional telephone numbers, including mobile telephones, for a fee.”⁹⁸ While this potentially raises access concerns of its own, the point remains that entry is free to all who can provide a new and better alternative to traditional LECs.

⁹² WiFi “is a set of product compatibility standards for wireless local area networks (“WLANs”) based on the IEEE 802.11 specifications. . . . Wi-Fi enables a person with a wireless-enabled computer or personal digital assistant (“PDA”) to connect to the Internet when in proximity of an access point. The geographical region covered by one or several access points is called a hotspot.” Thefreelibrary.com, Wi-Fi, <http://www.thefreelibrary.com/Wi-Fi-a0163332784> (last visited Oct. 11, 2007). “[H]otspots only have an effective range of 300 metres.” James Brown, VNUNET, Mar. 16, 2006, <http://www.vnunet.com/computing/analysis/2152089/wifi-provide-answer>.

⁹³ *Compare Accessories and Devices*, <http://skype.com/help/accessories/devices.html#wifiphone> (last visited Oct. 12, 2007).

⁹⁴ “WiMAX is an acronym that stands for Worldwide Interoperability for Microwave Access, a certification mark for products that pass conformity and interoperability tests for the IEEE 802.16 standards. WiMAX is a standards-based wireless technology that provides high-throughput broadband connections over long distances.” Human Law Mediation: WiFi on the Rise, but WiMax Poised to Take Over, http://www.human-law.org/humanlaw/2006/03/wifi_on_the_ris.html (Mar. 17, 2006).

⁹⁵ *Id.*

⁹⁶ Skype, Wikipedia, *supra* note 86.

⁹⁷ *Id.*

⁹⁸ *Id.*

3. *Magill*

In *Radio Telefis Eireann (RTE) v. Comm'n of the European Comtys* (“*Magill*”), three broadcasting companies were dominant over the listings of its own programs.⁹⁹ This dominance was achieved through questionable copyright protection granted in the United Kingdom and Ireland for TV listings.¹⁰⁰ “When *Magill* started to publish comprehensive weekly listings for all three stations, each TV station successfully sued for copyright infringement.”¹⁰¹ Each station had refused to license its listing information to anyone.¹⁰² The European Court of Justice (“ECJ”) found that the refusal to license “amounted to an abuse of a dominant position over the programme information.”¹⁰³

The copyright for the non-creative listing of facts allowed each station a monopoly over the use of those facts or lists.¹⁰⁴ Under E.U. law, the Court of Justice cannot rule on the correctness of Member State copyright laws unless that Member State protection falls within the subject matter for an E.U. copyright directive.¹⁰⁵ Copyright in television listings had not been the subject of any E.U. directive. But many people think that the Court of Justice viewed the British and Irish protection for television listings as suspect, and used a novel application of competition law to do indirectly what it could not do directly.¹⁰⁶ The Court held that:

⁹⁹ See Case C-241/91, *Radio Telefis Eireann (RTE) v. Comm'n of the European Comtys.*, 1995 E.C.R. I-743 [hereinafter *Magill*]; KORAH, *supra* note 57, at 138.

¹⁰⁰ *Magill*, 1995 E.C.R. I-743.

¹⁰¹ KORAH, *supra* note 57, at 138.

¹⁰² *Id.* at 139. The stations had only provided programme information to daily newspapers on a limited basis. *Magill*, 1995 E.C.R. I-743 at para. 9.

¹⁰³ KORAH, *supra* note 57, at 138.

¹⁰⁴ *Id.*

¹⁰⁵ As the ECJ in *Magill* noted, “In the absence of Community standardization or harmonization of laws, determination of the conditions and procedures for granting protection of an intellectual property right is admittedly a matter for national rules and the exclusive right of reproduction forms part of the author’s rights, with the result that refusal to grant a licence, even if it is the act of an undertaking holding a dominant position, cannot in itself constitute abuse of a dominant position.” *Magill*, 1995 E.C.R. I-743 at para. 49 (citing judgment in Case C-238/87, *AB Volvo v. Erik Veng (UK) Ltd.*, 1988 E.C.R. I-6211 at paras 7–8).

¹⁰⁶ Duncan Curley, *Balancing Intellectual Property Rights and Competition Law in a Dynamic, Knowledge-Based European Economy*, in *THE INTELLECTUAL PROPERTY DEBATE: PERSPECTIVES FROM LAW, ECONOMICS AND POLITICAL ECONOMY* 220, (Edward

- The television stations were the only sources of the basic information,¹⁰⁷ their refusal to supply this information prevented the appearance of a new product which the stations did not offer and for which there was constant consumer demand;¹⁰⁸
- There was no justification for the refusal;¹⁰⁹ and
- The stations reserved to themselves the secondary market of weekly TV guides, by excluding all competition on that market.¹¹⁰

Television stations, whether broadcast, cable, or satellite, need television listings to serve their consumers. To the extent that a competitor wants to use those listing, the market would be defined again as the station's TV listings. If the listings were still protected by copyright, then stations would continue to have dominance even if peer production of video alternatives were rampant. Thus, on the *sui generis* facts of *Magill*, the result would be the same.

However, the potential role of peer production in the production of video products that can compete with traditional television shows is strong. YouTube and similar sites promise to provide an Internet-based alternative to local television stations.¹¹¹

Elgar 2006) (noting that "(i)n consequence of the ruling in *Magill* and the particular facts of that case, there was much subsequent debate in the literature about whether 'exceptional circumstances' might apply to force compulsory licensing of IPRs in circumstances where IPRs were thought to be undeserving of legal protection, without the requirement to demonstrate that other unilateral conduct as well").

¹⁰⁷ *Magill*, *supra* note 99, at para. 53.

¹⁰⁸ *Id.* at para. 54.

¹⁰⁹ *Id.* at para. 55.

¹¹⁰ *Id.* The European Court of Justice's judgment was extremely vague. The precise scope of "exceptional circumstances" remains unknown even to this day. Whether this was because of a shrew desire to preserve wiggle room to refine the conditions for access or otherwise will remain for all time, a matter for academic speculation. *See KORAH*, *supra* note 57, at 139.

¹¹¹ According to Wikipedia, "YouTube is a popular video sharing website where users can upload, view, and share video clips." YouTube, Wikipedia, <http://en.wikipedia.org/wiki/YouTube> (last visited Oct. 6, 2007) [hereinafter YouTube, Wikipedia]. "Videos can be rated, and the average rating and the number of times a

YouTube was started as an “angel-funded enterprise” in garage with an initial investment of US\$3.5 million.¹¹² In November 2006, Google announced that it had reached a deal to acquire the company for US\$1.65 billion in Google’s stock.¹¹³ “YouTube’s pre-eminence in the online video market is staggering.”¹¹⁴ While it has some copyrighted works uploaded in full without permission, its main attraction are the massive independently produced videos of members of the public, or excerpts chosen and edited by members of the public of copyrighted works. This creative force has been unleashed and will be difficult to stop. It has already created a huge audience that otherwise would most likely would be watching traditional television programs. As the sophistication of these public creators increases, the product will improve. We might see sophisticated shorts and, perhaps, full length programs that will cut sharply into the market share of traditional shows.¹¹⁵ As a mark of its importance in setting the tone for the way media will be consumed in future, YouTube was named Time magazine’s

video has been watched are both published.” YouTube, Simple English Wikipedia, <http://simple.wikipedia.org/wiki/YouTube> (last visited Oct. 11, 2007) [hereinafter YouTube, Simple Wikipedia]. The New York Times reported that Hollywood producers are already placing a full television series, “Quarterlife,” on MySpace, another free access community site. Michael Ciepley, *Show Series to Originate on MySpace*, N.Y. TIMES, Sept. 12, 2007, available at <http://www.nytimes.com/2007/09/13/business/media/13quarterlife.html> (describing the show as “a regular television series, made by network-caliber writers, directors and production crews”).

¹¹² See YouTube, Wikipedia, *supra* note 111.

¹¹³ *Google closes \$A2b YouTube deal*, REUTERS, Nov. 14, 2006, available at <http://www.theage.com.au/news/Business/Google-closes-A2b-YouTube-deal/2006/11/14/1163266548827.html>.

¹¹⁴ “According to a July 16, 2006 survey, 100 million clips are viewed daily on YouTube, with an additional 65,000 new videos uploaded per 24 hours. The site has almost 20 million visitors each month, according to Nielsen/NetRatings; . . . [a]ccording to the website Hitswise.com[sic], YouTube commands up to 64% of the UK online video market.” Mysite.cc, <http://www.mysite.cc/> (quoting <http://en.wikipedia.org/wiki/YouTube>) (last visited Oct. 11, 2007). See also *USATODAY.com, YouTube Serves up 100 Million Videos a Day Online*, REUTERS, July 16, 2006, available at http://www.usatoday.com/tech/news/2006-07-16-youtube-views_x.htm? (last viewed Oct. 6, 2007); YouTube, Wikipedia, *supra* note 111.

¹¹⁵ *BBC Joins Forces with YouTube*, *ZDNet UK*, REUTERS, Mar. 2, 2007, available at <http://news.zdnet.co.uk/internet/0,1000000097,39286149,00.htm> (BBC director-general Mark Thompson noted that “[i]t’s essential that the BBC embraces new ways of reaching wider audiences with nonexclusive partnerships such as these . . .”).

“Invention of the Year” for 2006.¹¹⁶ With the emergence of digital video on demand,¹¹⁷ the need to rely on national broadcasters, and consequently, their indulgence in providing access to their television listings, will be obviated. As long as this emerging trend of independent global network of content providers sustains itself, *Magill*-type cases will not likely re-emerge.

4. FairPlay

Apple developed the iPod, a portable music player, and iTunes, an online music store.¹¹⁸ Apple has sold more than three billion songs on iTunes,¹¹⁹ and accounted for 82% of legal downloads in the U.S. in May 2005.¹²⁰ Apple has sold over 100 million iPods,¹²¹ and has over 70% market share of all mp3 players.¹²² It agreed to provide FairPlay,¹²³ its digital rights management (“DRM”) protection,¹²⁴ to the big-four music companies in order to entice

¹¹⁶ Lev Grossman, *Best Inventions 2006: Invention of the Year*, TIME, Nov. 13, 2006, at 62, available at <http://www.time.com/time/2006/techguide/bestinventions/inventions/youtube.html>.

¹¹⁷ See Video on demand, Wikipedia, http://en.wikipedia.org/wiki/Video_on_demand (last visited Oct. 23, 2007).

¹¹⁸ Apple – iPod + iTunes, <http://www.apple.com/itunes> (last visited Oct. 7, 2007).

¹¹⁹ iTunes Store Tops Three Billion Songs, <http://www.apple.com/pr/library/2007/07/31itunes.html> (last visited Oct. 6, 2007).

¹²⁰ MacDailyNews, Apple’s iTunes Music Store Passes 430 Million Downloads, Market Share Increases to 82-Percent in May, <http://macdailynews.com/index.php/weblog/comments/5967/> (last visited Oct. 6, 2007).

¹²¹ Apple Introduces New iPod Classic, <http://www.apple.com/pr/library/2007/09/05classic.html> (last visited Oct. 6, 2007).

¹²² Phillip Cruz, *U.S. Top Selling Computer Hardware for January 2007*, BLOOMBERG.COM, Mar. 13, 2007, <http://www.bloomberg.com/apps/news?pid=conewsstory&refer=conews&tkr=AAPL:U.S.&sid=ap0bqJw2VpwI> (last visited Oct. 6, 2007).

¹²³ FairPlay, Wikipedia, <http://en.wikipedia.org/wiki/FairPlay> (last visited Oct. 23, 2007).

¹²⁴ Digital rights management technologies attempt to control use of digital media by preventing access, copying or conversion to other formats. Digital rights management systems have received some international legal backing by implementation of the 1996 WIPO Copyright Treaty. See http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html (last visited Oct. 6, 2007). Article 11 of the Treaty requires contracting parties to enact laws against DRM circumvention. *Id.* The U.S. has implemented the Digital Millennium Copyright Act (DMCA), while Europe has implemented the Directive 2001/29/EC (directive on the harmonisation of certain aspects of copyright and related rights in the information society), which requires E.U. member states to implement legal protections

them to make their music content available on iTunes. However, “Apple’s tight control over FairPlay” has prevented its users from playing files “bought from other online services.”¹²⁵ It also prevents iTunes rivals from providing interoperable content.¹²⁶ The French enterprise Virgin Media accused Apple of abusing its dominance by refusing to license its FairPlay digital rights management system in France.¹²⁷ It claimed that in order to be a viable provider of online music, it had to be able to sell to iPod users.¹²⁸ This meant access to FairPlay.

In November 2004, the French Competition Commission rejected the complaint.¹²⁹ It first held that because the market was rapidly expanding, new competitors were entering, prices were decreasing, and functionalities increasing, present market share did not reflect actual market power.¹³⁰ Second, it held that FairPlay was not indispensable.¹³¹ There were other uses of pay-per-song and several other music portable players on the market. Finally, the DRM was easily circumvented by burning the song onto a compact disc, and ripping it into another format.¹³² In the U.S., a

for technological prevention measures. See Digital Millennium Copyright Act of 1998, available at <http://www.copyright.gov/legislation/dmca.pdf>; Council Directive 2001/29/EC, para. 47, 2001 O.J. (L 167) 10 (EC), OJ 2001 L167/10 (Westlaw). Wikipedia describes digital rights management as follows: “Digital rights management (DRM) is an umbrella term that refers to access control technologies used by publishers and other copyright holders to limit usage of digital media or devices. It may also refer to restrictions associated with specific instances of digital works or devices. To some extent, DRM overlaps with copy protection, but DRM is usually applied to creative media (music, films, etc.) whereas copy protection typically refers to software.” Digital rights management, Wikipedia, http://en.wikipedia.org/wiki/Digital_rights_management (last visited Oct. 23, 2007).

¹²⁵ Natali Helberger, *Virgin Media versus iTunes*, 2 INDICARE MONITOR 16, 16 (2005), available at http://www.indicare.org/tiki-read_article.php?articleID=150 (last visited Oct. 2, 2007).

¹²⁶ See *id.*

¹²⁷ See *id.* at 17.

¹²⁸ See *id.*

¹²⁹ See Didier Deneuter, *No Abuse of Market Dominance by Apple According to the French Competition Council*, EUROJURIS INTERNATIONAL, Dec. 12, 2004, <http://www.eurojuris.net/eng/article-detail.asp?ArticleId=206>.

¹³⁰ See Helberger, *supra* note 125, at 18.

¹³¹ *Id.*

¹³² See Terrence O’Brien, *The New Weapon Against Online Music Theft?*, SWITCHED, Aug. 20, 2007, <http://www.switched.com/2007/08/20/a-new-weapon-against-online-music-theft/> (last visited Oct. 2, 2007). In March 2006, the “[French Senate passe[d] a

class action suit was brought against Apple in the U.S. District Court of Northern California.¹³³ It was accused of leveraging its monopoly on the iTunes market to thwart competition in its iPod market.¹³⁴

Pandora and Last.fm are potential alternatives to the DRM protected music from iTunes. These are essentially automated music recommendation and Internet radio services.¹³⁵ “Users begin by entering a song or artist that they enjoy, and the service responds by playing selections that the program thinks are musically similar.”¹³⁶ “Songs played are added to a log from which personal top artist/track bar charts and musical recommendations are calculated.”¹³⁷

Users are then able to provide feedback on the individual song choices . . . which the system takes into account for future selection. Over 400 different musical attributes or genes are considered when selecting the next song. These 400 attributes are combined into larger groups called focus traits. There are 2,000 focus traits.¹³⁸

watered[-]down DRM bill” forcing suppliers of DRMs to provide information necessary for interoperability. Marc Perton, *French Senate Passes Watered Down DRM Bill*, ENGADGET, May 11, 2006, <http://www.engadget.com/2006/05/11/french-senate-passes-watered-down-drm-bill/> (last visited Oct. 2, 2007).

¹³³ Tucker v. Apple Computer, Inc., 493 F. Supp. 2d 1090 (N.D. Cal. 2006).

¹³⁴ See *id.* at 1094; see also Nancy Gohring, *Apple faces US lawsuit over iTunes-iPod link*, INFOWORLD, Jan. 2, 2007, http://www.infoworld.com/article/07/01/02/HNapplelawsuit_1.html (“Apple faces a lawsuit in the U.S. . . . over tying its iTunes music store to the iPod digital music player. . . . The suit was filed by a user, Melanie Tucker, and seeks class-action status. It alleges that Apple violates antitrust laws by refusing to allow music bought in its iTunes store to be played on any digital music player besides the iPod. It also charges Apple with not making it clear to customers that music from the iTunes store and the iPod are incompatible with music and devices offered by other companies. The suit asks that Apple be forbidden to continue to support the exclusive tie-in between iTunes and the iPod and that Apple pay damages to anyone who has bought an iPod or music from the iTunes store after April 28, 2003.”).

¹³⁵ See Last.fm, <http://www.last.fm> (last visited Oct. 4, 2007); Pandora, <http://pandora.com> (last visited Oct. 4, 2007).

¹³⁶ Pandora Users Groups at Last.fm, <http://www.last.fm/group/Pandora+Users> (last visited Oct. 4, 2007).

¹³⁷ This is termed “automatic track logging scrobbling.” Last.FM, Wikipedia, <http://en.wikipedia.org/wiki/Last.fm> (last visited Oct. 4, 2007).

¹³⁸ See Pandora Users Groups, *supra* note 136.

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These allow consumers to get the songs they want, as well as other similar samplings which they may enjoy for free anywhere and anytime they are connected to the Internet. With increasing penetration of WiFi and WiMax, consumers listening are able to enjoy the selection and convenience of songs downloaded from iTunes while on the move in their cities without any anticompetitive concerns with respect to interoperability.

B. The Competitive Process in a Collaborative World

New low-cost collaborative infrastructures allow competitors and entrants to access markets in ways that only large corporations could manage in the past. The information and tools are available with a small amount of capital—dominance has been downsized.¹³⁹ Indeed, as a growing number of firms see the benefits of mass collaboration, this new way of organizing could eventually displace traditional corporate structures as the economy's primary engine of wealth creation. However, two issues should be resolved. First, it may be argued that evidence of change in the way IP markets operate is scanty. This suggests that the examples cited earlier are isolated occurrences or that they may only have minimal impact on the market power and strategies of dominant undertakings. Second, even if wkinomics could have a significant impact on analysis at the Interface, the business model

¹³⁹ For example, for a fee, Salesforce.com gives small and medium enterprises ("SMEs") access to a library of Web-based business applications, which can be tapped into online to run their businesses. See On-Demand CRM Applications, <http://www.salesforce.com/products/appexchange-applications/> (last visited Oct. 3, 2007). These applications operate like traditional software programs and can handle a wide range of business tasks. The big difference is that these management tools are stored remotely on the Salesforce.com platform. Because they are delivered over the Internet and written in standard Web formats, they are accessible to anyone who has an Internet connection and are easily interoperable with any business. Microsoft has taken notice. The New York Times reported on 9 November 2005 that several Microsoft internal memos from senior executives suggested that "Microsoft must fundamentally alter its business or face being at a significant competitive disadvantage to a growing array of companies offering Internet services. . . . [A few days later], Microsoft . . . announced that it would offer two new services—Windows Live and Office Live . . ." which are essentially Business Web versions of its more popular products. John Markoff, *Internet Services Crucial, Microsoft Memos Say*, N.Y. TIMES, Nov. 9, 2005, at C5, available at <http://www.nytimes.com/2005/11/09/technology/09soft.html>.

could upset the traditional IP mechanism of rewarding innovation through temporary exclusivity.

1. Where Has Peer Production Succeeded Commercially?

An argument may be validly raised that the impact of peer production on traditional dominance in the market is speculative. For example, open source has not seen significant success in personal computer desktop software so far.¹⁴⁰ Market shares have not changed much.¹⁴¹ While there have been reliable open source software alternatives in major application software categories, it has proved difficult to gain any relevant market share from the dominating Microsoft products.¹⁴² The short answer is that changes in market behavior take time and happens in markets with suitable conditions.

When computers were first introduced into offices, some expected a significant boost in productivity.¹⁴³ However, Professor Paul David explained such a lag by pointing to a historical precedent.¹⁴⁴ He noted that while the light bulb was invented in 1879, it took several decades for electrification to permeate the industrial process.¹⁴⁵ Only when there was a critical mass of experienced factory architects, electrical engineers, and managers who understood the complementarities among the production line did electrification really deliver a productivity breakthrough.¹⁴⁶ In

¹⁴⁰ Mikko Välimäki & Ville Oksanen, *The Impact of Free and Open Source Licensing on Operating System Software Markets*, 22 *TELEMATICS AND INFORMATICS* 97, 98 (2005).

¹⁴¹ "If one uses searches made on Google as an indicator, during June 2001 and October 2003, a steady 1% of all searches came from computers using Linux as the operating system. The market share of Mac OS has been around 3–4% while other non-Windows operating systems gaining another 4%. The rest of Google queries, that is over 90%, were made from computers running Microsoft Windows." *Id.* at 99 n.1.

¹⁴² MIKKO VÄLIMÄKI, *THE RISE OF OPEN SOURCE LICENSING: A CHALLENGE TO THE USE OF INTELLECTUAL PROPERTY IN THE SOFTWARE INDUSTRY* 19 (Fin. Turre Publ'g 2005), available at http://pub.turre.com/openbook_valimaki.pdf.

¹⁴³ See Paul A. David, *The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox*, 80 *AM. ECON. REV.* 355, 355 (1990). The noted economist Robert Solow quipped that "[w]e see the computers everywhere but in the productivity statistics." *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 356.

¹⁴⁶ See *id.* at 358.

the same way, while the impact of wkinomics is already beginning to be felt, changes in antitrust analysis may only be present necessary in limited technology and telecommunications markets. It may take some years before there is a critical mass of business models based on peer collaboration for antitrust analysis as a whole to be altered significantly.

Yet it is significant that wkinomics has already found a willing audience in the governmental IP framework. The U.S. Patent and Trademark Office (“USPTO”) will soon begin experimenting with a wkinomics approach to reviewing patent applications.¹⁴⁷ The Community Patent Review project aims to create an online system for peer review of patents.¹⁴⁸ “It will support a network of experts to advise the Patent Office on prior art as well as to assist with patentability determinations.”¹⁴⁹ By using social software, such as social reputation, collaborative filtering and information visualization tools, this project aims to “make it easier to protect the inventor’s investment while safeguarding the marketplace of ideas.”¹⁵⁰ While there remains a risk that the system could be gamed, an opaque patent review system would likely be more susceptible to abuse than one where a community of peers can review and rate each others comments on a given patent application in an open and transparent forum.¹⁵¹

¹⁴⁷ Posting of Anthony D. Williams to Wkinomics: The Blog, A Wkinomics Approach to the Patent System, <http://www.wkinomics.com/blog/index.php/2007/03/05/a-wkinomics-approach-to-the-patent-system/> (Mar. 5, 2007, 19:26 EST).

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ *Id.* “The quality of patents has sharply decreased as underpaid and overwhelmed patent examiners struggle with a backlog of over 600,000 applications and growing.” *Id.* “Companies try to patent things that other people or companies will unintentionally infringe and then they wait for those companies to successfully bring products to the marketplace.” *Id.* Undertakings who file these patents and extract license fees from successful businesses play the patent system like a lottery. *Id.* “The real danger is that these questionable patents will end up driving up the costs of innovation by generating an increasing number of lawsuits, or threatened lawsuits, that genuinely innovative companies cannot avoid.” *Id.* The problem is so endemic in fields like software and electronics, “low-quality patents have become a serious drag on the technological and scientific progress that the patent system was designed to promote.” *Id.* See also U.S. PATENT & TRADEMARK OFFICE, UNITED STATES PATENT AND TRADEMARK OFFICE 2007–2012 STRATEGIC PLAN 13 (2007) (“We believe that partnership with stakeholders is

But the progressive march of wkinomics is not without its opponents. There are at least three reasons why it might be derailed. First, intrinsic to peer production is a continuing supply of willing collaborators. Many open source software collaborators are driven by a desire to counterbalance the dominance of software corporations such as Microsoft and the desire to be part of creating a better system. Idealism alone limits the quality and quantity of alternatives available to consumers. In order for peer production to become a fully sustainable alternative to current business models, it will need to incorporate elements of a structured system of financial rewards in the way forward thinking organizations such as Skype and P&G have done.¹⁵² Second, a large part by successful commercial models of peer collaboration relies in part of the use of copyrighted works. The trend then hinges on whether the law will provide for continued use of these works in some fashion through doctrines such as fair use or whether copyright owners will succeed in seeking to curtail use of their works. For instance, in March 2007, Viacom filed a \$1 billion lawsuit against

crucial to defining, in a collaborative manner, solutions that will benefit the entire IP system. We also believe that such partnerships can offer keys to global IP solutions, as American inventors, entrepreneurs, and businesses have global issues to consider. As an example, in fiscal year 2006, the U.S.PTO cooperated with a private sector-led group that chose to focus on so-called '*peer review*' as a possible means of improving the quality of patent application packages received by the USPTO. Private sector-initiated and -led efforts may provide the USPTO with important data and feedback that will help us, as stewards of the public trust, improve patent, trademark, and other IP systems for the benefit of all.") (emphasis added), *available at* <http://www.uspto.gov/web/offices/com/strat2007/stratplan2007-2012.pdf>.

¹⁵² Another successful model of peer production is Google. *See* David Post & Bradford C. Brown, *On the Horizon: 'Peer Production' Promises to Leap in Importance*, INFORMATIONWEEK, Jan. 2, 2002 ("Google . . . shows another side of peer production. It has become, almost overnight, the gold standard for search engines. What makes Google different from and better than other search engines is that it evaluates the usefulness of each of the billions of Web pages out there and the relevance of each page to a particular query by counting and analyzing the links leading into the page in question. In other words, it lets the network do the hard work of ranking Web pages. It's as though everyone who builds a Web page and links to other pages is working for Google, helping it provide better service to its customers."), *available at* <http://www.informationweek.com/story/showArticle.jhtml?articleID=6500771>.

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YouTube and Google, alleging massive copyright infringement.¹⁵³
Viacom said in its complaint:

YouTube's brazen disregard of the intellectual-property laws fundamentally threatens not just plaintiffs but the economic underpinnings of one of the most important sectors of the United States economy.¹⁵⁴

. . . .

YouTube has deliberately chosen not to take reasonable precautions to deter the rampant infringement on its site . . . because YouTube directly profits from the availability of popular infringing works on its site, it has decided to shift the burden entirely onto copyright owners to monitor the YouTube site on a daily or hourly basis to detect infringing videos.¹⁵⁵

Third, the progressive march of wkinomics rests in large part on a presumption that the Internet remains affordable for the large body of collaborative creators. Like the media industries, telecommunications firms "need to recoup their investments in maintaining and upgrading the telecommunications infrastructure."¹⁵⁶ Telecommunications firms may charge fees in exchange for giving faster service. Users who are used to fast service might become disaffected with collaborative sites that are too slow. Thus, those sites might lose both creators and viewers. On the other hand, the slower sites should have a market of people who cannot afford the faster service. There is no reason to think that those who cannot afford the faster service will no longer participate in the collaborative creative process or view it.

This tiered Internet with different levels of service has created a strong debate on the merits "net neutrality." Some have

¹⁵³ Complaint, *Viacom Int'l Inc. v. YouTube, Inc.*, No. 1:2007cv02103 (S.D.N.Y. Mar. 13, 2007), available at <http://ngdaly.googlepages.com/ViacomvYouTube.pdf>.

¹⁵⁴ *Id.* at para. 2.

¹⁵⁵ *Id.* at para. 6.

¹⁵⁶ TAPSCOTT & WILLIAMS, *supra* note 3, at 273.

predicted very dire consequences.¹⁵⁷ This structure underlying much of the technological progress we take for granted today may collapse and choke the lifeblood out of the current and future collaborative creative process afforded by cheap and ready access to technological infrastructure.¹⁵⁸ If it does, society may have to turn to antitrust and competition law for a possible solution in the form of the essential facilities doctrine.¹⁵⁹

¹⁵⁷ *Id.* As Don Tapscott and Anthony Williams dramatically put it, “[i]f Yahoo pays the freight, BellSouth users will find Yahoo’s search engine works faster and better than Google’s. So, in effect, BellSouth becomes a gatekeeper for the types of services that thrive on the Internet. . . . This is not just a war against the open Internet; it’s a war against economic development, a war against competitiveness, and a war against innovation. In short, it’s a war against the future.” *Id.* at 273. In the wake of this statement, the Australian Competition and Consumer Commission has alleged that Google has deceived consumers by not differentiating between its organic search results and those which are being displayed because Google has received payment from an advertiser. See John Collins, *Google Antitrust Case Opens in Australia*, IRISH TIMES, Sept. 11, 2007, available at <http://contentagenda.com/articleXml/LN667905952.html?industryid=45174>.

¹⁵⁸ Here an irony may be observed. The Internet was created to facilitate the transfer of information, offering a communications network that could potentially survive a nuclear war. Yet it remains pitifully vulnerable to technological bottlenecks which could be put in place by service providers seeking to profit by auctioning information to the highest bidders.

¹⁵⁹ The Essential Facilities Doctrine (“EFD”) grew out of cases where a vertically integrated owner had exclusive control over some facility, and used that control to gain advantage over competitors in an adjacent or downstream market. Herbert Hovenkamp et al., *Unilateral Refusals to License*, 2 J. COMPETITION L. & ECON. 1, 10 (2006). It was first discussed in the U.S. in *United States v. Terminal Railroad Ass’n*, in which a set of railroads formed a joint venture owning a key bridge across the Mississippi River and excluded non-member competitors. 224 U.S. 383 (1912). In the E.C., the EFD was first discussed in *Sea Containers v. Stena Sealink*, where a port owner was prohibited from imposing competitive constraints on downstream customers. 1994 O.J. (L 15) 8 (1994). The doctrine has also surfaced in cases involving such “bottleneck” inputs as sports stadiums, warehouse spaces, and newspaper distribution systems. However, recent cases have focused on technological knowledge for access to networks. These include physical networks like electricity or telecommunications, where there are clear elements of natural monopoly and the presence of explicit regulation, as well as “virtual” networks. Richard N. Langlois, *Technological Standards, Innovation, and Essential Facilities Toward a Schumpeterian Post-Chicago Approach* 4–5 (U. Conn. Dep’t Econ., Working Paper No. 1999-07, 1999), available at <http://www.econ.uconn.edu/working/1999-07.pdf>.

2. Is Peer Production a Threat to the IP Mechanism of Rewarding Innovation Through Temporary Exclusivity?

There is a view that “if innovators are not going to be financially rewarded, the incentive for path-breaking innovation will eventually dry up, as will the money for deep R & D that is required to drive [technological] progress.”¹⁶⁰ To this concern two responses may be given. First, peer production offers an open technological infrastructure.¹⁶¹ Most open source solutions like Linux provide the basic infrastructure on which software developers can build applications and businesses.¹⁶² It allows commercial entities to compete in areas to which they can add value without being inhibited by lack of access to basic technological infrastructure. Competitors will still have to develop a unique product or service, and a unique way to apply technology to areas of core value. This means competitors will still need proprietary insights, innovations and proprietary software tools to build unique products or services. As a consequence, durable competitive advantages in R&D-intensive industries will still be rooted in the growth of deep domain-specific knowledge.

IBM shows how IP can be treated like a mutual fund—a balanced portfolio of some protected and shared IP assets.¹⁶³ “At a

¹⁶⁰ FRIEDMAN, *supra* note 36, at 109. For example, “Microsoft’s success in creating the standard PC operating system produced the bankroll that allowed Microsoft to spend billions of dollars on R & D to develop Microsoft Office, a whole suite of applications” that it can now sell for a few hundred dollars. *Id.* As Craig Mundie, Microsoft’s Chief Research and Strategy Officer, put it: “The virtuous cycle of innovation, reward, reinvestment, and more innovation is what has driven all big breakthroughs in our industry. The software business as we have known it is a scale economic business. You spend a ton of money up front to develop a software product, and then the marginal cost of producing each one is very small, but if you sell a lot of them, you make back your investment and then plough profits back into developing the next generation. But when you insist that you cannot charge for software, you can only give it away, you take the software business away from being a scale economic business.” *Id.*

¹⁶¹ *Id.* at 91 (“Commercial software companies have to start operating further up the [software] stack to differentiate themselves. . . . The open source community is basically focusing on infrastructure.”) (quoting Jack Messman, chairman of Novell, Inc.).

¹⁶² TAPSCOTT & WILLIAMS, *supra* note 3, at 91–92. *See also* Linux, <http://www.linux.org>.

¹⁶³ *Id.* at 26, 120. “For example starting in 1999, more than a dozen pharmaceutical firms abandoned their proprietary R&D projects to support open collaborations such as the SNP Consortium and the Alliance for Cellular Signaling. Both projects aggregate

time when reliability and trust were the big question marks surrounding Linux, IBM indemnified client risk.”¹⁶⁴ “Because it was reliable and free, Linux became a useful operating system for computers hosting Web servers, and ultimately databases, and today many companies consider Linux an enterprise software keystone.”¹⁶⁵ Linux offers a viable platform uniquely tailored to business needs for 20% of the cost of proprietary operating systems.¹⁶⁶

A company that was proprietary, insular, and vertically integrated fifteen years ago now partners extensively with the open source community and is considered a positive force for collaboration and openness. IBM enjoys the goodwill of thousands of independent and corporate developers who are committed to the Linux vision and community growth. IBM’s partnering and collaboration with communities it does not directly control are strategic tools competitors have yet to master.¹⁶⁷

In doing so, IBM gained a viable alternative to the Windows server on Intel-based platforms. Just as important, IBM has gained experience and knowledge in a vital new model of value creation. Today, Linux services and hardware represent billions of dollars in revenue. IBM estimates it has saved nearly a billion dollars per year compared to what it would have to spend on creating and maintaining an operating system in-house.¹⁶⁸ More than that, supporting open source has enabled IBM to undercut competitors who charge for proprietary operating system software. Though Linux is free to use or modify, it has been embedded in all kinds of profitable products and services developed by large companies like

genetic information culled from biomedical research in publicly accessible databases. They also use their shared infrastructures to harness resources and insights from the for-profit and not-for-profit research worlds. Nobody gives up their potential patent right over new end products, and by sharing some basic intellectual property the companies bring products to market more quickly.” *Id.* at 27.

¹⁶⁴ *Id.* at 82.

¹⁶⁵ *Id.* at 24.

¹⁶⁶ *Id.* at 81.

¹⁶⁷ *Id.* at 82.

¹⁶⁸ *See id.* at 78.

BMW, IBM, Motorola, Philips, and Sony.¹⁶⁹ Contributing to the commons is not altruism. Rather, it promotes vibrant business ecosystems that harness a shared foundation of technology and knowledge to accelerate growth and innovation.

But in-house innovation alone will not be enough to survive in a fast changing and intensely competitive economy. The speed and complexity of change is such that no one firm can create all the innovations needed to compete in information technology, or in any other industry. With a little time and effort, most technology can be invented around. Firms that make the boundaries of innovation porous to peer collaboration have a better chance to outperform competitors that rely solely on internal resources and capabilities. As Joel Cawley, head of IBM's strategic planning unit, put it:

What we are seeing in so many different fields . . . is that the next layers of technical innovation involve the intersection of very advanced specialities. The cutting edge of technical innovation in every field is increasingly specialized. . . . Therefore to come up with any valuable new breakthrough, you have to be able to combine more and more of these increasingly granular specialties. That is why collaboration is so important.¹⁷⁰

Between 2001 and 2006, the pace of innovation has doubled in the pharmaceutical industry alone.¹⁷¹ When Procter & Gamble ("P&G") realized that its army of 7,500 researchers was no longer enough to sustain its lead, it sourced 50% of its new product and service ideas outside their payroll, including the InnoCentive

¹⁶⁹ See *id.* at 65.

¹⁷⁰ FRIEDMAN, *supra* note 36, at 439; see also TAPSCOTT & WILLIAMS, *supra* note 3, at 297–98 n.6 (noting that "as global complexity increases so do the list of challenges we face that are unsolvable by individual organizations acting alone. . . . There is simply no end to the requirements or possibilities for innovation. These complex problems demand cross-disciplinary and interorganizational solutions. Even comparatively simple products are becoming more complex. All of this complexity is fueling an increase in the requirement for openness and boundary-spanning collaborations").

¹⁷¹ See TAPSCOTT & WILLIAMS, *supra* note 3, at 13.

network.¹⁷² Ninety thousand scientists around the world are collaborating “to solve tough R&D problems for a cash reward.”¹⁷³ P&G thus posts “R&D problems on the InnoCentive Web site, while ‘solvers’ submit their solutions in a bid to capture cash prizes ranging from \$5,000 to \$100,000.”¹⁷⁴ In 2006, “more than 35% of [P&G’s] products in market ha[d] elements that originated from outside P&G And 45% of the initiatives in [its] product development portfolio ha[d] key elements that were discovered externally.”¹⁷⁵ At P&G, R&D productivity had increased by nearly 60%, while “R&D investment as a percentage of sales [wa]s down from 4.8% in 2000 to 3.4% . . . “ in 2006.¹⁷⁶ “Five years after the company’s stock collapse[d] in 2000, [it] . . . doubled [it’s] share price and ha[d] a portfolio of 22 billion-dollar brands.”¹⁷⁷ This shows that our increasingly complex and interconnected world has made wkinomics not merely be an intriguing alternative to current models of IP exploitation, but their evolutionary successor.

III. CONCLUSION

In today’s IP markets, the war between stakeholders will be less over prices and output as it will be over the ownership and access to information. In this regard, it is important to recognize that protection and expansion of IPRs are means of serving a wider social purpose of promoting innovation, rather than satisfying an economic end in themselves. Properly conceived, they are tools for preserving and enhancing a system of free enterprise and free competition. Nevertheless, IPRs improperly constructed or applied

¹⁷² *Id.* InnoCentive is an open innovation company that takes research and development problems in the sciences, frames them as challenge problems, and opens them up for anyone to solve them. They give cash awards for the best solutions to scientists who meet the challenge criteria. See David Wessel, *Prizes for Solutions to Problems Play Valuable Role in Innovation*, WALL ST. J. ONLINE, Jan. 25, 2007, available at <http://webreprints.djreprints.com/1657770067525.html>.

¹⁷³ TAPSCOTT & WILLIAMS, *supra* note 3, at 13.

¹⁷⁴ *Id.* at 98–99.

¹⁷⁵ Larry Huston & Nabil Sakkab, *Connect and Develop: Inside Procter & Gamble’s New Model for Innovation*, HARV. BUS. REV., Mar. 2006, at 58 para. 15.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

may cumulatively yield unacceptably high social costs by compromising the competitive process. As Don Tapscott and Anthony D. Williams put it:

Of course, as authors and business people we recognize that rewarding creativity and investment is central to promoting innovation. In theory, intellectual property law exists to do just that. But expansion in the law's breadth, scope, and term over the last thirty years has resulted in an intellectual property regime that is radically out of line with modern technological, economic, and social realities. This threatens the chain of creativity and innovation on which we (and future generations) depend.

In today's economy we need an intellectual property system that rewards invention and encourages openness—one that fuels private enterprise and sustains the public domain.¹⁷⁸

If the legal incentives provided by IPRs stimulate the first-comer's investments at the expense of second comers who wish to make investments on follow-on applications, IP laws would have traded one kind of market failure for another. This is the fear competition authorities have.

However, wkinomics and the conditions that facilitate it are ushering us toward a world where knowledge, market power, and productive capability will be more dispersed than at any time in our history—a world where innovation will be fast, fluid, and persistently disruptive. Dominant undertakings which fail to grasp this will find themselves cut off from collaborative networks that are sharing, adapting, and updating knowledge to create value. But the idea of monopoly power being broken by individual effort is hardly new. The Roman Catholic Church had long been a predominant source of biblical knowledge.¹⁷⁹ Then, in 1522, Martin Luther translated the New Testament from Greek to

¹⁷⁸ TAPSCOTT & WILLIAMS, *supra* note 3, at 179.

¹⁷⁹ See THE DICTIONARY OF BIBLE AND RELIGION, *Bible Versions*, 134, 135 (William H. Gentz ed., 1986).

vernacular, and suddenly, the common man had access to the Holy Scriptures.¹⁸⁰ This catalysed a huge incentive to read and find out spiritual truths for themselves, and it in turn created the impetus toward the development of the printing press.¹⁸¹

As Don Tapscott and Anthony D. Williams observed, *wikinomics*

works best when at least three conditions are present: 1) [t]he object of production is information or culture, which keeps the cost of participation low for contributors; 2) [t]asks can be chunked out into bite-size pieces that individuals can contribute in small increments and independently of other producers. . . . This makes their overall investment of time and energy minimal in relation to the benefits they receive in return. And, finally, 3) [t]he costs of integrating those pieces into a finished end product, including the leadership and quality-control mechanisms, must be low.¹⁸²

Collaborative networks will grow as they are free. Switching costs are overcome by people who have a strong reason to do so. When innovators give consumers a new way of connecting, they will punch through any technical barrier. However, this may take several years. Significant shifts in market share take time, as there needs to be a critical mass for market tipping to occur.

While *wikinomics* has not yet generated sufficient examples to justify an overhaul competition analytics in refusals to license cases, the point remains that some competitors and entrants now have easy access to business tools that only large undertakings could afford a few years ago and is setting the stage for a revolutionary change in the balance of power. This should be taken into account in the analysis of the anticompetitive potential of a refusal to license. As *wikinomics* penetrates the production and sale of IP products and barriers to entry are lowered, it may

¹⁸⁰ See THE NEW ENCYCLOPÆDIA BRITANNICA, *Biblical Literature*, Macropædia Volume 14, at 916 (15th ed. 1994).

¹⁸¹ See *id.*

¹⁸² TAPSCOTT & WILLIAMS, *supra* note 3, at 70.

become increasingly more difficult to succeed in a complaint of abuse of dominance or monopolization. As competition becomes increasingly globalized, vague and interventionist competition laws will repel investors who can move their businesses offshore on short notice. In doing so, they will take with them invaluable technology which will give national economies a much needed edge.¹⁸³ When the dust settles, a new legal architecture may emerge that is better suited to vastly different economic realities of information, and to the technology upon which it subsists.

¹⁸³ See KORAH, *supra* note 57, at 172 (“I remain concerned that the EC position is in many ways stricter than that in the U.S.. This may encourage firms to perform their R&D and produce the results outside the Common Market, exporting the products to the Common Market. This avoids the wider scope of Article 82 and the special responsibility of dominant firms to give access to essential facilities.”). A recent reminder of this came from a South Korean competition case against Microsoft. Microsoft threatened to withdraw its Windows operating system from the Republic when its national competition authority imposed an order requiring Microsoft to remove code or redesign Windows uniquely for the Korean market. For reasons known best to itself, Microsoft later decided otherwise. See South Korea Fines Microsoft \$32m, BBC News, <http://news.bbc.co.uk/1/hi/business/4505698.stm> (last visited Oct. 6, 2007).