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COPYRIGHT UNDER SIEGE: AN ECONOMIC ANALYSIS OF THE ESSENTIAL FACILITIES DOCTRINE AND THE COMPULSORY LICENSING OF COPYRIGHTED WORKS

*Daryl Lim**

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I. INTRODUCTION

It is increasingly difficult to think of the economics of copyright without also thinking about the impact of competition law on it. As copyright expands into the realm of functional works, the capacity of copyright owners to create economic bottlenecks through refusing access increases, particularly where the copyright protects an arbitrarily chosen interface that has become an industrial standard or where the owner is the sole source of raw data. Tentative pronouncements by the highest courts in the United States ("US") and European Union ("EU") suggest that the complexity at the interface between copyright and competition law ("the Interface") is far from being resolved.¹ The key issues examined in this article are whether a copyright owner should be required to give access to their copyright content in these situations, how far that duty extends, and whether compulsory licensing through the essential facilities doctrine of competition law provides an acceptable solution.

It is largely uncontroversial that competition law rests firmly upon the frame work of economic analysis.² It supplies the rules necessary for the market to function effectively and thus provides the standards for most economic policy decisions.³ Competition policy then guides competition enforcement officials ("CEOs") and

¹ See, e.g., Frank 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 Facility Doctrine* (2000), available at <http://www.econ-pol.unisi.it/pubdocenti/ahnic.doc> (last visited June 2, 2007) (noting the growing number of cases involving intellectual property rights and competition law).

² SIMON BISHOP & MIKE WALKER, *ECONOMICS OF E.C. COMPETITION LAW: CONCEPTS, APPLICATION AND MEASUREMENT* 5 (Sweet & Maxwell 1999) (Noting that "Economic reasoning provides the necessary tools to assess the effectiveness of competition in all industries regardless of the jurisdiction.").

³ BISHOP & WALKER, *supra* note 2, at 2. "Many of the key concepts of competition law—for example, the concepts of 'competition', 'monopoly', 'oligopoly' and 'barriers to entry'—are concepts derived . . . from economics." *Id.* Bishop and Walker argue that "[a]n understanding of the type of economic arguments which can be put forward and the type of empirical evidence that can be used to support such arguments is becoming increasingly important to lawyers, economists and officials practising in this area." *Id.* at 3.

courts to translate economic models into reality.⁴ Competition regimes across market economies today generally agree that consumer welfare is the ultimate goal of competition policy, and a free market is the most efficient way to meet consumer demand for goods and services.⁵ The goal of a free market in turn translates into a desire to reduce barriers to entry and exit in order to achieve socially optimal pricing.⁶ The greater the costs

⁴ Indeed, there is a clear trend towards economic analysis in both the case law of the EU and US. DORIS HILDEBRAND, *THE ROLE OF ECONOMIC ANALYSIS IN THE EC COMPETITION RULES 3-4* (2d ed. 2002). In the US, economists and lawyers have worked together on antitrust law for nearly a hundred years, from the time of the Sherman Act of 1890. *Id.* at 3, 90. In the 1950s, the economic specialty of industrial organization emerged in the midst of intense antitrust enforcement. *Id.* at 4. This meant that economic expertise was frequently required “to determine the size of markets or the potential consequences of mergers.” *Id.* For the EU, economic analysis in competition law only emerged from the 1990s, when a group of British lawyers and economists generated discussion to apply competition rules in a modern economic way. *Id.* This caught momentum and by late 1990s, the Commission started to apply economic analysis as well. *Id.* However, unlike US antitrust policy, competition policy in the EU is not based solely on economic considerations, but it is also embedded in other policy objectives such as community integration. *See id.* at 8-9. This makes it difficult to articulate the mainstream economic theory the EC uses. Nonetheless, it is clear that the Commission attempts to promote effective competition. *Id.* at 9. The yardsticks of these are the maximization of consumer welfare and achieving the optimal allocation of resources. *Id.*; BISHOP & WALKER, *supra* note 2, at 1, for a comprehensive history of the evolution of competition economics in the US and EU. Singapore has benefited from these experiences. From its inception in 2005, the Competition Commission of Singapore has had nearly a one-to-one ratio of economists to legal counsel. *See* Competition Commission of Singapore, *available at* <http://www.sgdi.gov.sg> (last visited June 2, 2007) (showing that the Policy & Economics Analysis Division has eleven members and the Legal & Enforcement Division has eight members).

⁵ A free market is necessary to fully mobilize entrepreneurial forces in a sequence of moves directed toward maximizing profit through economically efficient behavior. *See generally* ADAM SMITH, *AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS* 485 (The Modern Library 1994) (describing how laborers, through promoting their own self-interests, purchase goods and services in the market, and in doing so are guided by an “invisible hand” that creates market efficiency). Adam Smith presumed that self-interest drives individual competitors to persuade customers, on grounds of quality and value, to make a particular purchase. *See id.* at 14-16. “It is believed that only selection, as expressed through consumer choice, would lead to an equilibrium of demand and supply and hence further the interests of society as a whole. Adam Smith’s ‘invisible hand’ . . . would . . . lead to the best overall solution.” Sonya Margaret Willimsky, *The Concept(s) of Competition*, 18 *EUR. COMPETITION L. REV.* 54, 54 (1997).

⁶ *See* Willimsky, *supra* note 5, at 55 (illustrating how freedom to enter and exit a market forces producers to offer goods at a price that ultimately maximizes the society’s wealth).

associated with entry and exit, the less contestable the market is and, by inference, the less competitive the market will be.⁷

The objectives of competition law and copyright are essentially the same. Both promote innovation and competition for the benefit of consumers.⁸ While copyright confers a limited legal monopoly over expression in creative works, it is rarely coextensive with economic dominance, much less monopoly.⁹ It follows that copyright may create a legal monopoly, but the existence of a monopoly does not necessarily imply a dominant position or abuse of that dominance.¹⁰ To the extent that

⁷ See WILLIAM J. BAUMOL ET AL., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* 349–50 (Harcourt Brace Jovanovich, Inc. 1982). In contestable markets, barriers to entry and exit are relatively limited. *Id.* Incumbent firms are constrained from raising price above the marginal cost level by fear of a “hit and run” entry that captures the incumbent’s market share and profits. *See id.* at 350. A market that fully meets these ideal market conditions qualifies as “perfectly contestable.” *Id.* The perfectly contestable market, or free market, is regarded as the most efficient way to meet the demand from consumers for goods and services. *See id.* at 349–50 (arguing that perfectly contestable markets offer the same benefits associated with free markets with perfect competition). It is also generally believed to encourage companies to increase productivity, expand, innovate and create jobs. HILDEBRAND, *supra* note 4, at 9. Competition is an instrumentality to ensure that entrepreneurial forces are mobilized and the full potential of the efficiency of firms is exploited. *See* BAUMOL ET AL., *supra*. It therefore calls for a maximization of the free market and for reliance on competition where possible. *See id.* Competition, in this sense, is an unlimited sequence of moves and responses in which profits can be seen as a motive for initiation and imitation of economic efforts. *See id.* The time competition needs to erode these profits indicates the degree of effectiveness of competition. *See id.* (describing how incumbents in a market will lower prices, thereby reducing profits, in order to prevent profitable entry by entrepreneurs). It determines whether competition itself performs its function in a sufficient manner and exerts sufficient competitive pressure, which cannot be controlled by incumbents. *See id.* It is obvious that this view of competition is a dynamic one and is regarded as the guiding principle of a forward looking economic policy designed to achieve growth and employment. *See id.* (“Monopolists and oligopolists who populate such markets are sheep in wolves’ clothing, for under this arrangement potential rivals can be as effective as actual competitors in forcing pro social behavior upon incumbents, whether or not such behavior is attractive to them.”).

⁸ Richard J. Gilbert & Carl Shapiro, *An Economic Analysis of Unilateral Refusals to License Intellectual Property*, 93 PROCEEDINGS OF THE NAT’L ACAD. OF SCIENCES OF THE U.S.A. 12749, 12749 (1996) (noting that “in the long run, [copyright] promote[s] competition by rewarding innovative efforts.”).

⁹ See Thomas F. Cotter, *Intellectual Property and the Essential Facilities Doctrine*, 44 ANTITRUST BULL. 211, 228 (1999).

¹⁰ *Id.* Abuse of a dominant position is the core ingredient to infringement of competition law in the EU under the Treaty Establishing the European Community, and also in Singapore under the Singapore Competition Act.

copyright creates entry barriers, these are usually a measure of market control that is the *sine qua non* of state-conferred exclusive rights.¹¹ It is therefore generally pro-competitive to allow copyright owners to freely exploit assets they create, including the ability to choose whether to deal with other commercial undertakings, if at all. Exclusive property rights provide incentives for innovation.¹²

However, in practice, great tensions have arisen between copyright and competition law.¹³ Businesses have increasingly

Treaty Establishing the European Community art. 82, Nov. 10, 1997, 1997 O.J. (C 340) 3 [hereinafter EC Treaty], available at http://europa.eu.int/eur-lex/en/treaties/dat/C_2002325EN.003301.html; Singapore Competition Act 2004 § 47, available at <http://app.mti.gov.sg>. The US uses the standard of “monopolization” resulting in antitrust injury under Section 2 of the Sherman Act. Sherman Antitrust Act, 15 U.S.C. § 2 (2000). However, it is submitted that while *jurisdictions* may differ geographically, *jurisprudence* shares common denominators and remains useful points of cross-fertilization.

¹¹ As the US Supreme Court explained “[c]ompelling . . . firms to share the source of their advantage is in some tension with the underlying purpose of antitrust law, since it may lessen the incentive for the monopolist, the rival, or both to invest in . . . economically beneficial facilities.” *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407–08 (2004).

¹² Copyright aims to address the potential market failure of lack of innovation associated with the production of public goods. 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 (1996). Without adequate protection, sub-optimal investment is made in innovation by entrepreneurs who might otherwise remain vulnerable to unbridled free riding on the fruits of their creative investment. See *id.*; Keith E. Maskus & Jerome H. Reichman, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, 7 J. INT’L ECON. L. 279, 284 (2004). At the same time, if the incentive copyright provided to stimulate the first-comer’s investments deter the emergence of new and innovative work, we would have merely traded one kind of market failure for another. Therefore, the goal of any well-oiled copyright system capable of stimulating constant innovation must strike a dynamic balance between avoiding parasitic duplication on one hand, while preventing rent-seeking copyright owners from stifling innovation on the other. Copyright laws give copyright owners a temporary, exclusive right to their original works; this remedies certain public-good problems, and allows creators to obtain an economic return on their investment. *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 546 (1985).

¹³ One 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 “optimal amount of innovation.” Cotter, *supra* note 9, at 229, 244. Competition law assumes that deterring monopolies will lead to the attainment of economic efficiency, while intellectual property law assumes that efficiency will be achieved only if CEO’s correctly estimate the proper mix of incentive and access to copyright as needed to provide the “optimal amount of innovation.” *Id.* See also McGowan, *supra* note 12, at 773, 774, 805.

understood that copyright can be used as a strategic weapon to bolster their market power.¹⁴ Firms therefore try to make it tough for their competitors.¹⁵ Incumbents mold copyright over functional works to create entry barriers.¹⁶ Owners may also use copyright to reinforce pre-existing barriers such as those caused by network effects in tipped markets, thereby raising the switching costs for consumers to products offered by competitors.¹⁷ Thus, the growing importance of rights to information in a world of competitive platforms has made copyright law of central importance to competition policy in several industrial sectors.¹⁸ Two industries that have the highest number of skirmishes are software and database industries.¹⁹ It is important to note, however, that while these industries may exist quite separately, they may also overlap.²⁰ At the Interface, exclusionary practices are not motivated by firms wanting to exploit consumers by controlling prices or qualities, but rather in controlling the direction of investment in research and diffusion of innovation in the industry.²¹

¹⁴ See Gilbert & Shapiro, *supra* note 8, at 12749–51 (describing how intellectual property owners will attempt to maximize power without violating antitrust laws).

¹⁵ See *id.*

¹⁶ For an example of one incumbent's attempt to copyright functional works, see *Lotus Development Corp. v. Borland International, Inc.*, 49 F.3d 807, 821 (1995).

¹⁷ Carl Shapiro, *Exclusivity in Network Industries*, 7 GEO. MASON L. REV. 673, 675 (1999).

¹⁸ See ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES, at xvii (François Lévêque & Howard Shelanski eds., 2005) (“The debate over the scope of patent rights exemplified in the EU and FTC reports . . . has moved to questions about the appropriate scope of copyright in the face of concerns about competition and innovation.”).

¹⁹ See Estelle Derclaye, *What is a Database?: A Critical Analysis of the Definition of a Database in the European Database Directive and Suggestions for an International Definition*, 5 J. WORLD INTELL. PROP. 981, 982 (2002); Gilbert & Shapiro, *supra* note 8, at 12750. Databases may broadly be understood to include “a collection of independent works [or] data . . . arranged in a systematic or methodical way” that may be “individually accessible by [both] electronic [and non-electronic means],” and cover vastly diverse subject matter from telephone directories to television programs. See Derclaye, *What is a Database?*, *supra*, at 983–84, 996–97. Gilbert and Shapiro have observed that essential facilities doctrine claims will likely occur in areas where copyright has expanded into functional work. See Gilbert & Shapiro, *supra* note 8, at 12755.

²⁰ For example, if the software is necessary for the manufacture or operation of databases, or if the database is computer-generated.

²¹ See *Hearing Before the Subcomm. on Antitrust, Business Rights and Competition of the S. Comm. on the Judiciary*, 106th Cong. 5 (2000) (statement of Joel I. Klein, Assistant Att’y Gen., Antitrust Div., U.S. Dep’t of Justice),

In response to this anticompetitive threat, competition law has devised the essential facilities doctrine (“EFD”) to mandate access through requiring compulsory licensing.²² The focus of an EFD inquiry is not on the *conduct* of the firm, but rather on the *structural conditions* of the relevant market, typically “bottleneck” situations, where the copyright owner controls a “facility” that is indispensable to its competitors and refuses to grant access to that facility.²³ The EFD eschews copyright’s rationale for protecting market power, and it imposes a duty to deal fairly with rivals or continue a relationship once it has begun.²⁴ Access must therefore be given on reasonable and non-

available at <http://www.usdoj.gov/atr/public/testimony/4381.pdf> (“The more important that innovation becomes to society, the more important it is to preserve economic incentives to innovate.”). See also *Antitrust Considerations in International Defense Mergers: Hearing Before the American Instit. of Aeronautics and Astronautics*, at 3 (1999) (statement of Robert Kramer, Chief, Litigation II Section, Antitrust Div., U.S. Dep’t of Justice) (“As important as price competition is to us, a second and possibly even greater concern is maintaining competition for innovation.”).

²² The 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. See Gilbert & Shapiro, *supra* note 8, at 12751. It was first discussed in the US in *United States v. Terminal Railroad Ass’n of St. Louis*, 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, 391–92, 397–98, 409 (1912). In the EU, the EFD was first discussed in *B&I Line plc v. Sealink Harbours Ltd [B&I Line/Stena Sealink]*, 5 C.M.L.R. 255 (1992), where a port owner was prohibited from imposing competitive constraints on downstream customers. See Frank Fine, *NDC/IMS: A Logical Application of Essential Facilities Doctrine*, 23 EUR. COMPETITION L. REV. 457 (2002), available at <http://www.ftc.gov/os/comments/intelpropertycomments/finefrank.pdf> (last visited June 2, 2007). 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 (Univ. of Conn. Dep’t of Econ., Working Paper 1999-07, 1999), available at <http://www.econ.uconn.edu/working/1999-07.pdf>.

²³ Gilbert & Shapiro, *supra* note 8, at 12750–51.

²⁴ See *id.* “[I]n certain cases a dominant undertaking must not merely refrain from anti-competitive action but must actively promote competition by allowing potential competitors access to the facilities which it has developed.” Case C-7/97, *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs-und Zeitschriftenverlag GmbH & Co. KG*, 1998 E.C.R. I-7791, ¶ 34. See also *Terminal R.R. Ass’n*, 224 U.S. at 411 (ordering owners of railroad terminal to allow competitors use of its facility for a reasonable charge).

discriminatory terms. Further, the EFD “is most likely to condemn [copyright] in precisely those circumstances in which [intervention] is least defensible . . . the more [a copyrighted work] is unique, valuable, and difficult to duplicate, the greater is the obligation to share it.”²⁵

However, the last few decades have witnessed the development of diverse approaches to the evolving paradigm.²⁶ US cases have thus far limited the EFD to situations where foreclosure of competition in the downstream market would occur or where the refusal of the EFD would help the owner to acquire or maintain a monopoly in that market.²⁷ Recent case law has suggested it has been limited even further.²⁸ The “exceptional circumstances” test developed by European courts has a lower threshold,²⁹ since the prohibition is directed toward a broader concept of “abuse.”³⁰

²⁵ Abbott B. Lipsky, Jr. & J. Gregory Sidak, *Essential Facilities*, 51 STAN. L. REV. 1187, 1219 (1999).

²⁶ Various economic schools of thought, such as the “Harvard School’s” “structure-conduct-performance” model, the *laissez faire* “Chicago School” and the “Post-Chicago School’s” game-theoretic approach, have helped to redefine the study of competition law and expose the important economic implications of copyright exploitation. HILDEBRAND, *supra* note 4, at 126, 148–51.

²⁷ A. Michael Froomkin & Mark A. Lemley, *ICANN and Antitrust*, 2003 U. ILL. L. REV. 1, 46 (2003) (“*Otter Tail* and *MCI* both had such a characteristic. In the absence of such a market effect, condemning a truly unilateral refusal to deal could open the door to all sorts of claims in which competition is not really at stake.”).

²⁸ See *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407–08 (2004) (requiring proof of anticompetitive conduct in addition to a showing of monopoly power).

²⁹ See James S. Venit & John J. Kallaugher, *Essential Facilities: A Comparative Law Approach*, in 21 ANNUAL PROCEEDINGS OF THE FORDHAM CORPORATE LAW INSTITUTE ON INT’L LAW & POLICY 1994, 315, 333 (1995) (comparing EFD in the US and under the EC, which doesn’t require a showing of extensive monopoly power in downstream markets). The test stemmed from the European court’s recognition in *AB Volvo v. Erik Veng (UK) Ltd.* of liability through “arbitrary refusals” to supply spare parts based on design rights as abuse under Article 82. Case 238/87, A.B. Volvo v. Erik Veng (UK) Ltd., 1988 E.C.R. 6211, ¶ 9. As the court explained, this included “arbitrary refusal to supply spare parts to independent repairers, the fixing of prices for spare parts at an unfair level or a decision no longer to produce spare parts for a particular model even though many cars of that model are still in circulation.” *Id.*

³⁰ See Venit & Kallaugher, *supra* note 29, at 325–26, 328. This conceivably includes using the essential facilities to prevent rivals entering or remaining in the primary market. *Id.* at 333, 339–40 (“[I]n the United States the essential facility doctrine focuses on effects in markets where a firm holds market power subject to control under Section 2. The Article 86 [now Article 82] cases, in contrast, appear to apply the concept in a monopoly leveraging context without extensive consideration of the extent to which the dominant firm holds a dominant position in a downstream market.”).

These divisions between the US approach and EU approach reflect contrary views about the complexity and robustness of markets as well as the ability of courts and CEOs to correct market failure.³¹

Issues at the Interface are not merely of microeconomic interest. Industries where technological innovation is a central dimension of performance increasingly affect the global economy.³² Multi-national companies want rules that reflect

³¹ US antitrust jurisprudence has been largely influenced by the Chicago School. ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* xi (The Free Press 1978). This School assumes that competition in markets can be reasonably good even with high market concentrations because of self-regulating ability of the market to select the most efficient firms. HILDEBRAND, *supra* note 4, at 144. It follows that the state should intervene only minimally to provide a legal framework. *See id.* at 174. Copyright reduces transaction costs and addresses the free rider problem, and should be permitted. *See id.* at 171 (describing George Stigler's idea of Economic Darwinism). For an explanation of this view of Economic Darwinism, see GEORGE J. STIGLER, *THE ORGANIZATION OF INDUSTRY* (University of Chicago Press 1968). EU regulators seem split between two schools. The first is the Harvard School, which argues that concentrated markets decrease the intensity of competition and leads to inefficient distribution and use of available resources. Michael S. Jacob, *An Essay on the Normative Foundations of Antitrust Economics*, 74 N.C. L. REV. 219, 227 (1995). The lack of competition provides few incentives to increase the overall performance through cost reduction and innovation. *See id.* As a result, a dominant firm may directly harm other market participants, and indirectly harm consumer welfare. All entry barriers should therefore be kept to a minimum. The second strand of EU thought seems to lie with the post-Chicago approach. This school believes that the Chicago School places too much confidence in market discipline. *Id.* at 222-23. There is potential for market imperfections and barriers to entry, such as those created by the exercise of copyright, to inhibit the competitive process and thus greater need for government action. *See* Hildebrand, *supra* note 4, at 177. Further, it says that Chicago models are too abstract and simplistic to address market realities. They believe that economic theory should be used to highlight uncertainties on a given set of facts rather than economic filters and efficiency based defenses. *Id.* In network markets, dominant firms can obtain decisive advantages that enable them to exclude superior standard due to a high degree of path dependency. *See* Shapiro, *supra* note 17, at 681. This ties users to a particular standard, not because it is superior, but because compatibility is essential and others use the established technology as well. *See id.* at 682.

³² "[I]n the [US], government reports have credited productivity growth driven by technological change with stimulating the major economic expansions of the 1960s, 1980s, and 1990s." ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES, *supra* note 18, at xvi. ECONOMIC REPORT OF THE PRESIDENT 35 (U.S. GOV'T PRINTING OFFICE 2000) [hereinafter ECONOMIC REPORT OF THE PRESIDENT]. Although accurate estimates of the percentage of economic output or growth that can be attributed to innovation are elusive, policy makers and economists strongly agree that innovation is a critical component of long-run economic health. *See* ECONOMIC REPORT OF THE PRESIDENT, *supra*, at 173. *See also* ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES, *supra* note

home rules as closely as possible.³³ At the same time, while minimum standards of copyright protection are necessary to attract foreign investment from copyright conglomerates,³⁴ an over-zealous application of competition policy risks alienating owners who may take their business, as well as accompanying jobs and investments, elsewhere.³⁵

As the globe tilts toward Asia, the Asian perspective will become increasingly significant. China, long under US pressure to strengthen its copyright laws, has finally made steps toward doing so.³⁶ At about the same time, this awakening economic

18, at xvi (reporting how “high technology” sectors in the economy “increased their combined share of manufacturing output by more than 50 percent”). For a EU perspective on the patent right debate, see *id.* at xvii (“The debate over the scope of patent rights exemplified in the EU and FTC reports . . . has moved to questions about the appropriate scope of copyright in the face of concerns about competition and innovation.”).

³³ See, e.g., COMMENTS OF MICROSOFT ON THE COMPETITION COMMISSION OF SINGAPORE’S DRAFT GUIDELINE ON THE TREATMENT OF INTELLECTUAL PROPERTY RIGHTS 3–5, available at <http://www.ccs.gov.sg/PublicConsultation/Archives/Draft+Guidelines+on+IPR.htm> (click on “Microsoft Singapore Pte Ltd.”) (last visited June 2, 2007) (showing how Microsoft, a US company, supported IPR guidelines for Singapore that focused on strong protection of IPRs, even if doing so would create an essential monopoly that seems inconsistent with competition law; this view is consistent with Microsoft’s home climate in the US).

³⁴ See J. H. Reichman, *From Free Riders to Fair Followers: Global Competition Under the TRIPS Agreement*, 29 N.Y.U. J. INT’L L. & POL. 11, 14–15, 21–22 (1997) (arguing that a minimum international standard of protection is required to give a sense of security to technology-exporting firms).

³⁵ *Id.* at 52–54. A recent reminder of this came from a South Korean competition case against Microsoft, where the latter threatened to withdraw its Windows operating system from the Republic when South Korea’s national competition authority alluded that it might impose an order requiring Microsoft to remove code or redesign Windows uniquely for the Korean market. See *South Korea Fines Microsoft \$32m*, BBC NEWS, Dec. 12, 2005, <http://news.bbc.co.uk/1/hi/business/4505698.stm>. For reasons known best to itself, Microsoft later decided otherwise. See *id.* See also VALENTINE KORAH, INTELLECTUAL PROPERTY RIGHTS AND THE EC COMPETITION RULES 172 (Hart Publishing 2006) (“I remain concerned that the EC position is in many ways stricter than that in the US. 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.”).

³⁶ *Chinese Gout Approves Draft of Anti-Monopoly Law*, NEWS GUANDONG, Jun. 8, 2006, <http://www.newsgd.com/business/laws/200606080010.htm> [hereinafter NEWS GUANDONG]. As China and other emerging economies move toward an innovation-based economy, it would increasingly be in its own interest to bolster copyright protection. See *U.S. Chamber of Commerce Views on China’s Enforcement of Intellectual Property Rights and the Dangers of the Movement of Counterfeited and Pirated Goods into the United States: Testimony Before the US-China Economic and Security Review Commission* (2006)

leviathan has also taken concrete steps toward enacting its own anti-monopoly laws.³⁷ It follows that stakeholders in China will eventually have to contend with similar tensions in determining access to functional works, and will likely take a reference from major trading partners who already have a mature competition regime. And as economies like China rise, the experiences of “culture-bridging countries” such as Singapore will become increasingly useful reference points.³⁸

In Singapore, copyright is big business. In 2003, the IP Academy undertook the first study in Asia using the World Intellectual Property Office (“WIPO”) framework to measure the economic magnitude of copyright industries.³⁹ It found that these industries generated an output of SGD 30.5 billion, amounting to 5.7% of GDP in 2001.⁴⁰ These industries also provided employment for 118,600 people, or 5.8% of the workforce.⁴¹ Like

(statement of Myron Brilliant, Vice-President, East Asia, US Chamber of Commerce) (“IPR violations could pose a greater threat to China’s own economic development and security than they do to foreign rights holders.”). China has abolished more than 700 trade-related laws and regulations in order to meet requirements for the World Trade Organization. Embassy of the People’s Republic of China in the United States, *Appraisal of China’s WTO Performance Cover Global Media* (2006), <http://www.china-embassy.org/eng/xw/t283242.htm>. At least part of the impetus for this may be threatened sanctions by the US against China for rampant copyright violations that allegedly cost US companies some \$200 billion a year. *US May Take China to WTO on \$200 bn Piracy*, THE FINANCIAL EXPRESS, May 17, 2005, http://www.financialexpress.com/latest_full_story.php?content_id=91135.

³⁷ *Chinese Govt Approves Draft of Anti-Monopoly Law*, *supra* note 36 (reporting that the anti-monopoly law will be “aimed at protecting fair competition, preventing and checking monopolistic behavior, and maintaining an orderly marketplace.”).

³⁸ See Law Siu Lan, *Lion and Dragon: Singapore is Building an Enclave in China. Will It Succeed?*, ASIaweek, June 21, 1996, available at <http://www.pathfinder.com/asiaweek/96/0621/biz1.html>. Singapore has worked closely with China in establishing special economic zones such as those in Suzhou and Liaoning, and has provided not insignificant advice on its economic policies in these areas. See Tharman Shanmugaratnam, Minister for Education, Second Minister for Finance, Speech at the 1st Singapore–Liaoning Economic & Trade Council Meeting (Apr. 20, 2004), available at <http://www.moe.gov.sg/speeches/2004/sp20040420.htm>.

³⁹ CHOW KIT BOEY & LEO KAH MUN, ECONOMIC CONTRIBUTION OF COPYRIGHT-BASED INDUSTRIES IN SINGAPORE 1 (June 2005), available at <http://www.serci.org/documents.html>; see also ECONOMIC CONTRIBUTION OF COPYRIGHT-BASED INDUSTRIES IN SINGAPORE: AN UPDATE, available at http://www.ipacademy.edu.sg/site/ipa_cws/resource/executive%20summaries/Exec_Sum_Economic_Upd.pdf (last visited June 2, 2007) (reporting updated figures through 2002 and 2003).

⁴⁰ *Id.*

⁴¹ *Id.*

the US and EU, Singapore has opted for a general competition regime rather than legislative exemption of intellectual property rights (“IPRs”), leaving the task of balancing the needs of innovation within competition law itself.⁴²

Strikingly, unlike the US and EU, Singapore has explicitly recognized the EFD.⁴³ At the same time, the official guideline issued by the Competition Commission of Singapore (“CCS”) suggests that a refusal to supply copyright content will constitute an anticompetitive infringement in “limited circumstances,” such as when the refusal “relates to an essential facility, with the effect of (likely) substantial harm to competition.”⁴⁴ One relevant factor is the presence of network effects.⁴⁵ The extent of the actual impact of the EFD on the exploitation of copyright in Singapore is difficult to assess at this stage because of the nascence of the regulatory framework. However, it has taken a deliberate step towards emphasizing the fundamental compatibility between the objectives of IPRs and competition law while providing broad caveats.⁴⁶ One may therefore speculate that copyrights are less likely to be interfered with in Singapore than in the EU.⁴⁷

⁴² See generally COMPETITION COMMISSION OF SINGAPORE, CCS DRAFT GUIDELINE ON THE TREATMENT OF INTELLECTUAL PROPERTY RIGHTS, available at http://www.ccs.gov.sg/NR/rdonlyres/F7E1707A-D595-4A2A-AC51-502AA41F98B4/0/CCSDraftGuidelineOnTreatmentOfIPR_Final.pdf [hereinafter CCS DRAFT GUIDELINE]. Japan, and to a smaller extent, Australia, have opted for a general competition regime. See Steven D. Anderman, Issues Raised at the IP/Competition Interface: Lessons from Singapore, paper presented at the Twelfth Annual Fordham International Intellectual Property Law & Policy Conference (2004).

⁴³ CCS DRAFT GUIDELINE, *supra* note 42, ¶ 4.6.

⁴⁴ *Id.*

⁴⁵ *Id.* ¶ 3.12.

⁴⁶ See *id.* ¶¶ 4.6–4.8 (describing the caveats in which the EFD will not be followed to require access to facilities be given). First, refusing to license may be objectively justifiable if “the dominant undertaking has behaved in a proportionate way in defending its legitimate commercial interest.” *Id.* ¶ 4.6. Second, the copyright will be “essential only if there are no potential substitutes (through duplication or otherwise),” thus making the facility “indispensable to the exercise of the activity in question.” *Id.* ¶ 4.7. Third, “[c]are must be taken not to undermine the incentives for undertakings to make future investments and innovations.” *Id.* ¶ 4.8.

⁴⁷ The CCS Draft Guideline has recognized that “[b]oth intellectual property . . . and competition laws share the same basic objective of promoting economic efficiency and innovation.” *Id.* ¶ 2.1. However, the Guideline states that “[t]he possession of an IPR does not necessarily create market power in itself,” which may mean the CCS is less likely to force a copyright holder to share its product simply because of market domination. *Id.* ¶ 2.5.

These developments have provided an impetus to advance the Interface debate by presenting issues and raising questions for future inquiry. If along the way, the discussion also produces useful guidelines clarifying the circumstances where access to copyright content would be essential, then so much the better. Despite this paper's attempted economic tenor, some legal discussion is necessary to provide the proper context to understanding challenges courts have had in balancing competing interests that often advanced and rebutted in the relatively esoteric language of economics. Part II offers reasons why copyright has become subject to competition law regulation under the EFD. Part III makes a brief survey of seminal cases where courts in the EU and US have had the unenviable task of grappling with the esoteric economics of copyright, network effects and sector specific regulation. It observes that certain market conditions require a more nuanced approach when regulating access in order to properly take into account dynamic efficiencies. This paper argues that "reasonableness" is a workable standard for compulsory licensing and highlights the role of economics in working towards a clear and principled standard of access to copyrighted works under the EFD. Part IV summarizes the discussion and concludes with some key observations.

II. WHY IS COPYRIGHT "ESSENTIAL"?

Owners enjoy copyright on a utilitarian basis. On one hand lies the owner's right to appropriate his or her investment.⁴⁸ On the other lies the right of the public to access the work whether for direct consumption or to use its contents to create complementary or competing works.⁴⁹ However, in recent years, it appears that the growing importance of copyright in national trade balances and concerns over piracy have spurred developed countries to push for stronger multilateral and bilateral commitment to stronger, longer and broader control over access, use and dissemination of their content. It is suggested that this may have contributed to courts being more willing to entertain plaintiffs seeking access on the basis that the copyright is protecting an "essential facility."⁵⁰

⁴⁸ L. BENTLY & B. SHERMAN, INTELLECTUAL PROPERTY LAW 29 (2d ed. 2004).

⁴⁹ See McGowan, *supra* note 12, at 773-74.

⁵⁰ See BENTLY & SHERMAN, *supra* note 48, at 258-65 (describing the use of

A. *Expansion into Functional Works*

The last century has seen increased political and legal activities designed to strengthen the various types of protection for ideas. This may be due to two related reasons. First, a country offering stronger rights will encourage content owners, assured of financial returns, to exploit its content in that country compared to another country that has a high likelihood of free riders.⁵¹ The US has been the primary mover of the trend toward stronger rights, and it has acted at two levels.⁵² The first level is multilateral.

Concerns over huge losses sustained by software and database industries in the US led it to bring IPRs into its international trade negotiations.⁵³ Given the ease of copying, copyright gives software and database owners exclusive rights over reproduction not found in traditional works, subject to extremely narrow exceptions.⁵⁴ This was justified on the basis that the author's

compulsory licensing for essential facilities in the EC); Robert Pitofsky et al., *The Essential Facilities Doctrine Under U.S. Antitrust Law*, 70 ANTITRUST L.J. 443, 452–53 (2002) (describing the granting of access to assets protected by copyright under the essential facilities doctrine).

⁵¹ See JOHN GURNSEY, COPYRIGHT THEFT 155–56 (Aslib Gower 1995). See also BENTLY & SHERMAN, *supra* note 48, at 45 (noting that “[w]hile the strengthening of protection has sometimes been explained in terms of legislative convenience, it also suggests that [there] is at least an implicit agenda [between owners and lawmakers] to maximize copyright protection.”).

⁵² BENTLY & SHERMAN, *supra* note 48, at 6–7.

⁵³ Sam Ricketson, *New Wine into Old Bottles: Technological Change and Intellectual Property Rights*, 10 PROMETHEUS 53, 68 (1992). The fact that existing conventions such as Paris and Berne did not have effective sanctions and penalties no doubt was an important consideration. As Jessica Litman explains

[t]he content industries, copyright owners argued, were among the few in which the United States had a favorable balance of trade. Instead of focusing on American citizens who engaged in unlicensed uses of copyrighted works (many of them legal under U.S. law), they drew Congress's attention to people and businesses in other countries who engaged in similar uses. The United States should make it a top priority, they argued, to beef up domestic copyright law at home, and thus ensure that people in other countries paid for any use of copyrighted works abroad.

JESSICA LITMAN, DIGITAL COPYRIGHT 80–81 (Prometheus Books 2001).

⁵⁴ See BENTLY & SHERMAN, *supra* note 48, at 46, 64–65. See also LITMAN, *supra* note 53, at 26–27 (“A computer works by reproducing [data] in its volatile Random Access Memory [(RAM)], . . . [which] could, at least in theory, be saved to disk . . .”). Copyright lobbyists used this as a premise to argue that “each appearance of any portion of [software code] in any computer's [RAM]” is an infringement of copyright. *Id.* at 26–27. “That would mean . . . that the copyright owner has the legal right to control [access] . . . for every single

reproduction right was fundamental, and the utilitarian basis of copyright law required that the extent of that right not be diminished to ensure that future incentives to create are not stifled.⁵⁵ Therefore, in recent years, copyright law tailored any limitations narrowly while at the same time expanding the scope of protected subject matter.⁵⁶

The Agreement on Trade Related Aspects of Intellectual Property Rights ("TRIPS")⁵⁷ is a direct consequence of technological development and the desire of technologically advanced nations to protect their IPRs abroad. TRIPS represents the high watermark of international consensus on copyright evolution.⁵⁸ It extends copyright to "[c]omputer programs, whether in source or object code,"⁵⁹ as well as compilations of data that constitute intellectual creations because of selection or arrangement independent of pre-existing copyright in the material itself.⁶⁰ This follows the US position as

appearance of a work in the memory of any computer anywhere." *Id.* at 27.

⁵⁵ LITMAN, *supra* note 53, at 27.

⁵⁶ See Council Directive 2001/29/EC, The Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, 2001 O.J. (L 167) 10; Council Directive 91/250/EEC, The Legal Protection of Computer Programs, 1991 O.J. (L 122) 42. In Europe, rights owners have been conferred greater control over the right of communication to include access on demand and the right of electronic reproduction. Council Directive 2001/29/EC, *supra*, ¶¶ 26, 33. This makes all reproductions, however transient, liable for infringement. In Singapore, § 15(1A) of the Copyright Act provides that "[f]or the purposes of this Act, reproduction, in relation to any work, includes the making of a copy which is transient or is incidental to some other use of the work." Singapore Copyright Act 1987, c. 63, § 15(1A), [hereinafter Singapore Copyright Act]. The Copyright Act has not included the equivalent of Article 9(1).

⁵⁷ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 81 (1994) [hereinafter TRIPS]. The TRIPS Agreement contains seven parts. *Id.* at 83. Parts I and II contain the substantive law provisions. *Id.* at 84, 87. Parts III and IV set forth the procedural standards for acquisition and enforcement of IPRs under national law. *Id.* at 99, 106. Part V deals with dispute resolution using World Trade Organization dispute resolution mechanisms. *Id.* at 106. Part VI provides transitional provisions providing selected groups of nations with additional time to comply with TRIPS. *Id.* at 107. Part VII establishes institutional arrangements at the international level for TRIPS compliance, notably the TRIPS Council. *Id.* at 108.

⁵⁸ BENTLY & SHERMAN, *supra* note 48, at 9.

⁵⁹ TRIPS, *supra* note 57, at 87.

⁶⁰ *Id.* TRIPS lays down the minimum level of protection expected from member states, which member states have raised through domestic legislation. *Id.* at 84–85. Singapore has faithfully incorporated each development in its Copyright Act. Singapore Copyright Act, *supra* note 56, §§ 26(1)(a)–(b), 7A(1).

laid down in by the Supreme Court in *Feist Publications, Inc. v. Rural Telephone Services Co., Inc.*⁶¹ Recognizing the potential access bottlenecks that would be caused by allowing database owners to control access to factual databases based on investment and effort alone, the Supreme Court ruled that databases may only be protected through copyright if the owner expended sufficient skill and judgment in the selection and arrangement of the content.⁶² The Court reasoned that because facts were not subjectively created but were objectively discovered, copyright protection could not subsist in mere facts, no matter how great an investment had been made in their compilation.⁶³ Since re-utilization of data is allowed, the alternative forms of expression to other authors are limitless.⁶⁴ Thus in *Feist*, the Court attempted to balance user rights by conferring a limited right to the expression original to the author of a work through the copyright regime.⁶⁵

Similarly, a US court in *Lotus Development Corp. v. Borland International, Inc.* held that the menu system for “Lotus 1-2-3” was a method of operation not protected by copyright.⁶⁶ The menu system “serve[d] as the method by which the [underlying software was] operated and controlled.”⁶⁷ The policy underlying

⁶¹ 499 U.S. 340 (1991).

⁶² See *id.* at 345 (“The *sine qua non* of copyright is originality. To qualify for copyright protection, a work must be original to the author. Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity.”) (citations omitted). As Stanley Lai explains, this requires that “the author must have exercised some choice in determining an aspect of the form of a work before that part of the form can be said to have originated from him or her.” STANLEY LAI, *THE COPYRIGHT PROTECTION OF COMPUTER SOFTWARE IN THE UNITED KINGDOM* 15 (Hart Publishing 2000).

⁶³ *Feist*, 499 U.S. at 349.

⁶⁴ See *id.* at 363–64.

⁶⁵ *Id.* Singapore seems to have codified the approach taken in *Feist*, expressly limiting protection in factual compilations to “the selection or arrangement of its contents which constitutes an intellectual creation.” Singapore Copyright Act, *supra* note 56, § 7A(2)(a). Section 7A(2) provides that copyright that subsists in a compilation is limited to the selection and arrangement of its contents. *Id.* For a foreshadowing of this development in Singapore, see Ng-Loy Wee Loon, *Copyright Protection for Traditional Compilations of Facts and Computerised Databases—Is Sweat Copyrightable?*, 1995 SINGAPORE J. LEGAL STUD. 96.

⁶⁶ *Lotus Dev. Corp. v. Borland Int'l, Inc.* 49 F.3d 807, 815 (1st Cir. 1995).

⁶⁷ *Id.* at 815. Even though expressive choices had been made by Lotus in choosing and arranging the menu commands, this expression was not copyrightable because the specific words chosen were necessarily part of a

this exclusion was drawn from the utilitarian mandate to encourage subsequent authors to build upon the efforts of their predecessors.⁶⁸ The court was also influenced by the fact that the menu commands used in “Lotus 1-2-3” had become an industry standard in the market for computer spreadsheet programs.⁶⁹ It would therefore have been undesirable if copyright could be acquired, and asserted, in a way that would compel the many software users who were familiar with the Lotus menu commands to learn different commands for different spreadsheet programs.⁷⁰ The court was concerned with customers being “locked into” the Lotus system, such that the cost for customers to change their practices would be so high that they would not be likely to buy a competing product that might even be commercially superior.⁷¹ By allowing Borland to replicate the “Lotus 1-2-3” interface, customers could opt for the superior product, thus promoting competition via substitution.⁷² In essence, while the computer program may have deserved copyright protection, the owner had no basis to impede competition by imposing unnecessary learning costs upon consumers. It is important to note that while copyright had expanded into functional content at this point, a more focused approach was taken to preserve access.⁷³

The need to curb piracy is closely related to trade issues.⁷⁴

“method of operation.” *Id.* at 816.

⁶⁸ *Id.* at 818.

⁶⁹ *Id.* at 821.

⁷⁰ *Id.* at 817, 818. Judge Boudin observed that “[i]f Lotus is granted a monopoly on this pattern, users who have learned the command structure of Lotus 1-2-3 or devised their own macros are locked into Lotus, just as a typist who has learned the QWERTY keyboard would be the captive of anyone who had a monopoly on the production of such a keyboard.” *Id.* at 821 (Boudin, J., concurring).

⁷¹ See *id.* at 819–21. See also Willow A. Sheremata, *Barriers to Innovation: A Monopoly, Network Externalities, and the Speed of Innovation*, 42 ANTITRUST BULL. 937, 955 (1997) (describing the market forces that work against a consumer from purchasing a product that may prove to be more superior because of a reluctance to switch technologies).

⁷² *Lotus Dev. Corp.*, 49 F.3d at 821.

⁷³ See *id.* at 818 (describing the method of determining whether a work is copyrightable, specifically not only whether the work is an original expression but also whether it fits into one of the categories described in the legislation as copyrightable).

⁷⁴ See WILLIAM CORNISH & DAVID LLEWELYN, *INTELLECTUAL PROPERTY: PATENTS, COPYRIGHT, TRADE MARKS AND ALLIED RIGHTS* 359 (5th ed. 2003). Piracy is understood broadly to include any situation where the owner is not able to appropriate returns from an expected sale of its work. GURNSEY, *supra*

Functional copyrighted works require considerable investment to be made but are often taken over by others quickly, effectively and cheaply.⁷⁵ The early computer industry was content with contracts and secrecy.⁷⁶ However, the astonishing ability of digital technology to copy programs and mass consumer markets for pirated content rapidly reversed this perception. The ease of instantaneous and perfect duplication of keystone technologies annuls “the natural lead time” of copyright owners.⁷⁷ This jeopardizes the ability of first comers to recoup their investments. This makes the case for stronger copyright hard to resist.

Although states that ascribe to TRIPS are free to provide stronger IPRs than are provided in TRIPS, TRIPS acts as a minimum protection.⁷⁸ Every roll out of a new technology forces players in the copyright system to find a new point of equilibrium between access to protected works and incentives to create new works.⁷⁹ The pressure for increased protection is commonly directed toward the expansion of existing regimes.⁸⁰ This is generally easier from a legislative point of view than creating a new system. The main attraction of copyright protection is the fact that it comes about immediately without any requirement to

note 51, at 1, 3.

⁷⁵ See GURNSEY, *supra* note 51, at 111–12.

⁷⁶ *Id.* at 112.

⁷⁷ Daryl Lim Tze Wei, *Regulating Access to Databases Through Antitrust Law: A Missing Perspective in the Database Debate*, 2006 STAN. TECH. L. REV. 7, ¶ 10, available at <http://stlr.stanford.edu/2006/11>. For a summary of legislative reforms aimed at addressing the problems arising from the development of digital technology in Europe, see Thomas Dreier, *Adjustment of Copyright Law to the Requirements of the Information Society*, 29 INT'L REV. INDUS. PROP. & COPYRIGHT L. (IIC) 623 (1998). For a US perspective, see generally PAUL GOLDSTEIN, *COPYRIGHT'S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX* 163–185 (rev. ed. 2003), and LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 177–199 (Random House 2001).

⁷⁸ Wei, *supra* note 77, ¶ 3 (citing Council Directive 96/9, 1996 O.J. (L77) 20 (EC)). Article 3(1) of TRIPS, which requires member nations to give no less favourable rights to their nationals as to nationals in other member nations, applies to IPRs that are set out in Sections 1 through 7 of Part II of TRIPS. TRIPS, *supra* note 57, at 85, 87–98. There may be an argument that the new *sui generis* right is outside of Part II and therefore not subject to national treatment principles. It is possible that the reciprocity provisions may be challenged under TRIPS on the basis of a most favoured nation argument.

⁷⁹ See 78 PARL. DEB. H. (1st Sess.) (2004) (Sing.) (statement of Prof. S. Jayakumar).

⁸⁰ See 78 PARL. DEB. H. (1st Sess.) (2004) (Sing.) (statement of Zainudin Nordin) (stating that “copyright protection has to keep up with the fast paced developments of the IT sector. . . . The proposed amendments are intended to keep [Singapore’s] Copyright Act relevant in the digital age.”).

formally apply for it.⁸¹ For a product that is invariably dynamic and relatively short lived, the long lead-in time to granting a patent—to say nothing of the disclosure requirements—is clearly unacceptable. Patent protection creates problems for an industry based on derivative innovation.⁸² Most programs will be “original,” but few will be “novel” and “inventive.”⁸³ It is therefore not surprising that many technological developments seek protection in copyright. Yet ironically, in granting copyright over functional software interfaces, the law may have inadvertently granted patent-like rights. As Stanley Lai observed, “[t]he inherent functionality of computer software advances a utilitarian *raison d’etre*, that to accord it broad copyright protection may permit patent-like monopolisation of valuable processes without satisfying the more demanding prerequisites of patent law.”⁸⁴

There has also been growing support for copyright

⁸¹ GURNSEY, *supra* note 51, at 111.

⁸² *Id.* That is not to say that patents are irrelevant. Computer programs may well be patentable as an invention so long as they meet certain additional standards such as having a “technical character.” EUROPEAN PATENT OFFICE, COMPUTER-IMPLEMENTED INVENTIONS AND PATENTS: LAW AND PRACTICE AT THE EUROPEAN PATENT OFFICE, http://cii.european-patent-office.org/_pdf/cii_brochure_en.pdf (last visited June 5, 2007). Other legal vehicles may also have a role to play in safeguarding computer programs. These include the law of confidential information and the law of contract. Ronald B. Standler, *What is Computer Law?* (1999), www.rbs2.com/cdefn.htm; Gary S. Morris, *Computer Security and the Law*, <http://csrc.nist.gov/publications/secpubs/csaw.txt> (last visited June 5, 2007). However, the focus is on the role played by copyright. See Standler, *supra*. Source codes, object codes in ROM chips and documentation are protected as literary works under Section 7A(1) of the Singapore Copyright Act. See Singapore Copyright Act, *supra* note 56.

⁸³ Both novelty and inventiveness are necessary for patent while originality is the only requirement for copyright. Singapore Patents Act, 2002, c. 221, §§ 13–15 (Singapore), available at <http://statutes.agc.gov.sg> (search for “Patent Act”) [hereinafter Singapore Patent Act]. There are other reasons why computer programs will likely meet the criteria for copyright but not patents. Unlike the work for patents, computer program work is kept secret, failing to activate competitive dynamics that come from diffusion of knowledge and challenging of validity. Second, there is no requirement of use or threat of revocation for non-use. See Singapore Patent Act, *supra*, § 80. Third, there is no obligation to grant licenses to authors of derivative works. See *id.* § 53. Fourth, copyright is not subject to exhaustion. See generally Eugene R. Quinn, Jr., *Exhaustion Doctrine*, <http://nys-stlc.syr.edu/lawlibrary/antitrust/exhaustion.aspx> (last visited June 5, 2007) (describing the exhaustion doctrine as the “control of downstream uses of products covered by an underlying piece of intellectual property protection.”).

⁸⁴ Lai, *supra* note 62, at 7. Similarly, the author observes that the British Software Directive “skirts perilously close to protecting ideas.” *Id.* at 14.

protection of databases. A recent report on scientific and technical databases describes their importance.⁸⁵ Because of new advances in technology databases, creators face greater competition due to the speed with which database contents can be replicated.⁸⁶

This results in a suboptimal level of investment in research and development that the law has attempted to address through stronger database protection. To the extent that the law protecting investment in databases increases their production, it serves to enhance society's problem-solving abilities through a comprehensive compilation of information. It also increases productivity, advances education and training, and facilitates the creation of a better informed citizenry through the ease of informational access.⁸⁷

Therefore, there still exists a need for database rights in today's world; however, the scope of the rights to confer is the question.⁸⁸

In the decade since the EU adopted its Database Directive,⁸⁹

⁸⁵ COMM. FOR A STUDY ON PROMOTING ACCESS TO SCIENTIFIC AND TECHNICAL DATA FOR THE PUB. INTEREST, NAT'L RESEARCH COUNCIL, *A QUESTION OF BALANCE: PRIVATE RIGHTS AND THE PUBLIC INTEREST IN SCIENTIFIC AND TECHNICAL DATABASES* (1999), available at <http://www.nap.edu/books/0309068258/html/17.html> [hereinafter *A QUESTION OF BALANCE*]. The Report was based, in part, on a workshop held in Washington D.C. on January 14–15, 1999 in Washington D.C. See *Proceedings of the Workshop on Promoting Access to Scientific and Technical Data for the Public Interest: An Assessment of Policy Options*, available at http://books.nap.edu/html/proceedings_sci_tech. The committee noted "almost every aspect of the natural world, human activity, and indeed every life form can be observed and captured in an electronic database." *A QUESTION OF BALANCE*, *supra*, at 17. In terms of the economic effect of databases, "[t]here is barely a sector of the economy that is not significantly engaged in the creation and exploitation of digital databases, and there are many—such as insurance, banking, or direct marketing—that are completely database dependent." *Id.* "[F]rom 1975 through 2001 the number of database[s] has grown from 301 to 12,111 and the number of records has increased from 52 million to 16.86 billion. During the same period, the number of database producers has grown from 200 to 3879." Samuel E. Trosow, *Information for Society: Towards a Critical Theory of Intellectual Property Policy* 114 (2002) (unpublished thesis, University of California, Los Angeles), available at http://publish.uwo.ca/~strosow/Trosow_Dissertation.pdf (citing Martha E. Williams, *The State of Databases Today: 2001*, in *GALE DIRECTORY OF DATABASES* xx (2002)).

⁸⁶ Wei, *supra* note 77, ¶ 10.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ See Council Directive 96/9/EC, *The Legal Protection of Databases*, 1996 O.J. (L 77) 20, available at <http://europa.eu.int/ISPO/infosoc/legreg/docs/969ec.html>.

signatories to TRIPS have had strong cause to consider its implications on protection for functional works. In particular, the EU has extended protection to databases containing unoriginal content based solely on the investment of labor and resources by the creator.⁹⁰ The database right allowed the database owner to prevent extraction and reutilization of database content. In certain cases they may also prevent the systematic extraction and/or reutilization of insubstantial parts.⁹¹ The effect of acknowledging these rights is to virtually extend copyright protection to factual materials that had historically been denied copyright protection.⁹² The protection of databases and software has also found sanctuary in the World Intellectual Property Organization Copyright Treaty.⁹³ More recently, the U.S.-Singapore Free Trade Agreement (“USSFTA”) has provided for one of the highest levels of IP protection in the world.⁹⁴ In addition to obligations to promote anti-circumvention measures and transmission rights,⁹⁵ the USSFTA requires

⁹⁰ Wei, *supra* note 77, ¶ 3.

⁹¹ In particular, the database right prevented “extraction and reutilization of a whole or a substantial part, evaluated qualitatively and/or quantitatively, of the content of that database. In certain cases they may also prevent the systematic extraction and/or reutilization of insubstantial parts.” *See id.*

⁹² *Id.* *See also* Hassan A. Deveci, *Databases: Is Sui Generis a Stronger Bet Than Copyright?*, 12 INT’L J.L. & INFO. TECH. 178, 187–188 (2004) (describing pre- and post-*Feist* requirements of compilations of facts in order to be copyrightable).

⁹³ WIPO Copyright Treaty art. 4–5, Dec. 20, 1996, 112 Stat. 2860, 1991 O.J. (L 122) 42, available at http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html (stating in article 4 that “[c]omputer programs are protected as literary works within the meaning of Article 2 of the Berne Convention. Such protection applies to computer programs, whatever may be the mode or form of their expression,” and in article 5 that “[c]ompilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are protected as such. This protection does not extend to the data or the material itself and is without prejudice to any copyright subsisting in the data or material contained in the compilation.”).

⁹⁴ *See* INDUSTRY FUNCTIONAL ADVISORY COMMITTEE ON INTELLECTUAL PROPERTY RIGHTS FOR TRADE POLICY MATTERS, THE U.S.-SINGAPORE FREE TRADE AGREEMENT (FTA): THE INTELLECTUAL PROPERTY PROVISIONS 4 (2003), available at http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Singapore_FTA/Reports/asset_upload_file273_3234.pdf; *U.S.-Singapore Free Trade Agreement: Hearing Before the U.S. International Trade Commission* (2003) (statement of Eric H. Smith, President, International Intellectual Property Alliance), available at http://www.bilaterals.org/article.php3?id_article=483.

⁹⁵ *See* United States–Singapore Free Trade Agreement, U.S.–Sing., ch. 12, art. 16.4, § 7(a), May 6, 2003, 117 Stat. 948, available at http://www.ustr.gov/Trade_Agreements/Bilateral/Singapore_FTA/Section_Index.html (click “Final Text,” then click “Text of the Agreement”) [hereinafter

Singapore to extend the copyright term to TRIPS-plus levels of life plus 70 years.⁹⁶

It may be argued that if an imbalance has been caused by overbroad copyright, the solution lies with a more circumspect legislature, sensitive to calibrating copyright to produce optimal innovation. But there is a problem. The optimal amount of protection for innovation is unknown. At least some copyright protection is necessary to encourage innovation. Up to a point the trade-off is positive—that is, as protection increases, the marginal social gains from innovation are greater than the marginal losses from enforcement of exclusionary rights and the transaction costs of negotiating licenses. However, it is important to understand that the relationship between copyright protection and innovation is not monotonic.⁹⁷ Whatever the

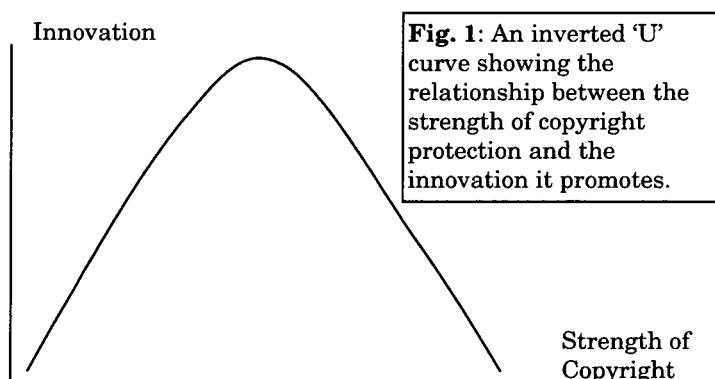
USSFTA]. In the EU, according to the Directive on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society (the “InfoSoc Directive”), even the reproduction by private individuals of a web page for non-commercial purposes will trigger a compulsory levy. See Council Directive 2001/29/EC, *supra* note 56, arts. 33–35. In this respect, the InfoSoc Directive would appear to be providing rights holders with an exclusive right to control access to information, i.e., the right to read, a sphere that copyright has never previously attempted to regulate.

⁹⁶ USSFTA, *supra* note 95, art. 16.4, § 4. At its inception in 1710, the British Statute of Anne conferred copyright protection to the author for 21 years from first publication; but if the book was already written but not yet published, a protection of 14 years would be given. British Copyright Act, 1710, 8 Ann., c. 19, §§ 1–2, available at <http://www.copyrighthistory.com/anne.html>. In 1814, the term of statutory right was extended to 28 years or the author’s life, whichever was longer. T. Gallagher, *Copyright, Compulsory Licensing and Incentives*, 11 n.41 (Oxford Intellectual Property Research Center, Working Paper No. 2, 2001), available at <http://www.oiprc.ox.ac.uk/EJWP0201.pdf>. The Berne Convention requirement of life plus 50 years was mirrored in the requirements in TRIPS. Berne Convention for the Protection of Literary and Artistic Works art. 7(1), July 24, 1971, 25 U.S.T. 1341, available at http://www.wipo.int/treaties/en/ip/berne/trtdocs_wo001.html#P138_25087; World Trade Organization, TRIPS: A More Detailed Overview of the TRIPS Agreement, http://www.wto.org/english/tratop_e/trips_e/intel2_e.htm (last visited June 5, 2007).

⁹⁷ A failure to acknowledge this limit is one of the flaws in R. Polk Wagner’s recent argument that there is no reason to worry about ever-increasing control over intellectual property. See R. Polk Wagner, *Information Wants to Be Free: Intellectual Property and the Mythologies of Control*, 103 COLUM. L. REV. 995, 997 (2003). Wagner argues that since control over intellectual property is imperfect, increasing intellectual property rights will encourage new creation that will have spillover benefits to the public. *Id.* at 997, 1005, 1022. While this is certainly true up to a point, beyond a certain level of control the costs of marginal increases in control outweigh any such benefits. See *id.* at 1011–12 (describing the diminishing marginal returns of additional copyright protections). Wagner simply assumes that point has not been reached. *Id.* at

merits of extending copyright protection to digital works, enhancing protection has diminishing marginal benefits, and at some point will cause a net negative impact on innovation, as the strengthening of existing rights stifles more new innovation which builds on those rights than that which further expansion encourages. Thus, as shown in Figure 1 below, the relationship between the two resembles an inverted “U”.

It has been noted that “there are extremely few empirical studies made on the [proper scope] of copyright.”⁹⁸ The Society for Economic Research on Copyright Issues (“SERCI”) is an important institutional step in the right direction, but more is required.⁹⁹ Copyright markets have evolved into an area with complex sector-specific considerations. Copyright may not merely pose a legal barrier to market entry to the market.¹⁰⁰ It



may also reinforce structural barriers caused by the market itself.¹⁰¹ In copyright industries, a popular theory is that network

1012. It is submitted that there is substantial evidence to the contrary.

⁹⁸ ESTELLE DERCLAYE, AN ECONOMIC APPROACH TO WHAT THE CONDITIONS OF ABUSE OF A DOMINANT POSITION OF COPYRIGHT SHOULD BE 4, 18 (2003), www.serci.org/2003/derclaye.pdf.

⁹⁹ *Id.* at 4. See, e.g., IVAN PNG, COPYRIGHT: A PLEA FOR EMPIRICAL RESEARCH 2 (2006), available at <http://www.serci.org/documents.html> (noting that “there has been a substantial volume of theoretical research into copyright. This has pointed to many empirical issues surrounding the fundamental trade-off. However, there has been relatively little empirical research, hence major questions remain open.”).

¹⁰⁰ *Id.* at 6, 8–9, 18, 24.

¹⁰¹ See *id.* at 3–4 (explaining how intangible items can cause the market to fail).

effects form a key barrier.¹⁰²

B. Copyright and Network Effects

Network effects are found in both database and software markets.¹⁰³ However, thus far successful allegations that they are an anticompetitive barrier to entry have been limited to the latter. As an illustration, in the US *Microsoft* cases, a critical issue was whether Microsoft was able to perpetuate its market power by taking advantage of its “applications barrier to entry.”¹⁰⁴ With over 90% of the Operating System (“OS”) market,¹⁰⁵ Microsoft had an installed base, encouraging software vendors to write compatible programs for its Windows OS.¹⁰⁶ This installed base made it difficult for rival OS software providers to enter.¹⁰⁷ Few programmers would invest time and money developing applications for OS that do not have a large installed base because demand for such applications is low, making rival OS unattractive.¹⁰⁸ Simultaneously, Windows OS users are unlikely to switch to other systems, because Windows allows them to choose from among a much larger number of compatible applications.¹⁰⁹ Consumers are also reluctant to switch to new networks because of investments in hardware and time spent learning a system.¹¹⁰ Brand name recognition and the consumer confidence it inspires may be even more powerful barriers preventing entry in information platform industries where consumers rely heavily on suppliers for continuing support.

¹⁰² See Wagner, *supra* note 97, at 1014.

¹⁰³ See, e.g., Case C-418/01, *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, 2004 E.C.R. I-5039, available at <http://curia.eu.int/en/content/juris/index.htm> (database); *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) (software).

¹⁰⁴ *Microsoft Corp.*, *supra* note 103, at 27.

¹⁰⁵ See *id.* at 19 (“Every year for the last decade, Microsoft’s share of the market for Intel-compatible PC operating systems has stood above ninety percent.”).

¹⁰⁶ See *id.* at 19–20.

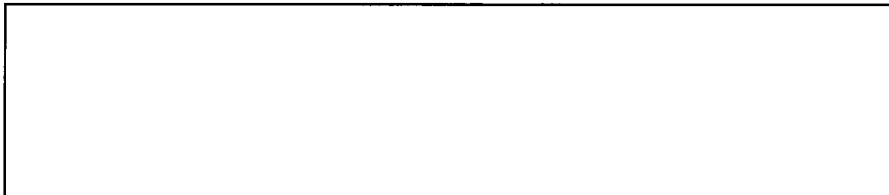
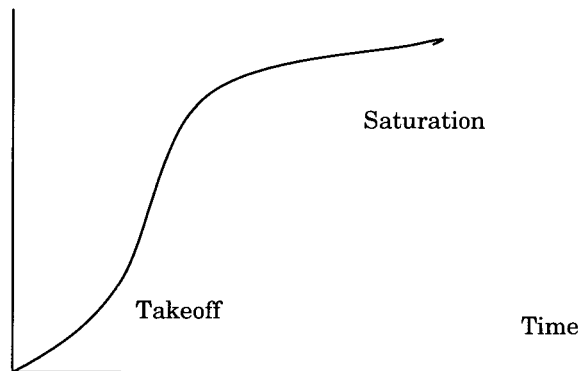
¹⁰⁷ See *id.* at 22 (describing IBM’s inability to gain support for its OS/2 Warp operating system because of Microsoft’s market dominance).

¹⁰⁸ *Id.* at 20.

¹⁰⁹ *Id.* See also David J. Teece & Mary Coleman, *The Meaning of Monopoly: Antitrust Analysis in High-Technology Industries*, 43 ANTITRUST BULL. 801, 814 (1998) (“[T]he more users of a given [computer operating] platform, the more complementary goods that will likely be supplied to that platform. This will lower the cost or increase the value of the platform.”).

¹¹⁰ *Microsoft*, 84 F. Supp. 2d at 15.

The result is a “positive feedback” process in which more and more applications are written for Windows.¹¹¹ Thus network effects exert a strong influence on software developers’ and consumers’ choices.¹¹² As Figure 2 shows, once network saturation occurs, consumers are likely to remain with an established network because of the costs they have incurred in adapting to the network, and costs involved in switching to another one.¹¹³ These “switching costs” thus create substantial barriers to entry in digital markets.¹¹⁴ Because the “switching costs” for consumers in network markets are so high, they become “locked in” to Microsoft’s network.¹¹⁵



¹¹¹ *Id.* at 20.

¹¹² *Id.* As pointed out in a decision by a Commission of the European Communities’ decision, “[t]he exploitation of those network effects with a view of leveraging [Microsoft’s] quasi-monopoly . . . is at the root of the identified abuse of refusal to supply” Commission Decision (EC) in Case COMP/C-3/37.792/EC of 24 Mar. 2004, ¶ 533, available at <http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/en.pdf>.

¹¹³ Teece & Coleman, *supra* note 109, at 828–29. These include the compatible software foregone, the interoperability with users of that network and time involved in learning that platform in the first place. *Id.*

¹¹⁴ *See id.*

¹¹⁵ John E. Lopatka & William H. Page, *Antitrust on Internet Time: Microsoft and the Law and Economics of Exclusion*, 7 SUP. CT. ECON. REV. 157, 170 (1999) (“Software vendors tend to write applications for the most popular operating system. The greater availability of applications in turn induces new users to

Simultaneously, consumers' demand for one compatible technical standard leads network markets to move from the joint existence of two or more incompatible products to coalesce around a single standard.¹¹⁶ Hence, once copyrighted, the digital content gains enough acceptance to be perceived by most consumers as the ultimate technological winner, the market "tips," and consumers migrate to that standard *en masse*.¹¹⁷

Early users of a particular network often join in anticipation of other users hopping on the bandwagon later.¹¹⁸ This is seen in Figure 3 below.

choose that operating system. The market thus tips in favor of a single standard, to which the industry is locked in.”)

¹¹⁶ See David Balto & Robert Pitofsky, *Antitrust and High-Tech Industries: The New Challenge*, 43 ANTITRUST BULL. 583, 604 (1998) (“In industries characterized by networks, even monopoly is seen by some observers as inevitable and merely an accommodation to consumer demand for a compatible technical standard.”); Daniel L. Rubinfeld, Deputy Attorney Gen., Antitrust Div., U.S. Dep’t of Justice, Competition, Innovation and Antitrust Enforcement in Dynamic Network Industries, Address at the Software Publishers Association Spring Symposium (Mar. 24, 1998), available at <http://www.usdoj.gov/atr/public/speeches/1611.htm> (“With consumer preferences for uniformity in products and compatibility in complementary products, dominant firms operating with a single standard are likely to develop in dynamic network industries.”); Steve Lohr, *Open Windows: The New Math of Monopoly*, N.Y. TIMES, Apr. 9, 2000, at 41 (“[Network markets] tend to naturally evolve toward one or two dominant companies (think Cisco in routers for Internet data or eBay in online auctions”). They control the technology standards in their markets.”).

¹¹⁷ See Mark A. Lemley & David McGowan, *Could Java Change Everything? The Competitive Propriety of a Proprietary Standard*, 43 ANTITRUST BULL. 715, 721 (1998) (“[O]nce consumers perceive that a de facto standard has been established, tipping will occur very quickly.”).

¹¹⁸ Sheremata, *supra* note 71, at 958. Controversial examples of tipping include VHS versus Beta videocassette formats and QWERTY and Dvorak keyboard layouts. *Id.*; STAN J. LIEBOWITZ & STEPHEN E. MARGOLIS, *THE ECONOMICS OF QWERTY: HISTORY, THEORY, AND POLICY* 45 (2002).

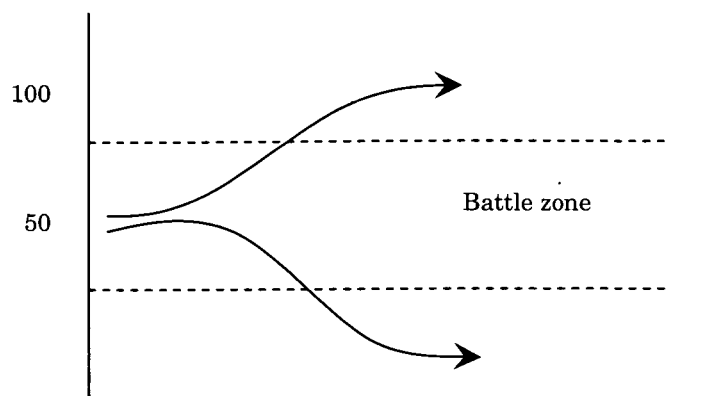


Fig 3: Positive feedback leading to market tipping;
Source: CARL SHAPIRO & HAL R. VARIAN,
INFORMATION RULES 177 (MIT Press 1999).

Tipping can occur rapidly because of network effects.¹¹⁹ Consumers become “locked in” to the product because of switching costs associated with moving from one network to another.¹²⁰ The net result is that the product technology standard that is adopted can mean that inferior products continue to dominate production decisions and consumer purchases.¹²¹ Even if a new entrant promises a less expensive or technically superior product, users of the current network may not be willing to run the risk of losing their investments in that network.¹²² This consequence is sometimes referred to as “path dependency.”¹²³

Courts and competition authorities adopting dynamic efficiency goals strive to provide the means for alternative products to be offered through mandating access to market standards protected

¹¹⁹ KEVIN KELLY, *NEW RULES FOR THE NEW ECONOMY: 10 RADICAL STRATEGIES FOR A CONNECTED WORLD* 34 (Viking 1998); *see also* ILKKA RAHNASTO, *INTELLECTUAL PROPERTY RIGHTS, EXTERNAL EFFECTS AND ANTI-TRUST LAW: LEVERAGING IPRs IN THE COMMUNICATIONS INDUSTRY* 183–84 (Oxford Univ. Press 2003).

¹²⁰ KELLY, *supra* note 119, at 124.

¹²¹ Lemley & McGowan, *supra* note 117, at 723–24.

¹²² KELLY, *supra* note 119, at 124.

¹²³ RICHARD A. POSNER, *ANTITRUST LAW* 250 (2d ed. 2001) (“This is the issue of ‘path dependence’: an industry may be stuck with an inferior technology because of the cost advantage of the existing network.”).

by copyright in order to ensure that the dynamic welfare gains promised by sacrificing static efficiencies are obtained.¹²⁴ There is no guarantee that the superior platform would win, given the incumbent's first mover advantages and its likelihood for aggressive competitiveness. Once the market has tipped it may be difficult or even undesirable to undo any anticompetitive effects that have arisen.

The prospect that a single firm, controlling a key input, can protect a dominant position, or extend its dominance into new areas, raises a number of anticompetitive concerns. Copyright in functional works may persist beyond its useful economic life because copyright monopolies possess inherent natural advantages that make them "difficult to dislodge."¹²⁵ When the copyright owner is well entrenched, it may not feel compelled to continue to pursue efficiencies,¹²⁶ and is more likely to engage in harmful monopolistic conduct, including raising prices, impeding innovation and reducing output.¹²⁷ Tipping may encourage exploitation of locked-in consumers or fail to innovate and yet stifle future innovation by preventing switching to better alternative technologies.¹²⁸ Even if the industry structure ultimately relies on a single standard, competition policy should still allow rival standards to battle it out in the marketplace. Even if it were true that successful copyright owners are often aggressive in price and innovation, competition is still necessary, if only because it is likely that consumers would be better off with several aggressive companies, rather than a single

¹²⁴ See generally RAHNASTO, *supra* note 119, at 185–99.

¹²⁵ FEDERAL TRADE COMMISSION, ENTERING THE 21ST CENTURY: COMPETITION POLICY IN THE WORLD OF B2B ELECTRONIC MARKETPLACES, Part 3 at 29 (2000), <http://www.ftc.gov/os/2000/10/b2breport.pdf> (“[O]nce a marketplace monopoly is attained, it may be very difficult to dislodge.”).

¹²⁶ *United States v. VISA U.S.A., Inc.*, 163 F. Supp. 2d 322, 342 (S.D.N.Y. 2001) (“The higher the barriers to entry, and the longer the lags before new entry, the less likely it is that potential entrants would be able to enter the market in a timely, likely, and sufficient scale to deter or counteract any anticompetitive restraints. Where barriers to entry are high, . . . a monopolist would find it easier to raise prices because it would be unlikely that a competitor would, or could, enter the market.”) (citations and internal quotations omitted). Editorial, *Beltway on Top*, WALL ST. J., June 9, 2000, at A18 (“The only incentive to produce anything is the possession of temporary monopoly power . . .”).

¹²⁷ See *VISA U.S.A., Inc.*, 163 F. Supp. 2d at 340 (describing some of the monopolistic conduct Visa engaged in).

¹²⁸ RAHNASTO, *supra* note 119, at 183–85.

dominant firm.¹²⁹ Moreover, in addition to maintaining the possibility of competition on quality, rival standards also hedge against the risk that the owner's standard proves fundamentally flawed.

Therefore, the feasibility of challenging an existing network monopolist becomes critical. Courts and CEOs act to prevent consumers from being "locked in."¹³⁰ Rivals have to duplicate the network to enter the market, significantly increasing entry costs.¹³¹ Competition law prevents the copyright owner from exploiting bottlenecks through mandating access to interface information.¹³² Similarly, competition law may also intervene *ex ante* to prevent premature tipping to a possibly inefficient standard.¹³³ Given the seemingly awesome market power at the copyright owner's disposal, there seems little reason why competition, *ex ante* or *ex post* tipping, should not be promoted by requiring access to the owner's copyrighted works.

C. Copyright as a Block to Innovation

Copyright in functional work exists primarily for the functions they perform and not because of any elegance in expression. The consumer is not concerned with the computer coding that make up his program, only whether it works efficiently, effectively and in a user-friendly manner.¹³⁴ Similarly, a database is only as good as the veracity of its contents. Two important consequences follow the mutation of copyright in functional works. The first is that copyrighted works become non-substitutable and therefore an "essential" competitive input.¹³⁵ A second related outcome is that as technological innovation becomes more dependent on prior work, as well as current developments, strong copyright in

¹²⁹ Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, republished in *ESSAYS IN THE THEORY OF RISK BEARING* 144, 156–60 (Markham Publishing Co. 1971).

¹³⁰ See, e.g., *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 15 (D.D.C. 1999).

¹³¹ RAHNASTO, *supra* note 119, at 31.

¹³² *Id.* at 188–89.

¹³³ *Id.* at 182.

¹³⁴ See Software & Systems Engineering Standards Committee, Institute of Electrical and Electronics Engineers, SP-01 User Expectations, available at http://standards.computer.org/sesc/s2esc_pols/SP-01_User_Expectations.htm (last visited June 5, 2007) (describing expectations of software purchasers and users).

¹³⁵ See BENTLY & SHERMAN, *supra* note 48, at 64.

functional works may retard the innovation process.¹³⁶

1. Non-Substitutability of Functional Content

In the beginning, copyright protection extended to the expression of creative intellectual content and not the content itself.¹³⁷ Copyright was thus an alienable and temporary right to economically exploit expression in creative works that, upon expiry of the legal term of protection, falls into the public domain.¹³⁸ It was also comprised of an inalienable moral right to claim authorship and object to any derogation of his work in a manner that would be prejudicial to his honor or reputation.¹³⁹ While copyright created a legal monopoly, it did not necessarily create an economic monopoly unless the scope of the copyright is co-extensive with the scope of the relevant market. Because of the exceptions and limitations built into copyright law, there are normally substitutes.¹⁴⁰

¹³⁶ *Id.* at 265.

¹³⁷ See TRIPS, *supra* note 57, art. 9(2) (“Copyright protection shall extend to expressions and not to ideas . . .”). Thus, objective justification afforded by copyright must only be valid to the extent that the third parties’ use in fact infringes on copyright. See *id.* In the US, copyright is firmly grounded with the aim of favoring the general public interest, as demonstrated in the US Constitution. U.S. CONST. art. 1, § 8, cl. 8 (“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”). Copyright does not extend to ideas, facts, functional elements, scenes a faire, or unoriginal portions of a work. 17 U.S.C. § 102(b) (2000); *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 356 (1991).

Conversely, in the [United Kingdom] and therefore most Commonwealth countries, where copyright is based on the protection of investment and not really on the promotion of science and the arts . . . and especially where a law of unfair competition is [non]existent, therefore creating a lack of protection, copyright’s provisions are generally relatively protective (see e.g. low originality requirement (skill, judgement and labour), unclear recognition of the idea/expression dichotomy . . . fair dealing less broad than the US fair use). Finally, in civil law countries, whose copyright laws are based on natural law and the sacrosanct notion of author and ‘the work of his/her mind’, copyright protection is generally the strongest (except for the relatively high requirement of originality, rights are broad and exceptions are generally numerous but very narrow).

Derclaye, AN ECONOMIC APPROACH, *supra* note 98, at 22–23.

¹³⁸ Berne Convention, *supra* note 96, arts. 9(1), 18(2).

¹³⁹ *Id.* at 6bis(1).

¹⁴⁰ Hence, the inordinate successes of Dan Brown’s book, *The Da Vinci Code*, was not dampened by the infringement suit brought against it by the authors of *Holy Blood Holy Grail*, an earlier book allegedly encapsulating the same ideas, since the copyright for their book did not prevent other similar and competing books from entering and remaining in the market. See *Baigent v. The Random*

However, copyright is a pliable tool, shaped by firms with an eye toward disadvantaging competitors through raising entry barriers. The easy manner in which copyright arises over functional works makes it possible for firms to get copyrights over arbitrary but non-substitutable interfaces or raw information generated by the owner.¹⁴¹ This extension raises a danger that database owners may impede the use of information in derivative markets or by rivals in the same market to produce competing products, since they may be conferred a *de facto* monopoly on the information. An example of this is the seminal EU case of *Radio Telefis Eireann v. Commission of the European Communities* (“*Magill*”).¹⁴² In *Magill*, three TV stations were dominant over the listings of their own programs and enjoyed copyright protection.¹⁴³ When *Magill* started to publish comprehensive weekly listings for all three stations, each TV station successfully sued for copyright infringement.¹⁴⁴ The stations had never supplied the information to other companies before.¹⁴⁵ Yet the European Court of Justice (“ECJ”) found that this amounted to an abuse of a dominant position over the program information.¹⁴⁶ This was because each TV station enjoyed a *de facto* monopoly over the lists of its own programs, and it was the only source of information that was essential to *Magill*.¹⁴⁷ This prevented the appearance of a “new product” that the TV stations did not offer, and gave rise to “exceptional

House Group Ltd., No. HC04C03092, 2006 WL 1020604, [2006] EWHC 719 (Ch) (Eng.). The judge noted that even if the literary themes were copied they were “too general or of too low a level of abstraction to be capable of protection by copyright law.” *The Davinci Code: Case Summary*, BOULT WADE TENNANT BULLETIN, May 2006, available at <http://www.boult.com/information/BulletinDetails.cfm?BulletinID=117>; *Baigent*, 2006 WL 1020604, ¶ 245.

¹⁴¹ See *infra* Part II.A.

¹⁴² Case C 241-242/91P, *Radio Telefis Eireann v. Comm’n (Magill)*, 1995 E.C.R. I-743, 4 C.M.L.R. 718, 789, 790 (1995) (EC).

¹⁴³ *Id.* at 726–27.

¹⁴⁴ *Id.* at 727.

¹⁴⁵ *Id.* at 782.

¹⁴⁶ *Id.* at 785–86. In an earlier case, the ECJ intriguingly reached an opposite conclusion: the refusal to supply to eliminate competition was not an abuse, as the right to restrain third parties from exploiting the design for front wing Volvo car panels “constitutes the very subject-matter of his exclusive right.” Case 238/87, *AB Volvo v. Erik Veng (UK) Ltd.*, 1988 E.C.R. 6211, ¶. 8. In that case, the ECJ opined that arbitrary refusal to supply, price fixing or ceasing production for goods where there was still a potential consumer demand may amount to abuse. *Id.* ¶ 9.

¹⁴⁷ *Magill*, 4 C.M.L.R. at 789–90.

circumstances” that warranted mandatory access to the stations’ copyrighted content.¹⁴⁸

The sole source problem is a very real one. When a database is truly a sole source database, then fact and expression of fact are one and the same. Database users need to interact freely with and transform databases in the course of their research. Database rights would potentially disrupt this pattern of usage.¹⁴⁹ Researchers do not simply face increased costs, a problem that may be ameliorated through increased funding. It has been argued that the real problem is much deeper, going to the ability to actually use the database to its highest potential, that is, in an interactive and transformative manner.¹⁵⁰ The user is reduced to a mere consumer of a product that may be accessed and read only on a pay-per basis. The former ability to reutilize the data, combine it with other data, and store it for later use is lost. This entrenches established dominant firms.¹⁵¹

Similar concerns exist in software industries. A product dominating a software market may not always reflect greater efficiency or quality; its dominance may simply be due to random circumstances and sometimes to shrewd marketing and advertising options that can hardly be associated with meritorious competition.¹⁵² The copyright owner can choose to

¹⁴⁸ *Id.* at 790. The ECJ’s judgment was extremely vague. The precise scope of “exceptional circumstances” remains unknown even to this day. Whether this was because of a shrewd desire to preserve wiggle room to refine the conditions for access or otherwise will remain for all time is a matter for academic speculation.

¹⁴⁹ See Samuel E. Trosow, *Sui Generis Database Legislation: A Critical Analysis*, 7 YALE J.L. & TECH. 534, 631 (2005) (“Characterizing a measure as a Misappropriations Act with a broad ‘making available in commerce’ right neither changes this dynamic nor mitigates the interference with the transformative uses of databases.”).

¹⁵⁰ See Bernt Hugenholtz, *Abuse of Database Right Sole-Source Information Banks Under the EU Database Directive*, Paper presented at Antitrust, Patent and Copyright Conference, Jan. 15–16, 2004, available at <http://www.ivir.nl/publications/hugenholtz/abuseofdatabase.html> (describing changing and manipulating data within a protected database may or may not allow protection for the newly reformatted information).

¹⁵¹ Trosow, *supra* note 149, at 630 (noting that “even if a monopoly position were only temporary, the results would be significant, as the rapid pace of scientific research in industries [requiring a common pool of information] would nonetheless be slowed.”).

¹⁵² Rudolph J.R. Peritz, *Dynamic Efficiency and US Antitrust Policy*, in POST-CHICAGO DEVELOPMENTS IN ANTITRUST LAW 108, 119, 122 (Antonio Cucinotta et al. eds., 2002).

design an arbitrary standard and make it extraordinarily expensive to duplicate. The incumbent chooses a set of permutations at no cost, but an entrant will face high costs if it must independently recreate the code.

In February 1998, Sun Microsystems lodged a complaint before the European Competition Commission accusing Microsoft of breaching competition rules by denying access to essential information on its Windows Personal Computer Operating System ("PCOS").¹⁵³ After a gestation period of 5 years, *Microsoft v. Commission* ("*Microsoft (EU)*") was born.¹⁵⁴ The Commission found that Microsoft had disrupted previous patterns of cooperation when full interface information had been made available.¹⁵⁵ The result was that buying a workgroup server equipped with a non-Microsoft OS meant lower network performance because desktops were equipped with Windows.¹⁵⁶ Developers of complementary software for servers expected Microsoft's WGSOS to win and ported their applications for it.¹⁵⁷ Customers in turn bought Microsoft's WGSOS because more applications were available, tipping the market in favour of Microsoft's WGSOS.¹⁵⁸

¹⁵³ Commission Decision, *supra* note 112, § 2.1.

¹⁵⁴ *EU's Statement on End of Microsoft Investigation*, CNET NEWS.COM, Mar. 24, 2004, http://m.news.com/EUs+statement+on+end+of+Microsoft+investigation/2163-1014_3-5178465.html.

¹⁵⁵ See Commission Decision, *supra* note 112, § 6.2.1.1.1. The Commission also found that Microsoft had abused its dominant position by tying Windows Media Player to Windows OS. See KORAH, *supra* note 35, at 156–57. "When Microsoft first entered the [Work Group Server Operating System ("WGSOS")] market . . . [i]ts software for servers was then inferior to that of its competitors." KORAH, *supra* note 35, at 156. At this point, "it supplied full interface information" (protected by various IPRs, including copyright) to enable competitors' servers to work well with its Windows WGSOS and PCOS. *Id.* This enabled Microsoft to sell more Windows OS licenses, thereby increasing its value. *Id.* It in turn created direct and indirect network effects bolstering Microsoft's market power in its client PCOS as more people used its WGSOS. See *id.* Once Microsoft had gained sufficient market share, it diminished its level of disclosure in the workgroup server market, making rival products less able to take advantage of the PCOS functions compared to its own workgroup OS. *Id.*; see also *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 19, 33 (D.D.C. 1999).

¹⁵⁶ See *Microsoft*, 84 F. Supp. 2d at 14–15.

¹⁵⁷ See *id.* at 20.

¹⁵⁸ KORAH, *supra* note 35, at 152. According to the Commission, neither reverse engineering, nor open industry standards, nor the access ensured by the communication licensing program created in the US are alternative ways for Microsoft competitors to achieve interoperability of their products. Commission Decision, *supra* note 112, at 5.3.1.2.3.1, .3, .4. In addition, the Commission

As a “superdominant” undertaking,¹⁵⁹ Microsoft was therefore using its market power to exclude competition and destroying the incentive for competitors to innovate. “In the past, [competitors in the WGSOS market] had introduced new features” to meet consumer demand.¹⁶⁰ However, if they now did not have interface protocols for Windows, there was no point in investing in innovation that they could not use, but could only sell to Microsoft for it to meet that demand.¹⁶¹ Further, withholding interface information needed to design competing programs locked consumers into Microsoft’s server market, with the result of perpetuating an inefficient standard.¹⁶²

In an interim hearing, the Court of First Instance (“CFI”) upheld the Commission’s fine of nearly €500 million, the largest ever imposed on a single firm.¹⁶³ However, what was perhaps more devastating was the affirmation of the order for Microsoft to disclose interface information on reasonable and non-discriminatory terms to competitors to enable the WGSOS of rivals to achieve full interoperability with Microsoft’s PCOS.¹⁶⁴ This order covered past, present and future Microsoft products without any time limitation.¹⁶⁵ This means that Microsoft must continually update this information as it brings to market new versions of its products. This remedy has been criticised as “extraordinary,” both in terms of the significant loss in the strategic value of its copyright and in the fact that competition authorities are involved in determining how much a company

pointed out that Microsoft ultimately could upgrade its operating system so as to destroy the compatibility achieved by its rivals through their reverse engineering efforts. *Id.* at 5.3.1.2.3.3.

¹⁵⁹ See *Microsoft*, 84 F. Supp. 2d at 19 (explaining that Microsoft, with its market shares of over 90 per cent, occupies almost the whole market; it therefore approaches a position of complete monopoly, and can be said to hold an overwhelmingly dominant position).

¹⁶⁰ KORAH, *supra* note 35, at 155.

¹⁶¹ See *Microsoft*, 84 F. Supp. 2d at 28 (arguing that multiple actions taken by Microsoft could only be explained as an attempt to protect its monopoly power).

¹⁶² *Microsoft*, 84 F. Supp. 2d at 33–34. It should be recognized from the onset that in the Commission’s own case against Microsoft, the Commission took great care in preparing its case, even subjecting the file to peer-review. KORAH, *supra* note 35, at 166.

¹⁶³ Case T-201/04 R, *Microsoft v. Commission*, 2004 E.C.R. II-2977, ¶¶ 26, 478 (EC), available at <http://curia.eu.int/en/content/juris/index.htm>.

¹⁶⁴ *Id.* ¶¶ 27–30.

¹⁶⁵ *Id.* ¶ 28.

should supply.¹⁶⁶ The appeal was heard on April 24–26, and Microsoft's request to suspend the sanctions was dismissed.¹⁶⁷

The dominant copyright owner may have no incentive to charge downstream customers the monopoly price for access. Indeed, it has to charge the competitive price in the secondary market to avoid the problem of double marginalization.¹⁶⁸ A rational owner would simply prefer to refuse access and earn monopoly profits in a primary market rather than opening competition in a secondary market. Closing competition in the secondary market further allows it an important advantage. It can control rate and direction of innovation. This strategic holdup is especially effective in industries with cumulative innovation.¹⁶⁹ Empirical evidence exists that suggests that firms are creating intellectual property portfolios mainly for the purposes of opportunistic behavior.¹⁷⁰ Firms thus use copyright as market locks to create entry barriers and raise switching costs.¹⁷¹

¹⁶⁶ See Ian S. Forrester, *Article 82: Remedies in Search of Theories?*, 28 FORDHAM INT'L L.J. 919, 931 (2005) (distinguishing *Microsoft* from *Syfait v. GlaxoSmithKline* (GSK) in that it "represents the most expansive inroad of EC competition law enforcement into the protection of [IPRs] in Community legal history."). Under *Syfait*, "GSK, a pharmaceutical company, is 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." *Id.* at 927.

¹⁶⁷ Microsoft, Legal Update, <http://www.microsoft.com/freedomtoinnovate/legalissues/default.aspx> (last visited June 5, 2007). This parallels proceedings in the US, where the US Department of Justice asserted that Microsoft's conduct reduced the incentives of competitors and potential competitors to undertake research and development because "they know that Microsoft will be able to limit the rewards from any resulting innovation." Complaint ¶ 37, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. 1998), available at <http://www.usdoj.gov/atr/cases/f1700/1763.htm>.

¹⁶⁸ Richard Scheelings & Joshua D. Wright, '*Sui Generis*': An Antitrust Analysis of Buyer Power in the United States and European Union, 39 AKRON L. REV. 207, 213–14 (2006) (stating that the double-marginalization problem occurs when two monopolists own complementary inputs, and each price at the monopoly level; the resulting systems price is inefficiently high).

¹⁶⁹ Langlois, *supra* note 22, at 26–27.

¹⁷⁰ Bronwyn H. Hall & Marie Ham, *Patent Paradox Revisited: Determinants of Patenting in the US Semiconductor Industry, 1980–94*, at 4, 13–14 (Univ. of Cal., Berkeley, Competition Policy Ctr. Working Paper No. CPC99-05, 1999), available at <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1021&context=iber/cpc>.

¹⁷¹ See *id.* at 7.

2. Block to Cumulative Innovation

It has been noted that, traditionally, “the innovation process proceeds in . . . linear and [sequential stages], from research to development, design, production, and then finally to marketing, sales, and service.”¹⁷² This is illustrated in Figure 4 below. In this serial model of innovation, little incremental innovation follows the initial breakthrough. There is no feedback or overlap between and among stages.¹⁷³ In the copyright context, the owner of copyright on a book may be able to control whether it should be adapted

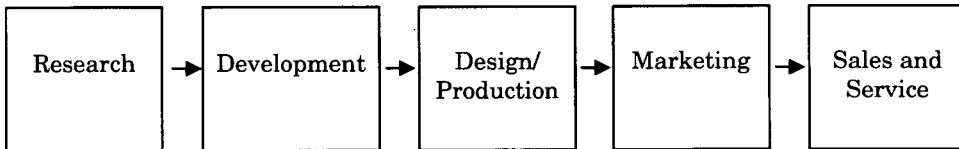


Fig. 4: A traditional value chain, where innovation is linear.

into a movie. However, once the movie is made, it may not control how its soundtrack or visual effects should be produced, or control its merchandising.

However, this model does not address the innovation processes at the heart of technological change in software digital markets and some database markets as well.¹⁷⁴ In these markets, the innovation process is radical and involves significant vertical and horizontal interdependencies, with tight linkages and feedback among and between the various stages.¹⁷⁵ Ideas flow freely within firms in the same industry, simultaneously creating

¹⁷² ANTITRUST, INNOVATION, AND COMPETITIVENESS 48 (Thomas M. Jorde & David J. Teece eds., 1992) (citing JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 389 (MIT Press 1988)).

¹⁷³ This is unlike the model of simultaneous innovation discussed below. See *infra* Part II.C.2.

¹⁷⁴ For a detailed and insightful discussion of how costs affect market structure in “traditional” and R&D intensive industries, see JOHN SUTTON, *SUNK COSTS AND MARKET STRUCTURE: PRICE COMPETITION, ADVERTISING, AND THE EVOLUTION OF CONCENTRATION* (MIT Press 1991).

¹⁷⁵ See ANTITRUST, INNOVATION, AND COMPETITIVENESS, *supra* note 172, at 49.

ripples of innovation in firms of associated industries.¹⁷⁶ This promotes cumulative innovation capacity.¹⁷⁷ Innovation takes place simultaneously at each level, as seen in Figure 5 below. For example, software products increasingly combine elements from previous solutions.¹⁷⁸ Where copyright is granted to interdependent functional interfaces, their owners will not merely be able to exert control on their independent production process, as was the case with the linear model of innovation.¹⁷⁹

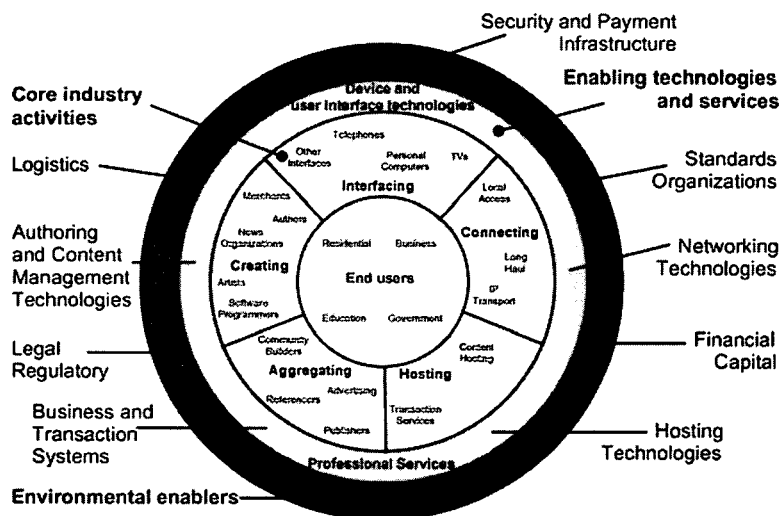


Fig. 5: A Network-Based Value Chain showing simultaneous innovation. RAHNASTO, *supra* note 119.

Instead, it will have control over the development of complements and substitutes that require access to interface with the standard. Further, with this model of simultaneous innovation, the quickest copyright owner will control the

¹⁷⁶ See J. H. Reichman & Paul F. Uhlir, *A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment*, 66 LAW & CONTEMP. PROBS. 315, 345, 353 (2003).

¹⁷⁷ See *id.*

¹⁷⁸ *Id.*

¹⁷⁹ See J.-G. Castel & C.M. Gastle, *Deep Economic Integration Between Canada and the United States, the Emergence of Strategic Innovation Policy and the Need for Trade Law Reform*, 7 MINN. J. GLOBAL TRADE 1, 32 (1998).

technological development dependent on its standard, even if its own initial contribution to the utilitarian balance was minimal.¹⁸⁰

It thus extracts the maximum value from pre-existing research while contributing little to future progress.

The substitutability of aesthetic works creates much less competition concerns than functional works. The latter limit substitutes to foster the competitive advantage under copyright law, and may therefore justify a competition-friendly regime.¹⁸¹ Further, these rights are given not merely to the authors but also to those involved “in the production and the diffusion” of the work.¹⁸² Copyright over functional works can therefore seriously impede innovation if it prevents the diffusion of knowledge and market entry by those seeking to provide derivative products or superior substitutes.

Innovation has become more complex, and depends on technological inputs from more actors. It is debatable whether society benefits most if it rewards initial innovation through broad copyright protection, or if it fosters successive innovation by requiring access to the copyright of the initial innovator. Copyright has grown into a thicket that leads to a protectionist barrier in favour of dominant enterprises. This threatens to balkanize the flow of knowledge in an age where industries move towards standardization. Standardization produces a range of compatible products.¹⁸³ However, where standardized technology perpetuates on the market, it attracts doubts that the standard may be suboptimal and access should be granted to allow competition for a new standard to emerge.¹⁸⁴ As Gustavo Ghidini argues:

[I]ntellectual protection over the standardized technology vests the IP-owner with an extremely far-reaching power: namely, the power to control the degree of competition (in the relevant market, as well as downstream related ones) throughout *the level of*

¹⁸⁰ See Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 *SCIENCE* 698, 698 (1998), available at <http://www.sciencemag.org/cgi/content/full/280/5364/698>.

¹⁸¹ See GUSTAVO GHIDINI, *INTELLECTUAL PROPERTY AND COMPETITION LAW* 61–62 (Edward Elgar 2006).

¹⁸² *Id.* at 58.

¹⁸³ Gary R. Ignatin, Comment, *Let the Hackers Hack: Allowing the Reverse Engineering of Copyrighted Computer Programs to Achieve Compatibility*, 140 *U. PA. L. REV.* 1999, 2024–25 (1992).

¹⁸⁴ See GHIDINI, *supra* note 181, at 104 (arguing that economic analysis has identified the risk of adverse impacts of standardization on competition and consumer welfare as well as the dynamics of innovation).

interoperability she is willing—if willing—to grant.¹⁸⁵

In essence, the copyright owner today not only has a state sanctioned right over the competitive process, but also the rate of innovation.¹⁸⁶ After all, the corollary of the copyright owner receiving greater control over its content is the ability to restrict the access of third parties to it.¹⁸⁷ Compelling arguments have been made that any imbalance should be corrected by endogenous changes rather than shifting the balance through an application of competition law.¹⁸⁸ As Michael Katz puts it:

Even if one concludes that someone should engage in fine-tuning intellectual property rights to reflect competitive conditions or other market characteristics, that someone need not be a competition policy authority. Present antitrust laws and enforcement institutions have not been created with this role in mind. Moreover, coordination with the [U.S.] Patent and Trademark Office [(“PTO”)] is essential to implementation of a sound overall policy. Absent legislation, using antitrust policy to fine tune intellectual property laws would very likely create more problems than it would solve.¹⁸⁹

The presumption is therefore against exogenous remedies.¹⁹⁰

¹⁸⁵ *Id.* at 105.

¹⁸⁶ *See id.* at 105 (concluding that IPRs, which are granted by government law, allow an owner of an IPR to set the pace of innovation).

¹⁸⁷ William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989); *see also* COPYRIGHTS: THE FUTURE OF INTELLECTUAL PROPERTY IN THE INFORMATION AGE (Adam Thierer & Wayne Crews eds., 2002).

¹⁸⁸ *See, e.g.*, Burton Ong, Comment, *Anti Competitive Refusals to Grant Copyright Licences: Reflections on the IMS Saga*, 26 E.I.P.R. 505, 507–08 (2004).

¹⁸⁹ Michael L. Katz, *Intellectual Property Rights and Antitrust Policy: Four Principles for a Complex World*, 1 J. TELECOMM. & HIGH TECH. L. 325, 351 (2002). Richard Posner argued:

It is not a violation of [antitrust] laws to acquire a monopoly by lawful means, and those means include innovations protected from competition by the intellectual-property laws. If copyright protection of computer software is too broad (either because too much intellectual-property protection can reduce output or because . . . too much innovation can be inefficient), that is a matter to take up with Congress.

POSNER, *supra* note 123, at 250; *see also* Ong, *supra* note 188, at 508 (arguing that copyright law can remedy anti-competitive refusal to license through “[1] tinkering with the rules on the eligibility of the subject-matter for copyright protection, [(2)] the nature and scope of the copyright owner’s exclusive rights, and [(3)] the availability of compulsory licences to would-be competitors of the copyright owner.”).

¹⁹⁰ *See* Francesco Parisi, *Freedom of Contract and the Laws of Entropy*, 10 SUP. CT. ECON. REV. 65, 85 (2003) (describing how purely exogenous remedies would be predetermined by the outside legal system).

After all, it may be argued that hundreds of years have been spent developing a sophisticated endogenous machinery to ensure a “proper” balance between the owner and the public.¹⁹¹ As the Organisation for Economic Co-operation and Development (“OECD”) broadly declared, “[t]hough there can be cases where abuse of dominance laws should be applied to IPR and companies forced to license their technology or reduce their royalty charges, such actions bear a high potential cost in terms of reducing incentives to innovate and should be used sparingly.”¹⁹²

However, the truth may be that an interface between copyright and competition law may be inevitable. Copyright cannot anticipate and respond to every possible situation where a copyright owner exploits his right in an anti-competitive manner. Indeed, TRIPS itself explicitly provides for the use of competition policy as a device for controlling anti-competitive abuse of IPRs.¹⁹³ With any presumption of legality based on a unilateral refusal to license, copyright extends as far as the rights themselves do.¹⁹⁴ Clearly then, copyright that extends beyond the creative works to create economic bottlenecks, must be

¹⁹¹ Lee Bollinger, *Protect This Work of Expression: Clarifying the Unique Economics of Intellectual Property Rights*, 44 SANTA CLARA L. REV. 1287, 1303–04 n.75 (2004) (book review) (“Intellectual property law is replete with examples of how to balance the rights of the inventor/owner with the interests of the public: Copyright law protects only works of expression, excluding facts and ideas, see 17 U.S.C. § 102(b) (2004); the fair use doctrine, often referred to as a “safety valve,” protects against cases in which the routine application of copyright law would unduly restrict public access to the work, see *id.* § 107; and the Copyright Act contains compulsory licensing provisions, see *id.* §§ 107–118. Trademark law provides no protection for generic marks or, with some qualification, descriptive marks. See 15 U.S.C. § 1064(3) (2004) (stating that registered marks that become generic terms are subject to cancellation at any time); *id.* § 1052(e), (f) (stating that descriptive marks may only be registered provided they have acquired secondary meaning). Patent law provides no protection for fundamental principles or for laws of nature. See, e.g., *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).” *But see* DAVID I. BAINBRIDGE, *INTELLECTUAL PROPERTY* 13–14 (5th ed. 2002) (discussing potential ways in which owners can abuse their holding of IPRs).

¹⁹² COMMITTEE ON COMPETITION LAW AND POLICY, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), *COMPETITION POLICY AND INTELLECTUAL PROPERTY RIGHTS* 9 (1998).

¹⁹³ Frederick M. Abbott, *Public Policy and Global Technological Integration: An Introduction*, 72 CHI.-KENT L. REV. 345, 352 (1996) (citing TRIPS Agreement art. 40(1)–(2)). Article 40(2) allows Member states to legislate against “conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market.” TRIPS, *supra* note 57, art. 40(2).

¹⁹⁴ See generally Herbert Hovenkamp, et. al., *Unilateral Refusals to License*, 2 J. OF COMPETITION L. & ECON. 1 (2006).

outside the protection of that presumption. In *United States v. Microsoft*, Microsoft argued that because Windows was copyrighted, it could not violate antitrust laws by refusing to let people alter the program.¹⁹⁵ The District Court rejected this argument finding “whatever copyright protection Microsoft enjoys in its software is not unlimited. For example, copyright in a computer program does not extend to its functional aspects. It does not preclude design choices dictated by necessity, costs, convenience or consumer demand.”¹⁹⁶ The court continued to explain that Microsoft’s copyright protection “does not render inviolate portions of the program that are not original to its creator.”¹⁹⁷ This is because “[c]opyright holders are restricted in their ability to extend their control to other markets. . . . They may not prevent the development and use of interoperable programs by competitors.”¹⁹⁸

It is difficult to imagine a regime that will produce watertight systems of law. Copyright is not an end in itself. It is but a microcosm in an ecosystem of rights and interests steered towards innovation and competition. Properly conceived, copyright resounds in harmony with competition law to maintain and enhance efficient market conditions.¹⁹⁹

It has therefore been argued that competition law should “be

¹⁹⁵ *U.S. v. Microsoft*, No. CIV.A. 98-1232, 1998 WL 614485, at *14 (D.D.C. Sept. 14, 1998).

¹⁹⁶ *Id.* at *15 (relying on the rationale that “user interface of computer program[s] [should be] entitled to only limited protection against ‘virtually identical’ copying, because of [the] license and because of [the] limited number of different ways the underlying idea can be expressed” (citing *Apple Computer, Inc. v. Microsoft*, 35 F.3d 1435, 1442–43 (9th Cir. 1994) and that “significant portions of structure, sequence and organization of program may be copied in order to write similar program to run on different platform[s]” (citing *Computer Assocs. Int’l, Inc. v. Altai, Inc.*, 982 F.2d 693, 715 (2d Cir. 1992)).

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* (citations omitted).

¹⁹⁹ GHIDINI, *supra* note 181, at 67 (noting that “[T]he expansionist tendency of copyright into technological domains, far from representing a well-balanced response to the need to foster dynamic processes of innovation, blatantly serves powerful corporate interests aimed at preserving their market dominance for as long as possible by trying to exclude current and potential competitors. This results in unbalanced protection that sacrifices the dynamics of competitive innovation . . . this might lead to an overall reduction in innovative output, as an ever smaller group of ‘unchallenged’ firms consolidate almost total control of the innovation market.”); see also MICHAEL P. RYAN, *KNOWLEDGE DIPLOMACY: GLOBAL COMPETITION AND THE POLITICS OF INTELLECTUAL PROPERTY* 55–57 (1998) (addressing the visual art field where “publishers and corporations [are] being given the greater priority”).

there to regulate abuses of dominant position by [copyright owners], which copyright law can generate and does not already address.”²⁰⁰ Copyright “protect[s] inventors against free riding by granting them a *micro*-monopoly . . . on the [industrial sector] they developed, not a *macro*-monopoly on the industrial *sector* to which the solution belongs.”²⁰¹ Where the growth impedes economic efficiency, competition law acts as an integral counterbalance in a system of innovation. The application of the EFD to copyright aims to achieve access from the outside, that cannot be achieved from within. Hanns Ullrich noted, “[b]ecause legislators often fail to properly define the limits of exclusive property rights, the exercise of these rights in new situations, and especially with regard to new technologies, attracts scrutiny under competition law, with a view to preventing anticompetitive market foreclosure.”²⁰²

It may be argued that copyright in functional works simply proves its malleability in securing investments in innovation of a different kind than aesthetic work as it adapts and reinforces its ability to promote innovation. However, it is not soft sentimentalism that requires a defence of the classical position. It is the need to preserve the *raison d’etre* of copyright in promoting both primary creative works and their derivations that raises the issues in this paper. Copyright may reinforce barriers to entry caused by network effects resulting in consumers being locked into an allegedly inferior standard. The developments have threatened to upset effective market competition by creating informational bottlenecks that seem to cry out for a remedy. This the EFD has provided.²⁰³ But could the remedy be worse than the malady?

III. LAW AND ECONOMICS AT THE INTERFACE

Having established that the expansion of copyright into functional work can give rise to competitive harm, the analysis turns to how courts and CEOs have attempted to balance the need to prevent harm to consumer welfare against the costs of false convictions that chill innovation. The three broad

²⁰⁰ Derclaye, AN ECONOMIC APPROACH, *supra* note 98, at 6.

²⁰¹ GHIDINI, *supra* note 181, at 109.

²⁰² Hanns Ullrich, *Expansionist Intellectual Property Protection and Reductionist Competition Rules: A TRIPS Perspective*, 7 J. INT’L ECON. L. 401, 403 (2004).

²⁰³ See discussion *supra* text accompanying notes 22–25.

approaches taken by courts will be examined. Next, two observations will be made regarding the assumptions underpinning intervention: whether the EFD should be an arbiter of unmeritorious copyright, and whether the “new product” criteria has been sufficiently well defined as to be workable. Then, two exhortations are made with respect to intervention in network industries. First, that “superdominance” should never be an excuse for sloppy competition analysis. Second, that clear instances of consumer harm should be required before the EFD unravels tipped markets. Finally, the section concludes by examining the role of law and economics in providing a useful resolution to the elusive standard of “reasonableness” in compulsory licensing.

A. *One Doctrine, Three Approaches*

Cases have adopted three distinct approaches to regulate access to functional works. The first approach begins with the assumption that copyright bottlenecks are best dealt with by focusing on what is protectable under copyright laws than on what protectable elements are candidates for compulsory licensing under the EFD. The second approach denies access based on owner-centred dynamic efficiency considerations. The third approach grants access based on competitor-centered dynamic efficiency considerations.

1. Approach #1: No Protection

The first category of cases does not recognize copyright subsisting in the disputed content at all. Thus, in its simplest form, the US courts in *Feist* and *Lotus* held that banal works do not qualify for copyright protection in databases and software.²⁰⁴ The European Council has taken a markedly different approach, preferring instead to offer legislative sanctuary in the form of the Software and Database Directives.²⁰⁵ Because the European legislators had expressly recognized IPRs in these forms, the courts in the recent *British Horseracing Board* cases chose instead to construe the provisions very strictly, and then apply the EFD without dynamic efficiency considerations.

²⁰⁴ See discussion *supra* Part II.A.

²⁰⁵ Thomas Hoeren, *The European Union Commission and Recent Trends in European Information Law*, 29 RUTGERS COMPUTER & TECH. L.J. 1, 10–11, 14–15 (2003).

The British Horseracing Board (BHB) governs horseracing in Britain.²⁰⁶ It is responsible for compiling a database that contains racing information.²⁰⁷ In the *British Horseracing Board Limited v. William Hill Organisation Limited* (“WHO”) case, the ECJ ruled that the BHB had no valid database right in its collection of pre-race data since it did not make a sufficient substantial investment in creating the database over and above that invested in the creation of its constituent parts.²⁰⁸ The ECJ made it clear that BHB was investing in the creation of the database, rather than in the obtaining, selecting and verification of its constituent parts, activities that gave rise to the *sui generis* database right.²⁰⁹

Following its defeat in *WHO*, BHB then demanded that entities such as Attheraces (“ATR”) who obtained data via BHB enter into an additional licence with BHB to pay for database rights in the data.²¹⁰ ATR asked the BHB to clarify the basis on which it sought payment.²¹¹ In response, BHB threatened to terminate the supply of data unless ATR agreed to pay licence fees to the BHB.²¹² In the UK case of *AttheRaces & Anor v. The British Horseracing Board Ltd & Anor*, ATR alleged that BHB had effective monopoly on the supply of pre-race data on runners and riders that was necessary to enable bookmakers to take bets on horse races.²¹³ BHB abused its market dominance by refusing to supply ATR with pre-race data and threatened to terminate the supply of data to ATR even though ATR was an existing customer of BHB and pre-race data is an essential facility controlled by BHB.²¹⁴ The Court found that BHB had abused its dominant position in relation to pre-race data.²¹⁵ However, since the ECJ had earlier found that there were no database rights in the pre-race data, this is not authority for the Interface, but rather how courts can skirt around copyright considerations in Interface cases. This approach has the merit of focusing on the

²⁰⁶ *British Horseracing Bd. Ltd. v. William Hill Org. Ltd.*, [2005] EWCA (Civ) 863, ¶4 (Eng.).

²⁰⁷ *Id.*

²⁰⁸ *Id.* at ¶¶ 9–10.

²⁰⁹ *Id.* at ¶¶ 24, 31, 35.

²¹⁰ *Attheraces Ltd. v. British Horseracing Bd. Ltd.*, [2006] E.C.D.R. 13, 141–42 (Eng.).

²¹¹ *Id.* at 146–47, 150.

²¹² *Id.* at 150.

²¹³ *Id.* at 138.

²¹⁴ *Id.* at 180–81.

²¹⁵ *Id.* at 179–81.

types of products that justify copyright protection and the appropriate scope of that protection. However, in a utilitarian work such as software and databases, it may be difficult to ascertain the boundaries between creative expression that may be protected under copyright law and other, functional elements.

2. Approach #2: No Access

In the second category of cases, the EFD is expressly considered in the copyright context. However, no access was given. The jurisprudence here suggests greater belief in net gains from allowing the owner the prerogative to control access. The ECJ in *IMS Health GmbH & Co KG v. NDC Health (IMS Health)* therefore refused a competitor seeking access only to offer mere duplicate products.²¹⁶ The U.S. Supreme Court in *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP. (Trinko)*, making obiter comments on IPRs in a case involving access to telecommunications facilities, went one step further suggesting that where a sector-specific regime is in place, the EFD had only a severely limited role to play.²¹⁷

a. *IMS Health*

In *IMS Health*, the copyright covered a modular structure used for data classification by wholesalers of pharmaceuticals, that had become the market standard.²¹⁸ Pharmaceutical companies used this data to measure the effectiveness of their promotional efforts in each town and district.²¹⁹ In order to supply usable marketing data to customers, the data had to describe sales in geographic zones as their customers delineated them.²²⁰ There were no successful substitutes or alternatives to reporting sales along the same geographic lines as the map of postcodes that were arranged by IMS Health, which IMS Health was successfully claiming, constituted a breach of its copyright.²²¹

²¹⁶ *IMS Health GmbH & Co. v. NDC Health*, [2004] 4 C.M.L.R. 28, at *1543, *1550, *1567 [hereinafter *IMS Health Opinion*].

²¹⁷ *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP.*, 540 U.S. 398 (2004) [hereinafter *Trinko*]; see also *Covad Commc'n Co. v. Bell Atl. Corp.*, 398 F.3d 666, 677–78 (D.C. Cir. 2005) (denying a private action for treble damages in antitrust for failure to perform regulated activities).

²¹⁸ *IMS Health Opinion*, [2004] 4 C.M.L.R. 28 at *1549–50.

²¹⁹ *Id.* at *1549.

²²⁰ *Id.*

²²¹ *Id.* at *1549–50.

NDC, who sought market entry based on access to IMS's structure, argued that its copyright was an essential facility because pharmaceutical companies did not want to use any map except the brick structure, even though competitors were free to develop and offer their own structure or maps.²²² The market relationship is shown in Figure 6. The Commission therefore claimed that compulsory licensing was necessary to enable the competitor to present the same data in the same format.²²³ In doing so, the Commission implicitly suggested that strong customer

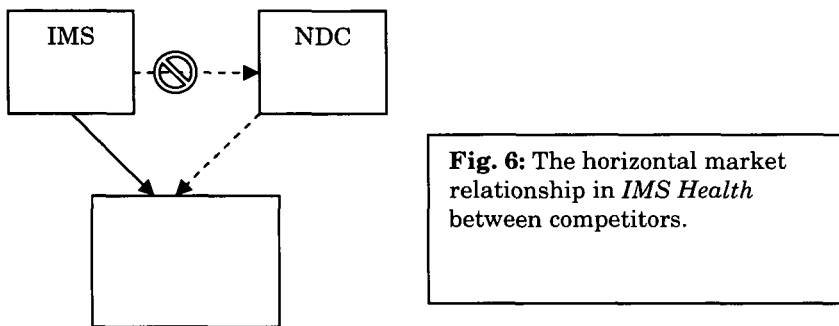


Fig. 6: The horizontal market relationship in *IMS Health* between competitors.

preferences can make a competitive advantage into an essential facility which the dominant owner must share with rivals.²²⁴ It follows that a monopoly can be made the subject of compulsory licensing even if no other abuse has occurred, to share its principal competitive advantage with its competitors—dominance without abuse is illegal *per se*.²²⁵

The ECJ recognized that while network effects were relevant in determining whether the data was “essential,” the element of “abuse” could only be established when that behavior impedes the development of derivative markets.²²⁶ In order for abuse to

²²² *IMS Health Opinion*, [2004] 4 C.M.L.R. 28 at *1550; *IMS Health GmbH & Co. v. NDC Health GmbH & Co.*, Case C-418/01, at para. 7–8, 11, available at <http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en> [hereinafter *IMS Health Judgment*].

²²³ See *IMS Health Judgment* at para. 12.

²²⁴ *Id.*

²²⁵ *Id.*; *IMS Health Opinion*, [2004] 4 C.M.L.R. 28 at *1550 para. 13–20.

²²⁶ *IMS Health Judgment*, at para. 38, 49. In truth, the judgment was equivocal. While the ECJ held that a new product was required in a secondary market, it set a floor-high threshold in also holding that two separate markets can be found at “two different stages of production.” *Id.* at para. 45.

exist, it is necessary that the requestor do more than merely duplicate the product offered on the secondary market by the copyright owner. The requestor has to present tangible evidence showing that it intended “to produce new goods or services not offered by the owner . . . for which there is a potential consumer demand.”²²⁷ The requestor did not wish to change or improve or create new reports on regional sales, but only to provide similar or identical services to IMS Health.²²⁸ This meant that the copyright owner had to provide information on its own market. Since it could not show potential demand from consumers for a new hypothetical product, access was not granted.²²⁹

b. *Trinko*

*Trinko*²³⁰ was described as “the most important Supreme Court antitrust review of the refusal to deal antitrust doctrine in twenty years.”²³¹ In *Trinko*, Verizon was compelled by the Federal Communications Commission under the US Telecommunications Act of 1996²³² to share its local networks with entrants.²³³ The Law Offices of Curtis V. Trinko, LLP., a firm that bought services from one of the entrants, alleged that Verizon had violated US antitrust law by filling rivals’ orders in a discriminatory manner to discourage customers from joining the entrants.²³⁴ On appeal, the Supreme Court placed strict limitations to the situations where antitrust law could interfere with market sector-specific regulation, suggesting that the existence of sector-specific regulation should leave little scope for antitrust intervention and the EFD.²³⁵ The Court’s enthusiasm short-circuits the debate that has raged for decades in the economic literature about the market structure that best

²²⁷ *Id.* at para. 49.

²²⁸ *Id.* at para. 7–8.

²²⁹ *IMS Health Opinion*, [2004] 4 C.M.L.R. 28 at para. 90.

²³⁰ *Trinko*, 540 U.S. 398, 401–02 (2004).

²³¹ Adam Candeub, *Trinko and Re-grounding the Refusal to Deal Doctrine*, 66 U. PITT. L. REV. 821, 821 (2004).

²³² U.S. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (codified as amended in sections of 47 U.S.C.).

²³³ *Trinko*, 540 U.S. at 401–02.

²³⁴ *Id.* at 404.

²³⁵ *Id.* at 412 (“One factor of particular importance is the existence of a regulatory structure designed to deter and remedy anticompetitive harm. Where such a structure exists, the additional benefit to competition provided by antitrust enforcement will tend to be small, and it will be less plausible that the antitrust laws contemplate such additional scrutiny.”).

promotes innovation.²³⁶ While not stating it in so many words, *Trinko* may have effectively brought the era of essential facility claims in the US to an end, certainly in regulated industries where an agency is actively supervising the conduct that forms the basis of an antitrust claim, and possibly to copyright as well.²³⁷

3. Approach #3: Give Access

The final approach directly confronts the core issues at the Interface. The facts make a compelling case for the court to grant access to copyright content under the EFD. This raises the challenging question of determining the scope of access and the compensation due to the owner. The EU cases of *Magill* and *Microsoft (EU)* both fall into this category.²³⁸ However, as will be seen, the justifications for access in one case may be less defensible than the other.

²³⁶ KENNETH J. ARROW, *Economic Welfare and the Allocation of Resources for Innovation*, in *ESSAYS IN THE THEORY OF RISK-BEARING* 144, 156–60 (1971) (explaining that monopolists may have less incentive to innovate because they have more to lose than competitors). See generally JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, & DEMOCRACY* 81–106 (3d ed. 1950) (discussing that monopolists are encouraged to innovate because of scale economies in research and development and increased appropriation of the full value of their ideas); See also F. M. Scherer, *Antitrust, Efficiency, and Progress*, 62 N.Y.U. L. REV. 998, 1011 (1987) (“Although there are fairly simple and well-accepted generalizations as to which market structures stimulate the most rapid pace of innovation, the question of what progress rate is socially optimal, and . . . which market structure driving it is best, is extremely complex and poorly settled.”).

²³⁷ See GHIDINI, *supra* note 181, at 107 (observing that “Europe strikes a clear difference with the other side of the Atlantic. In the U.S., as hinted, the dominant opinion, quite in tune with the recent ruling of the Supreme Court in *Trinko* is traditionally reluctant to allow any breaches in the excluding faculties of IPRs, viewed as a) indispensable incentives to innovation, and b) already subject to (sufficient) ‘built-in’ limitations of time and scope.” (citations omitted)); see also *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG*, Case C-7/97, 1998 E.C.R. I-07791, paras. 38–39, 41, 44–46 (warning against the overzealous application of the EFD to IPRs). The EFD was justified only when there was a genuine stranglehold on the related market. This may be where the cost of duplication is prohibitively high, particularly where the original investment had been made through public funding. While *Bronner* was not a case involving copyright, it was important both because the EFD was discussed at length in the context of IPRs, as well as that compulsory licensing was regarded as a sub-set of the EFD.

²³⁸ *Magill*, 1995 E.C.R. I-743, 4 C.M.L.R. 718 (1995); *Microsoft Corp. v. Comm’n of the European Cmtys.*, Case T-201/04, 2004 E.C.R. II-2977, paras. 296, 252–53, available at <http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en>.

B. Two Observations

The brief survey of cases from *Feist* to *Trinko* and *Magill* to *Microsoft (EU)*, give rise to several important observations regarding the balance that is to be made at the Interface. This section examines two of the most fundamental issues. The first issue is whether courts and CEOs should use the EFD as a counterbalance against unmeritorious copyright expansion. The second issue is how the “new product” criteria first espoused in *Magill* should be developed to protect the copyright owner’s right to appropriate rewards in the technology.²³⁹

1. Should the Essential Facilities Doctrine be the Arbiter of Unmeritorious Copyright?

It may be argued that in cases where access was granted, such as in *Magill*, the ECJ was skeptical about the existence of the copyright in the case and believed it to be unworthy of protection. In this case, dynamic efficiency considerations were weak. Few Member States in the European Community granted copyright to data, and the copyrighted television listings themselves had little literary merit.²⁴⁰ Copyright was unnecessary to induce the stations to produce the listings because they needed viewers to be aware of the programmes they offered. Therefore, the incentive to produce and disseminate programs would be the same irrespective of whether the broadcasters were protected from competition in the television guide market.²⁴¹ Compulsory licensing therefore would not significantly impact on the production and release of program listings. Using compulsory licensing under the EFD to remedy unmeritorious copyright might well enable courts and CEOs to weaken the copyright owner’s grip over material that it should not be his exclusive right to exploit. However, there are two problems with this reasoning.

²³⁹ See *Magill*, 1995 E.C.R. I-743, 4 C.M.L.R. 718 (1995).

²⁴⁰ John Temple Lang, *The Application of the Essential Facility Doctrine to Intellectual Property Rights under European Competition Law*, in ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES 57 (François Lévêque & Howard Shelanski eds., 2005).

²⁴¹ See James Turney, *Defining the Limits of the EU Essential Facilities Doctrine on Intellectual Property Rights: The Primacy of Securing Optimal Innovation*, 3 NW. J. TECH. & INTELL. PROP. 179, 194 (2005) (“Indeed, officials of the Commission’s legal service stated, in their personal capacities, that *Magill* should be limited to ‘unmeritorious kinds of intellectual property.’”).

First, the EFD does not distinguish between types of copyright based on its value. It has no legal basis to do so; it is not supported by any holding in *Magill*.²⁴² Correcting defects in the political process is not competition law's role. Rather, competition law takes legislation as it finds it, even if the legislation serves the public interest poorly.²⁴³ The scope of copyright may have an impact on the number and kind of conflicts that arise, but competition law is concerned with economic and not political competition.²⁴⁴ By taking into account merit in copyright, competition intervention invariably translates into uncertainty in copyright exploitation, as copyright owners will not know in advance whether their rights will be whittled down or upheld by competition authorities. They will also not be able to estimate correctly the return on their investments. It is submitted that this consideration led the *Trinko* court to fervently defend monopoly power, positioning it as "an important element of the free-market system" and the magnet for "risk taking that produces innovation and economic growth."²⁴⁵

Second, distinguishing unmeritorious copyright is difficult at best. If the courts or CEOs discriminated among different classes of copyright, or even within a single class, deeming that access to some works may be ordered, while others are beyond its scope of application, this would throw into serious question the integrity of competition law analysis. If the courts were seeking to discredit copyright granted under a legislative instrument even indirectly, the final ruling should be that the copyright matter falls in the public domain, rather than a finding that the parties must negotiate terms of access, or failing that, the terms would be imposed by the courts or CEOs. Put another way, it would be

²⁴² Compare *Magill*, at para. 7, 10–11, with *IMS Health Judgment*, Case C-418/01, para. 4, 6–7. The differences include the fact that in *Magill* the information was owned by the TV companies; however, in *IMS Health Judgment*, the sales data was freely available from wholesalers. In *Magill*, nobody could produce a substitute for the program list, while in *IMS Health Judgment* the plaintiffs had produced their own brick structures. Additionally, in *Magill*, the copyright owners discriminated against *Magill* as they had given the information to newspapers and foreign magazines. Lastly, in *IMS Health Judgment*, it never licensed brick structure anywhere except where it sold a business, but licensing *Magill* did not affect the core of the TV companies' activities.

²⁴³ See generally *Magill*, at para. 26; *IMS Health Judgment*, at para. 1; *Trinko*, 540 U.S. 398, 405–06 (2004).

²⁴⁴ See Turney, *supra* note 241, at 182.

²⁴⁵ *Trinko*, 540 U.S. at 409.

incongruous for CEOs and courts to question the validity of copyright on the one hand, and on the other, claim that the owner is entitled to a royalty for the exploitation of the underlying work.

A better perspective to achieving the same end would be to regard the EFD simply as a means to compel access to copyright that has been found to impede the efficient functioning of copyright. Viewed in this light, access in *Magill* may then be understood as follows: "What *Magill* magazine needed was the information. If it had been possible to provide the information without infringing the copyright in the program schedules, no copyright license would have been needed."²⁴⁶ Even if copyright law did not protect the type of low level information which *Magill* magazine wanted to publish, the television companies were the only source of it. If they chose not to distribute the information at all it was not obtainable elsewhere.²⁴⁷ This information was raw material from which television guides were made.²⁴⁸ The television companies therefore held a dominant position both in the information itself and in the guides made from it independently of any copyright they might own.²⁴⁹ It was thus aptly noted that "copyright was merely the tool used to effect the abuse."²⁵⁰

2. Defining the "New Product"

The cases such as *Magill* require that the copyright owner "impede the appearance of a new product desired by consumers."²⁵¹ This requirement attempts to address the concern that EFD cannot be used to require compulsory licensing merely because the existence of the copyright creates market power. This makes good sense. Depriving the owner the right to exploit on the primary market interferes with the existence of the right. The difficulty with the new product requirement is that it is a continuous rather than discrete variable.²⁵² Products are

²⁴⁶ Lang, *supra* note 240, at 57 (arguing that the copyright issue had been raised only as a defense to access by the television companies).

²⁴⁷ *Id.*

²⁴⁸ *Magill*, 1995 E.C.R. I-743, [1995] 4 C.M.L.R. 718, 791.

²⁴⁹ *Id.* at 797.

²⁵⁰ Philips Elec. N.V. v. Ingman Ltd., [1998] 2 C.M.L.R. 839, 861.

²⁵¹ Donna M. Gitter, *Strong Medicine for Competition Ills: The Judgement of the European Court of Justice in the IMS Health Action and Its Implications for Microsoft Corporation*, 15 DUKE J. COMP. & INT'L L. 153, 189 (2004).

²⁵² See Derek Ridyard, *Compulsory Access under EC Competition Law—A*

composed of a specific bundle of characteristics.²⁵³ A product may be new because additional features alter the manner of functioning, or improvements in interoperability, medium, formatting, appearance or product safety.²⁵⁴ Improvements may take the form of a more efficient manufacturing process instead of being physical, which then makes the product cheaper.²⁵⁵ A new product may therefore be either a product integrating a new characteristic²⁵⁶ or a product with better performance on particular characteristics.²⁵⁷ However, this does not help to establish whether the refusal prevents development of the secondary market to consumer detriment.²⁵⁸

It is submitted that there should be two refinements to the “new product” requirement. First, the product should be a derivation not previously offered, and not merely a clone. The latter would set too low a threshold since every product would potentially attract compulsory licensing. The implications of the potential markets concept are far reaching. For example, new functions can always be added to software. The law could hardly impose a duty to share important internally generated competitive advantages with direct competitors on demand, merely on the basis of their intention to offer a product with some new characteristics.

As William Cornish observed:

It can certainly be argued that this fencing off of intangible subject-matter fulfils an economic function equivalent to that of ownership of physical property, because otherwise the incentive to optimise the value of the information will be impaired or destroyed. Those who would be innovators will wait instead to be imitators and the dynamic processes which would have generated new ideas will disappear; in the end there will be little or nothing different to

New Doctrine of “Convenient Facilities” and the Case for Price Regulation, 2004 E.C.L.R. 669 (2004) (arguing that the “new product” may lead to newcomers being given access for even minor changes), http://www.rbbecon.com/newsimages/Ridyard_ECLR_nov2004.pdf (last visited June 5, 2007).

²⁵³ Examples include the maximum speed or the number of seats in a car.

²⁵⁴ See Ridyard, *supra* note 252, at 673 (arguing that “[a] requirement to grant access without specifying the terms of access leaves the problem only part-resolved” making the definition of a “new product” broad).

²⁵⁵ See *id.*

²⁵⁶ An example of a new product integrating a new characteristic is a car engine powered by both gas and electricity.

²⁵⁷ A higher maximum speed is an example of a better performance on particular characteristic.

²⁵⁸ See *IMS Health Opinion*, Case C-418/01, 2004 E.C.R. I-5039, [2004] 4 C.M.L.R. 28, 1560.

imitate.²⁵⁹

It is simple enough to identify a specific “new product,” like the TV guide in *Magill*,²⁶⁰ which clearly could not be offered without access to the copyrighted listings owned by the defendants.²⁶¹ However, in *Microsoft (EU)*, both the Commission and CFI simply held that Microsoft’s refusal to disclose its copyrighted codes would prevent competitors from developing “new products” without specifying what they were.²⁶² Indeed, it is difficult to see what additional value access to Sun Microsystems could have, since it was in fact producing a functionally identical substitute to Microsoft’s work group server OS. Where a “new product” cannot be convincingly defined, the plaintiff has not discharged its burden of proof, and no access should be granted.²⁶³

Second, the EFD should be confined to “new products” in the secondary market. Copyright justifies an exclusive protection in the primary market in order to prevent copying. Appropriability does not take the form of a lump sum payment, but rather as an opportunity to market their goods without interference by free riders. In contrast, when downstream markets are also affected, the contribution through the creation of copyrighted work does not justify its abusive use for other purposes on a secondary market.

²⁵⁹ CORNISH, *supra* note 74, at 36.

²⁶⁰ This would be a weekly TV magazine comprising the programs of all TV channels.

²⁶¹ *Magill*, Cases C 241-242/91P, [1995] E.C.R. I-743, [1995] 4 C.M.L.R. 718, 750.

²⁶² See *Microsoft Corp. v. Comm’n European Cmtys*, Case T-201/04, [2004] 4 C.M.L.R. 5. For avoidance of doubt, the Court of First Instance (CFI) did not hold that Microsoft’s refusal to disclose APIs would prevent ‘new products’ for the purposes of demonstration of exceptional circumstances under Article 82. *Id.* The proceedings before the CFI leading to the President’s order of December 22, 2004 were for interim relief. *Id.* at *430. The only issues were: (1) whether Microsoft established a *prima facie* case that the Commission was wrong on the law and its application to the facts; and (2) whether the harm to Microsoft of having to implement the Commission’s orders immediately gave cause to overrule them. *Id.* at *438, *441 (discussing the issue of diminishing consumer choice as a result of non-interoperability). However, in *Microsoft (EU)*, both the Commission and CFI simply found that Microsoft’s refusal to disclose its copyrighted codes would prevent competitors from developing “new products” without specifying what they were. See *id.* at *463–64.

²⁶³ See HOVENKAMP, *supra* note 194, at 2 (highlighting that after the antitrust counterrevolution of the 1970s and 1980s “the procedural limitations placed on plaintiffs became severe”).

C. *Two Exhortations*

Generally, network markets do not require special rules. However, they require sensitivity to the fact that networks can both produce significant efficiencies and increased opportunities for the exercise of market power. However, two issues are of special importance to functional copyright industries. The first issue is whether “superdominant” owners are penalized because their market power makes abuse a matter of course. The second issue is whether cases have required access without proof of real harm to consumer welfare.

1. Penalizing Superdominance

Whether a facility is “essential” is often a question of a degree of dominance. Dominance is the power to behave independently of market forces.²⁶⁴ As in any investigation into abuse of dominant position, it is necessary to define the relevant market in an EFD case. The downstream market will inevitably influence the definition of the essential facility in the upstream market. Economists play a critical role in measuring “essentiality” through market power analysis. Once dominance is established, the copyright owner has a duty to grant access where a non-dominant does not.²⁶⁵ This is because dominance brings a special responsibility to refrain from acting in a manner that harms competition.²⁶⁶ It follows then that “superdominant” copyright owners have an even heavier responsibility to ensure an objectively acceptable state of market competitiveness.

The first danger here is that because the competition analysis involves a value judgment based on the facts of each case, the decision makers also have substantial discretion in defining that objectivity. This discretion creates a danger that the “essentiality” may be read so broadly as to mean that a plaintiff is automatically entitled to access the owner’s copyright content whenever dominance is established. As Herbert Hovenkamp

²⁶⁴ See CCS, COMPETITION COMMISSION OF SINGAPORE GUIDELINE ON THE SECTION 47 PROHIBITION 2005 ¶ 3.3 (2005), <http://www.ccs.gov.sg/NR/rdonlyres/B872DBBC-0483-488D-9427-281AD287564D/6720/CCSGuidelineonSection47prohibition20051228websitef.pdf> (last visited June 5, 2007).

²⁶⁵ Brian A. Facey & Dany H. Assaf, *Monopolization and Abuse of Dominance in Canada, the United States, and the European Union: A Survey*, 70 ANTITRUST L.J. 513, 560 (2002).

²⁶⁶ *Compagnie Maritime Belge v. Comm’n*, [2000] E.C.R. I-1365, 4 C.M.L.R. 1076, ¶ 37 (2000).

observed:

To be sure, the rules that courts develop are related to the values they believe antitrust should further. If we think copyrights are packed with anticompetitive potential, then we might respond with a rule that presumes that their owners are monopolists. Several decisions have done just that.²⁶⁷

Even assuming dominance is properly established, another danger would be assuming an abuse automatically follows a refusal to grant access. Compulsory licensing in such cases then arises from looking forward at the desired conduct rather than looking backward and ensuring the discontinuation of the alleged abuse. The link between the compelled conduct and the infringing act may be rather imperceptible, although to the eyes of the general public the compelled conduct may have great political or industrial symbolism.²⁶⁸ The EFD then becomes most attractive to plaintiffs because “essentiality” effectively shifts onto defendants the burden of justifying its denial of access.²⁶⁹ If it can be accepted that this happens, however inadvertently, at least some of the time, the EFD may then represent a streamlined technique for proving anticompetitive harm. This provides savvy plaintiffs with a short-cut to turn the EFD into a siphon to appropriate the owner’s investment and effort under a

²⁶⁷ HOVENKAMP, *supra* note 194, at 5 (citing *United States v. Paramount Pictures*, 334 U.S. 131 (1948); *United States v. Loew’s Inc.*, 371 U.S. 38 (1962); *MCA Television Ltd. v. Public Interest Corp.*, 171 F.3d 1265 (1999)).

²⁶⁸ As Ian Forrester aptly noted: “To put matters rather severely, but not necessarily unfairly, the analysis sometimes seems to start with the desired remedy rather than with the theory of the abuse.” Forrester, *supra* note 166, at 922.

²⁶⁹ Allen Kezsbom & Alan V. Goldman, *No Shortcut to Antitrust Analysis: The Twisted Journey of the “Essential Facilities” Doctrine*, 1996 COLUM. BUS. L. REV. 1, 26 (1996).

As with most non-per se claims, the plaintiff bears the burden of persuasion that the challenged conduct is unreasonable. Of course, the defendant should bear the usual burden of coming forward with some evidence of justification. *But once he does so, it should be the plaintiff’s obligation to persuade the judge or jury that the justification should be rejected.* That seems especially appropriate here where the warrant for requiring owners of goods or facilities to share them with competitors is somewhat questionable to start with, where the imposition of such a duty is exceedingly intrusive, and where it is subject to so many reservations about the ability of courts to compel dealing with reasonable predictability, with reasonably effective administration, and without chilling desirable activities.

Id. at 32–33 (quoting PHILIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION*, ¶ 736.2, at 662–63 (Supp. 1995) (emphasis added)).

doctrine of “essential” facilities.²⁷⁰

Traditional market definition analysis should come *before* applying the doctrine. Defining a market merely by existing dominance begs the question of whether the copyright work is “essential.” Once access is granted to interface information, the competitor, particularly in permeable software markets, are free to develop competing products against the original work. To contextualise the issue, the Commission in *Microsoft* opined that since access to the source code was not being required, Microsoft’s fears of cloning were not justified.²⁷¹ It followed that Microsoft’s “incentives to innovate” would not be affected.²⁷² However, Valentine Korah disagrees, saying that: “the incentive must have been considerably reduced.”²⁷³

The second danger with superdominance is that the assumptions supporting it may not be appropriate. Superdominance assumes that market definition was correctly done, and that the superdominance will be semi-permanent.²⁷⁴ Technology markets may not be neatly fitted into competition markets.²⁷⁵ As Fig. 7 shows, exploitation of copyright may often transcend more than one relevant market.²⁷⁶ The scope of a *legal* monopoly is defined by the normative boundaries of copyright, not by what a court determines is the relevant market.²⁷⁷ In contrast, the scope of an *economic* monopoly refers to a firm’s power to control the price of a product in a properly defined relevant competition market.²⁷⁸ Since the reward of copyright is the right to exploit the entire field it covers, they can implicate

²⁷⁰ *Id.* at 2–3.

²⁷¹ *Microsoft Corp. v. Comm’n*, [2005] 4 C.M.L.R. 5, paras. 713, 729.

²⁷² *Id.* at para. 725.

²⁷³ KORAH, *supra* note 35, at 162. And if Microsoft’s cutback on R&D is anything to go by, she is probably right. In 2004, R&D was USD 7,779 million, declining in 2005 to USD 6,184 million. See MICROSOFT ANNUAL REPORT 2000 and 2005, <http://www.microsoft.com/msft/ar.msp> (in Income Statements within Financial Review) (last visited June 5, 2007).

²⁷⁴ John T. Lang & Robert O’Donoghue, *Defining Legitimate Competition: How to Clarify Pricing Abuses Under Article 82 EC*, 26 FORDHAM INT’L L.J. 83, 135 (2002).

²⁷⁵ See STEVEN D. ANDERMAN, *EC COMPETITION LAW AND INTELLECTUAL PROPERTY RIGHTS* 154 (Clarendon Press, 1998).

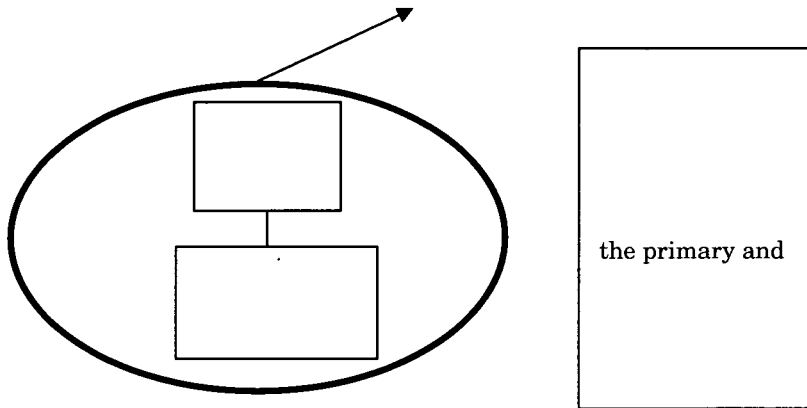
²⁷⁶ *Id.* at 161.

²⁷⁷ Thomas P. Walsh III, *Defining the Relevant Market: Impacts of the Abolition of the Presumption of Market Power in Patent Tying Cases*, 84 DENV. U. L. REV. 267, 268, 282–83 (2006).

²⁷⁸ *Id.*

multiple competition markets.²⁷⁹ Accordingly, there should not be liability for refusing to license within the market defined by its legal monopoly, regardless of the number of competition markets this implicates. By restricting this exploitation, the legitimate extent of exploitation may be eviscerated.

Third, large market shares can often be deceptive. Often an



essential facility is continuously under threat and the right holder is compelled to constantly keep under review or develop its primary product.²⁸⁰ Technology markets, in particular, are dynamic and ways are often found to circumvent what was previously believed to be an industry standard.²⁸¹ In fact, “secondary market rivals may also be potential primary market rivals.”²⁸² After all, market definition is more of a legal construct than a reflection of bright-line distinctions on a production chain. Generally, mere exploitation of an industrial standard without regard for rivals is not by itself viewed as abusive under competition law.²⁸³ A firm that has achieved a market standard by virtue of its investment in R&D and IP protection is normally entitled to continue to compete by exercising its exclusionary

²⁷⁹ See Dom F. Atteritano, *The Growing Financial Pie of Online Publication: Tasini's New-Use Analysis Leaves Freelance Authors Less Than Crumbs*, 27 Hofstra L. Rev. 377, 388 (1998).

²⁸⁰ See ANDERMAN, EC Competition Law, *supra* note 275, at 250.

²⁸¹ *Id.*

²⁸² Daryl Lim Tze Wei, *Regulating Access to Databases Through Antitrust Law: A Missing Perspective In the Database Debate*, 2006 STAN. TECH. L. REV. 7, 53 (2006).

²⁸³ Ronald E. Myrick, *Will Intellectual Property on Technology Still Be Viable In a Unitary Market*, 14 EUR. INTELL. PROP. REV. 298, 301 (1992).

rights even in “aftermarkets.”²⁸⁴ To find that a refusal to licence is abusive, something more must be shown by the competition authorities to allow the imputation of an abusive motive to the copyright owner’s conduct other than a refusal to supply or licence as such.²⁸⁵ It is appropriate to note that while the EFD requires open access,²⁸⁶ nothing guarantees that new membership into the primary market will automatically pass benefits of access to consumers. Indeed, by requiring communication of proprietary information between competing undertakings, competition law may well be trading exclusionary abuse to anticompetitive collusion.²⁸⁷ The cost structure within the technological markets naturally leads to concentrations of market power. Any attempt by CEOs to artificially fragment the market will likely damage the efficiency of the industry to the ultimate detriment of consumers.²⁸⁸

The fourth objection is closely related to the third. Some functional copyright markets are very permeable. In the *Microsoft* cases, a common justification raised was Microsoft’s concern that its downstream rival might enter the primary OS market once its application protocol interfaces were disclosed.²⁸⁹ In *Microsoft (US)*, Microsoft expressed concern about the ‘middleware’ threat posed by Netscape Internet Browsers riding

²⁸⁴ ANDERMAN, EC COMPETITION LAW, *supra* note 275, at 6. “There may be reservations about the use of this concept in ‘aftermarkets’ for spare parts and consumables, where the degree of competition in upstream markets can limit the effects of dominance or monopoly in downstream markets.” *Id.* at 250.

²⁸⁵ Myrick, *supra* note 283, at 301.

²⁸⁶ ANDERMAN, EC COMPETITION LAW, *supra* note 275, at 202.

²⁸⁷ See Myrick, *supra* note 283, at 298.

²⁸⁸ Anderman, EC COMPETITION LAW, *supra* note 275, at 154 (proposing a useful solution: “[w]hen, however, the product is more technically complex, the selection of the initial product involves the exercise of greater discretion by the competition authorities. They can decide whether and to what extent to view the various sub-products or raw materials as components of an integrated product and to what extent to view each sub-product or raw material as a product in its own right. In the case of products such as consumables and spare parts, they can decide whether they are part of the product package presented by the firm to users and consumers or separate products creating separate markets. Furthermore, where a firm has integrated two different levels of economic activity within the same company, the Commission can decide whether these operations constitute an integrated operation offering ‘one product’ or are separate activities offering separate products on separate markets despite the corporate form of the operations.”).

²⁸⁹ *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 28 (D.D.C. 1999); *Microsoft Corp. v. Comm’n of the European Cmtys.*, [2005] 4 C.M.L.R. 5, 441–42 (2004).

on Java technology to run applications, which Microsoft's Windows OS provided a platform for.²⁹⁰ Similarly, in *Microsoft (EU)*, Sun Microsystems requested interface information required for its downstream workgroup server OS to fully interact with Microsoft's Windows OS.²⁹¹ This may be seen in Fig. 8. Microsoft contended that this refusal was premised on its concern that Sun would then be able to use the interoperability it had provided to produce perfect substitutes to compete with its Windows OS.²⁹² In neither case was this threat taken seriously.²⁹³

The truth is that the threat posed by the Internet remains a real competitive constraint. As Microsoft recently admitted:

[B]arriers to entry in our businesses generally are low. The Internet as a distribution channel and non-commercial software model described above have reduced barriers to entry even further. Non-commercial software vendors are devoting considerable efforts to developing software that mimics the features and functionality of various of our products. In response to competitive factors, we are developing versions of our products with basic functionality that are sold at lower prices than the standard versions.²⁹⁴

An example of this is Google's web-based spreadsheet, one of several free spreadsheet programs available.²⁹⁵ It mimics

²⁹⁰ See *United States v. Microsoft Corp.*, 84 F. Supp. 2d at 28–29. Middleware is a platform designed to be compatible with several OS and can support many applications. *Id.* at 17. This allows middleware compatible applications to be used on other OS. Arguably, middleware creates the same risk of market foreclosure if the market tips in its favour over other middleware. The riposte to this is that there will at least be competition between the middleware owner and the OS applications owners, as writers of new applications may make their applications compatible with the middleware. *Id.* at 28.

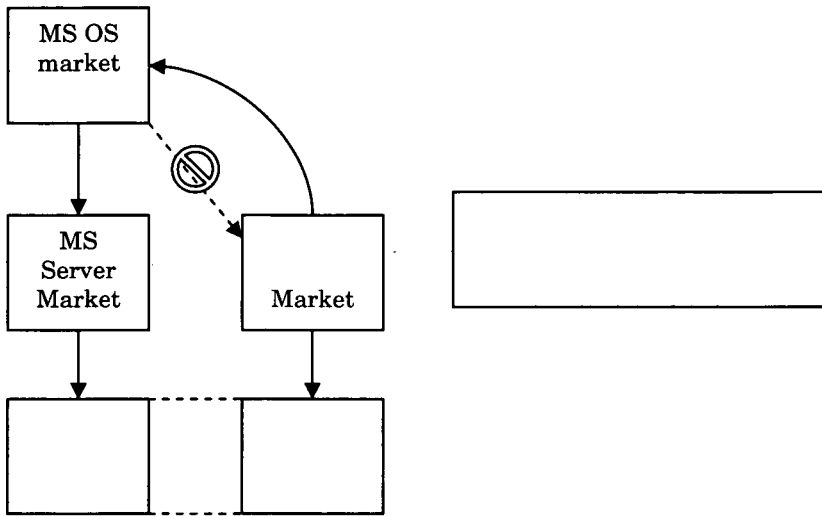
²⁹¹ See *Microsoft Corp. v. Comm'n of the European Cmty.*, 4 C.M.L.R. at 422.

²⁹² *Id.* at 439–40.

²⁹³ See *United States v. Microsoft Corp.*, 84 F. Supp. 2d at 112; *Microsoft Corp. v. Comm'n of the European Cmty.*, 4 C.L.M.R. at 454.

²⁹⁴ MICROSOFT CORP. ANNUAL REPORT 16 (2005), available at http://www.microsoft.com/msft/reports/ar05/flashversion/10k_dl_dow.html (last visited June 6, 2007). See also Forrester Research observed that "Microsoft is crawling into the future of concise internet services burdened by its bloated, over-engineered . . . one-size-fits-all software model." Cliff Saran, *The Future of Microsoft After Gates*, COMPUTERWEEKLY.COM, June 29, 2006, <http://www.computerweekly.com/Articles/Article.aspx?liArticleID=216589>.

²⁹⁵ John Markoff, *Google to Release Web-Based Spreadsheet*, N.Y. TIMES, June 5, 2006, available at <http://www.nytimes.com/2006/06/05/technology/05cnd-google.html?ei=5070&en=4803140c3fcacd04&ex=1169528400&adxnlnl=1&adxnlnlx=1169436372-KcwKC04hMy71A8ZYx3XD9w#>. Others are iCalc, iRows, Editgrid and ZohoSheet, with distinctive functions that are not currently



Microsoft's Excel program, a key component of its Office suite and an oft-cited "applications barrier to entry."²⁹⁶ While still an incomplete substitute, the report states that this is part of a series of strategies to create an alternative to Microsoft's desktop PC software business.²⁹⁷ Future potential substitutes provide competitive constraints on market behavior much in the same manner as existing ones do and therefore should be an integral part of determining "essentiality."²⁹⁸

In examining the distribution of rewards to technological innovation, F. M. Scherer found that the majority of innovative efforts confer only modest rewards.²⁹⁹ Technological entrepreneurs may be like lottery players and derive positive utility from the "skewness of rewards."³⁰⁰ It follows that copyright owners should not be hobbled simply because they have made too much money for dynamic efficiency considerations to be used as a justification for protection.³⁰¹ A private firm, however

found in Microsoft's Excel. See EditGrid, Online Spreadsheet Comparison, http://www.editgrid.com/user/thomas_cLausen/online_Spreadsheet_comparison?ro=1 (last visited June 6, 2007).

²⁹⁶ Robert A. Levy, *Microsoft: In Search of the Perfect Remedy*, Feb. 10, 2000, <http://www.cato.org/dailys/02-10-00.html>; see also Markoff, *supra* note 295.

²⁹⁷ Markoff, *supra* note 295.

²⁹⁸ Shamnad Basheer, *Block Me Not: How "Essential" Are Patented Genes?*, 2005 U. ILL. J.L. TECH. & POL'Y 55, 76 (2005).

²⁹⁹ Frederic M. Scherer, *The Innovation Lottery*, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY 3, 7 (Rochelle C. Dreyfuss et al. eds., 2001).

³⁰⁰ *Id.* at 16.

³⁰¹ *Id.* at 20.

dominant, should not be treated like a nationalized industry. In the case of nationalized industries, the investment was either made by taxpayers or made when the firm was protected from competition.³⁰² To open up a portion of these industries to competition seems fair. However, firms like Microsoft invest many millions of dollars while subject to competition from other firms. Turning upon them and requiring access when it wins the innovation race and becomes the market standard seems plainly unjust.

2. “Lock-Ins” and Proof of Consumer Harm

As discussed earlier, interventionists have argued ‘lock-ins’ lead to monopoly prices and inferior products.³⁰³ The concept of “lock-ins” rests on the belief that the free market competition does not allow the best quality standard to win.³⁰⁴ Products succeed in spite of inferior quality because consumers purchase such products only because everyone else uses them, while in fact, each consumer would have preferred to use a different product.³⁰⁵ As, the European Commission argued in *Microsoft (EU)*:

Due to the lack of interoperability . . . an increasing number of consumers are *locked into* a homogenous Windows solution at the level of work group server operating systems. This *impairs the ability of consumers to benefit* from innovative work group server operating system features brought to the market by Microsoft’s competitors. In addition, this *limits the prospect for such competitors to successfully market their innovation and thereby discourages them from developing new products* . . . [and] will be *confined to niche existences or not be viable at all*. There will be little scope for innovation—except possibly for innovation coming from Microsoft.³⁰⁶

First, it is important to recognise a distinction between the *ability* of the copyright owner to exploit the inelasticity of its

³⁰² *Id.* at 21.

³⁰³ See discussion *supra* Part II.B. See also Paul A. David, *Understanding the Economics of QWERTY: The Necessity of History*, in *ECONOMIC HISTORY AND THE MODERN ECONOMIST* (W.N. Parker ed., Basil Blackwell 1986).

³⁰⁴ Animesh Ballabh, *Antitrust Law: An Overview*, 88 *J. PAT. & TRADEMARK OFF. SOC’Y* 877, 884 (2006).

³⁰⁵ Dwight R. Lee & Richard B. McKenzie, *A Case For Letting A Firm Take Advantage of “Locked-In” Customers*, 52 *HASTINGS L.J.* 795, 796 (2001).

³⁰⁶ Commission Decision, *Microsoft*, Comp/C-3/37.792 at paras. 694, 700 (2004) (emphasis added) available at <http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/en.pdf>.

short-run demand for greater profits and the *incentive* to do so, given the much higher elasticity of its long-run demand under which the network effects can build—and unravel.³⁰⁷ A firm producing a network product must fear that an increase in the current price might lead to greater current profits, but also to an unravelling of the network in the long run, causing the firm to gain short-run profits at the expense of profits later on. The net effect of the firm seeking to exploit its current ability to raise its price could be a reduction in the market value of its stock. Indeed, there is evidence that network markets remain highly competitive despite domination by a single standard owner.³⁰⁸

Second, copyright and network effects may give innovators some temporary market power and rewards for innovation, but skilful and aggressive imitators tend to drive prices to costs unless the innovator can successfully retain a first mover advantage for subsequent technological advances.³⁰⁹ Stan Liebowitz and Stephen Margolis drew important correlations between market shares and product quality, as indicated by computer magazine reviews.³¹⁰ A significant outcome was seen in the markets for personal finance software and software for spreadsheets, where products remained dominant because of their quality.³¹¹ The criticism against “lock-ins” by copyright

³⁰⁷ In common parlance, this means that the owner stands to gain much from not raising prices, and stands to lose as much from raising them.

³⁰⁸ See Robert Prentice, *Vaporware: Imaginary High-Tech Products and Real Antitrust Liability in a Post-Chicago World*, 57 OHIO ST. L.J. 1163, 1229 (1996); Thomas A. Piraino, Jr., *A Proposed Antitrust Approach to High Technology Competition*, 44 WM. & MARY L. REV. 65, 78 (2002) (“There are many examples of network markets that started out as competitive but ultimately came to be dominated by one or a few firms. In the video recording market, the VHS format achieved such an advantage over the Beta format, and in computer operating systems, Microsoft prevailed over IBM, Apple Computer, and Novell.”).

³⁰⁹ STAN J. LIEBOWITZ & STEPHEN E. MARGOLIS, *WINNERS, LOSERS & MICROSOFT: COMPETITION AND ANTITRUST IN HIGH TECHNOLOGY* 21, 258–59 (Revised ed. 2001).

³¹⁰ *Id.* at 166–68, 227 (describing how standardization of measurements was resolved in each case).

³¹¹ *Id.* at 175. Three software brands competed in the PFS market: Quicken by Intuit, Microsoft Money, and Managing Your Money (MYM) by Meca. *Id.* at 201. In the 1980s, MYM was initially considered the best and most powerful product in the category. *Id.* When Quicken was introduced, it received less positive reviews as it was not as powerful as MYM. *Id.* “Over time Intuit improved Quicken, adding more sophisticated features.” *Id.* By the early 1990s, it was considered at least the equal of MYM, and by the mid-1990s, Quicken was clearly considered the best product. *Id.* at 202–03. In 1991, Microsoft introduced its Money program for Windows. *Id.* at 204. “Quicken’s

owners however, was that they “should have been able to leverage [their] ownership of the [copyrighted work] to achieve a dominant position,” independent of its quality.³¹² However, according to their studies, there was a strong positive correlation between the review ratings given to the product and its market share.³¹³ Where the incumbent was replaced, the rival’s product was of a “far higher quality, or [was] cheaper, or [was technologically] more advanced in some other way.”³¹⁴

The allegation that consumers are harmed because the elimination of competition restricts their choice is only true if consumers prefer product variety to positive network externalities. For example, market dominance could enhance market efficiency because the market is actually larger than it would otherwise be. More applications will be offered by software developers who are confident of the standard’s durability. All applications could be written for a single standard. Porting costs would be reduced and the price of applications could be lower. In-house and external expertise would only need to be built on one system. The average price charged to consumers could be lower than it otherwise would be due to the increased elasticity from network effects.³¹⁵ Monopolies in network industries could also establish uniform standards that make it easier for consumers to connect to the

retention of its market leadership [was] not surprising” given its high quality as indicated in successful reviews. *Id.* at 205. Stan J. Liebowitz & Stephen E. Margolis, *Network Effects and the Microsoft Case*, in *THE ECONOMICS OF QWERTY: HISTORY, THEORY, AND POLICY* 225 (Peter Lewin, ed., N.Y. Univ. Press 2002).

³¹² Liebowitz & Margolis, *Network Effects and the Microsoft Case*, *supra* note 311, at 227.

³¹³ LIEBOWITZ & MARGOLIS, *WINNERS, LOSERS & MICROSOFT*, *supra* note 309, at 227.

³¹⁴ *Id.* Microsoft produced a relatively inferior product, and failed to tip that market. *See id.* at 206. Indeed, the PFS market share graph shows one dominant firm followed by another dominant firm, or what is known as serial monopoly. *Id.* at 204. The “serial monopoly” hypothesis stands for the proposition that “at any time, it is likely that only one firm is in the market; but the threat that they could be overtaken at any time by any entrant disciplines their price, quality and innovation behavior.” Gerald R. Faulhaber, *Bottlenecks and Bandwagons: Access Policy in the New Telecommunications*, <http://assets.wharton.upenn.edu/~faulhabe/Bottlenecks%20and%20Bandwagons.pdf>. Since market shares changed so rapidly, the concept of lock-in and tipping seems out of place. *Id.* at 202.

³¹⁵ *See* RICHARD B. MCKENZIE, *DIGITAL ECONOMICS: HOW INFORMATION TECHNOLOGY HAS TRANSFORMED BUSINESS THINKING* 284–85 (Praeger 2003).

network and interact with other users.³¹⁶ The competitive process inevitably results in the elimination of some, perhaps all competitors. By being the most innovative, efficient and responsive to customers' wishes, the copyright owner may well be the last one standing.

It would be strange and indeed harmful if such efficient market outcomes were penalized. It is unsound policy to base regulatory action simply on possibilities, particularly where those presenting them acknowledge no obligation to subject them to rigorous empirical tests. The theory of harmful 'lock-ins' simply asserts that under certain assumptions, the possibility exists.³¹⁷ People are often locked in by their prior decisions.³¹⁸ Someone who buys a Volvo would be locked in to Volvo aftermarket parts for the term of ownership. In some cases, buyers may not have examined long-term ownership costs carefully and others are deceived by initial misrepresentations or post-purchase changes in policies. But to turn these into competition issues transforms it into a general economic engine for reform of improvident decisions. As the Supreme Court in *Trinko* warned, "[t]he cost of false positives counsels against an undue expansion of [EFD] liability."³¹⁹ The dichotomy between false positives and false negatives has been vigorously debated in the scholarly literature. The Chicago School has contended that false convictions (in which a defendant is wrongfully found guilty of a crime) are more dangerous than false acquittals (in which a defendant is

³¹⁶ Stephen Labaton, *Airlines and Antitrust: A New World. Or Not*, N.Y. Times, Nov. 18, 2001, § 3, at 1 ("The old antitrust principles do not apply easily because there are countervailing benefits to consumers—like lower prices, standardization or more frequent service—when control of the industry is in the hands of a few companies."). The benefits of uniform technological standards are evident in the contrast between wireless phone performance in the US and most of the rest of the world. Walter S. Mossberg, *A Guide to the Lingo You'll Want to Learn for Wireless Technology*, Wall St. J., Mar. 28, 2002, at B1. The United States never was able to settle on a single standard for wireless phone technology "and that blunder has resulted in a patchwork of multiple, incompatible technologies." *Id.* By contrast, Europe and most other countries settled on a single standard thus have "better and more innovative wireless phones and wireless services." *Id.*

³¹⁷ See LIEBOWITZ & MARGOLIS, WINNERS, LOSERS & MICROSOFT, *supra* note 309, at 138 ("Confirmation of lock-in requires that better products exist that are not adopted.").

³¹⁸ See LIEBOWITZ & MARGOLIS, WINNERS, LOSERS & MICROSOFT, *supra* note 309, at 51.

³¹⁹ *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 414 (2004).

wrongfully acquitted) because they cannot be remedied by the marketplace.³²⁰

If competition law is to intervene based on anticompetitive network effects, courts and CEOs ought to find at least one clear instance of it. There must be evidence of actual or likely future consumer harm, which economic studies have yet to show.³²¹ However, the study above shows the opposite: in the real world, good products have won. Confirmation of 'lock-ins' requires evidence of non-adoption of existing better products.³²² Testing for inertia requires "compar[ing] the rate of change in actual market shares with the ideal rates of change," which is "considerably more detail[ed] than [empirical] data allow[s]."³²³

Third, the belief that inferior products will follow lock-ins wrongly assumes that programmers hired by the incumbent lack or lose creativity. Dominant owners benefit from new ideas as much as smaller firms.³²⁴ A lazy board of directors will quickly see their stocks acquired and the board replaced by infuriated shareholders. Software and database markets require producers to continually add new functions to their products.³²⁵ Unlike McDonald's consumers who want the same Big Macs they ate the day before, functional works do not vanish or suffer in quality on consumption.³²⁶ Consumers have little incentive to purchase new software from the dominant vendor unless new and significant improvements are offered.³²⁷ Therefore, the policy implication of this is that courts and CEOs can help ensure that consumers get the best products by keeping regulatory impediments out of entrepreneurial competition to establish their mousetraps in the marketplace.³²⁸

³²⁰ See Ronald A. Cass & Keith N. Hylton, *Preserving Competition: Economic Analysis, Legal Standards and Microsoft*, 8 GEO. MASON L. REV. 1, 30–33 (1999) (stating that false convictions discourage competition and encourage firms to seek compensation in the courts and that false acquittals promote competition over the long run).

³²¹ David S. Evans et al., *United States v. Microsoft: Did Consumers Win?*, 1 J. COMPETITION L. & ECON. 497, 498–99 (2005).

³²² LIEBOWITZ & MARGOLIS, WINNERS, LOSERS & MICROSOFT, *supra* note 309, at 138.

³²³ *Id.*

³²⁴ *Id.* at 256.

³²⁵ *Id.* at 258.

³²⁶ *Id.*

³²⁷ *Id.*

³²⁸ Indeed, David Teece and Mary Coleman maintain that intervention in high technology industries should be avoided except in the most unusual of circumstances, because efforts to hobble the winner in one round of innovation

Fourth, where refusals to license seem anticompetitive at first blush due to concerns over path dependency, it is possible the CEOs and courts have been misled. Stan Liebowitz and Stephen Margolis suggest that there are three possible efficiency outcomes where a dynamic process exhibits path dependency.³²⁹ First-degree path dependency occurs where the future impact of initial actions are fully appreciated and taken into account.³³⁰ There is no error or inefficiency in those decisions, despite the sub-optimality of the situation in a given period, and no remedy is required.³³¹ Second-degree path dependency recognizes that “information is never perfect.”³³² Efficient decisions may not “be efficient in retrospect.”³³³ However, the inferiority of a choice cannot be known at the point where the choice was made.³³⁴ In this situation, outcomes, though somewhat inefficient, are unavoidable and again should not warrant remedy.³³⁵ Third-degree path dependency occurs where initial conditions lead to an inefficient outcome, but it was possible to recognize and avoid the inferior outcome at the point where the decision was made.³³⁶

will be seen as diminishing the returns available from competing in high-risk environments, thereby diverting resources to other sectors of the economy which display less risk and afford less innovation. Teece & Coleman, *supra* note 109, at 843–44 (Teece and Coleman argue that intervention “might produce severe disincentive affects throughout the entire economy. The possibility of success through superior skill, foresight, and acumen, or just dumb luck, induces entry, investment, and unparalleled even maniacal effort. To penalize success with poorly reasoned antitrust intervention is dangerous.”).

³²⁹ LIEBOWITZ & MARGOLIS, WINNERS, LOSERS & MICROSOFT, *supra* note 309, at 52–55.

³³⁰ *Id.* at 53.

³³¹ *Id.* Liebowitz and Margolis explain first-degree path dependence by an analogy to a couple buying a house. Upon buying the house, the couple properly takes into account future prices, incomes, and family size developments. Thus, the house may be too big at first when the couple moves in as newlyweds, then just right when the couple has children, then too small with grandchildren, then too big when the children and grandchildren move out. All this may have been predicted fairly well. *Id.*

³³² *Id.*

³³³ *Id.*

³³⁴ *Id.* at 53–54.

³³⁵ *Id.* at 54. An example of this would be someone buying a house without possibly being able to know that five years down the road a sewage treatment plant will be built nearby, drastically lowering property prices and the neighbourhood amenities nearby. Here, there is dependence on past conditions, which lead to regrettable outcomes, and the person may not have bought the house had he known in advance what was going to happen. But because of limited knowledge, the path dependence is not inefficient in any meaningful sense.

³³⁶ *Id.* An example of this would be where someone bought a house, knowing

First-degree path dependence assumes that the copyright owner's product and other rivals were essentially the same and the eventual market choices of the owner were arbitrary and lead to a significant and durable outcome.³³⁷ Courts and CEOs cannot use static or dynamic efficiency models to predict which of several equally efficient possibilities will be chosen and the outcome is completely random. If the argument is taken a step further to second-degree path dependence, CEOs may assert that the owner's products are notably inferior. However, during the time the owner dominated the standard, it might not have been known that some other standard would be better in the future. *Ex post*, it may appear that the market's choice of the owner's product was a mistake, although it was not a mistake given the information when the market tipped.

The argument can go further. CEOs may claim that at the beginning, sufficient information existed to determine that other platforms were superior, thus making a case for third-degree path dependence. This may occur if at the time that the owner introduced its products, most consumers preferred rival products, but were unaware that others had similar preferences. In that case, a slim lead for the 'inferior' standard might have propagated into eventual market dominance. Refusals to grant licenses to interface information therefore impede technological development, and translate into an anticompetitive abuse. Alternatively, if it were widely understood that switching to the rival platform would confer greater benefits than the switching cost of doing so, but that you are forced to remain with the owner, this would be another instance of third-degree path dependence. This has yet to occur because each consumer prefers the owner's platform, given that all other users and developers use it.

However, there is neither convincing theory nor empirical support for this proposition. Indeed, empirical evidence suggests that third-degree path dependence, if it exists, is so rare that it should not be the basis for regulatory intervention.³³⁸ Although

that "a sewage plant is going to be built, but build[s] the house nearby anyway since all of [his] friends are buying houses there and [he] value[s] being part of that neighborhood. [He] would rather buy a house away from the sewage plant, and so would [his] friends, but [they were] somehow unable to coordinate [their] actions." *Id.*

³³⁷ See *id.* at 53, 55.

³³⁸ See Stan J. Liebowitz & Stephen E. Margolis, *Dismal Science Fictions: Network Effects, Microsoft, and Antitrust Speculation*, in *THE ECONOMICS OF QWERTY: HISTORY, THEORY, AND POLICY* 179, 205 n.10 (Peter Lewin ed., 2002)

markets do not always choose the best technology, there are good reasons to expect it to be very unusual for consumers to choose the wrong technology.³³⁹ Pernicious “lock-ins” may exist, but it hardly follows that consumers are thereby locked into inferior products.³⁴⁰ There is a difference between proving the existence of inefficiency and proving its absence. If CEOs assert that they have identified a remediable inefficiency, the onus is on them to prove it. In the same way that the law presumes an accused person innocent unless proven guilty, it seeks to minimize the costs of incorrectly identifying inefficiency by erring on presumption that the market outcome is efficient unless proven otherwise. It would therefore be wrong for CEOs to assert that without evidence of inefficiency, “one may presume to have proven the outcome is efficient.”³⁴¹ The line between conviction and paranoia is a fine one. Unless there is clear proof of consumer harm in tipped copyright markets flowing from refusals to license, the EFD has no reason to intervene.

D. Compulsory Licensing, Law and Economics

An economic analysis of the EFD-copyright interface would be incomplete without considering the mechanics of compulsory licensing. Perhaps surprisingly, the main objection does not seem to be the application of compulsory licensing, but rather its method of application.³⁴² Instead, the main objection seems to lie in determining “both a reasonable price for the license and fair conditions for access by others, and to supervise that access on an ongoing basis.”³⁴³ “[T]he notion of reasonable price suggests a

(arguing that policy makers should not go about correcting markets until they have concrete proof that markets have failed).

³³⁹ PETER LEWIN, *The Current State of the Debate Involving the Economics of QWERTY*, in *THE ECONOMICS OF QWERTY* 244, 253 (2002).

³⁴⁰ See Liebowitz & Margolis, *Dismal Science Fictions: Network Effects, Microsoft, and Antitrust Speculation*, *supra* note 348, at 184–87, 205 n.10.

³⁴¹ Peter Lewin, *Facts, Values and the Burden of Proof*, <http://www.utdallas.edu/~plewin/factsValuesandtheBurdenofProof.pdf>, at 9 (last visited June 6, 2007).

³⁴² Beatrice Dumont & Peter Holmes, *The Scope of Intellectual Property Rights and their Interface with Competition Law and Policy: Divergent Paths to the Same Goal?*, 11 *ECON. OF INNOVATION & NEW TECH.* 149, 155 (2002).

³⁴³ Herbert Hovenkamp et al, *Unilateral Refusals to License in the US*, in *ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES* 23 (Francois Lévêque & Howard Shelanski eds., 2005). Indeed, economic studies by Scherer seem to suggest “compulsory licensing had a very minor negative effect on innovation.” Dumont & Holmes, *supra* note 342, at 158–59.

range of acceptable values, not a single figure.”³⁴⁴ Unfortunately, economics may provide optimal prices, but not “reasonable” prices.³⁴⁵ Finding a reasonable price requires a “hypothetical royalty bargaining between the parties if licensing had been pursued instead of infringement.”³⁴⁶ The level could lie anywhere between a nominal sum for the cost of granting the license, to the substantial standard of the opportunity cost of allowing market entry. It requires historical data and yardstick market conditions that may be difficult to find in cases involving standards-setters who had been the first into the market. The choice of access charges is a delicate one. Barriers to entry may be created if charges are too high. Conversely, low charges may generate inefficient entry and discourage the incumbent from maintaining and upgrading their networks. In the absence of a competitive market, it may therefore be difficult to say definitively what is “reasonable.”

The EFD seeks to apply rules of microeconomics to the copyright regime with its own checks and balance.³⁴⁷ Dennis Carlton observed that “[a]ntitrust goes astray when it relies on either poor economic reasoning . . . or when it adopts untested economic theories . . . [while] economics goes astray when it creates untestable theories about competitive harm.”³⁴⁸ Markets are complex and diverse. Those familiar with economic theory will know that the effects of conduct can be quite different with a small change in assumptions. It is always easier to produce data consistent with the theory than it is to rule out alternative explanations. Economists often select markets to study because data gathering in them is particularly easy or other characteristics of the market tend to simplify economic analysis. As a result there are far too many instances when a particular kind of business conduct has more than one explanation that economic theory cannot completely rule out alternatives.

Courts are worse than economists in ruling out alternative

³⁴⁴ FRANCOIS LÉVÉQUE, *Innovation, Leveraging and Essential Facilities: Interoperability Licensing in the EU Microsoft Case*, in ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES 107, 118 (2005).

³⁴⁵ *Id.* at 103, 117–18.

³⁴⁶ *Id.* at 118–19. “Lawyers conventionally use a list of factors (the so-called 15 Georgia-Pacific factors) to determine the end-points and a likely outcome to bargaining.” *Id.* at 118.

³⁴⁷ *See id.* at 121.

³⁴⁸ Dennis W. Carlton, *Using Economics to Improve Antitrust Policy*, 2004 COLUM. BUS. L. REV. 283, 283 (2004).

explanations. The judge is typically a well-educated generalist. The judges' education and sophistication in economics is no greater than that of the general population. Often the judge will sit through testimony by experts for the two sides, offering opposing explanations that seem about equally plausible. This is a serious problem with private enforcement. It gives rise to the problem of unprincipled experts whose skills at persuading an untutored tribunal are often much greater than the quality of their economic analysis being able to get courts to rubber stamp their leaky theories.³⁴⁹

Some practices, such as those involving consumer harm from tipped and path dependent markets should effectively be immune because our institutions are not up to the task of identifying them without producing an unacceptable number of false positives. When a particular form of behavior is too complex for reliable analysis, then the only defensible rule is to let the market rather than the courts control. The legislature can always intervene, but a court is in hazardous territory when it assumes that it can improve consumer welfare in every case. An overly deterrent rule tends to discourage aggressive competition by everyone, making consumers pay a large price. By contrast, an underdeterrent rule may permit a few instances of predation to slip by, but the social cost of such "false negatives" is very likely much less than the social cost of false positives. These critiques can prove fatal to the rational administration of the EFD.

At the same time, the complexity of competition economics should not be exaggerated. There is much common sense involved in economic analyses based on sound methodologies.³⁵⁰ The focus on economic insights should not be confused with applying complex, mathematical formulas and/or econometrical calculation models in competition assessment. The strength of economics lies in econometric analysis.³⁵¹ This means that

³⁴⁹ See Julia A. Martin, *Arbitrating in the Alps Rather than Litigating in Los Angeles: The Advantages of International Intellectual Property-Specific Alternative Dispute Resolution*, 49 STAN. L. REV. 917, 933 (1997).

³⁵⁰ Mario Monti, Comm'r Responsible for Competition Pol'y, Speech at the Conference at the Europäische Rechtsakademie: The Application of Community Competition Law by the National Courts (Nov. 27, 2000), <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/00/466&format=HTML&aged=0&language=EN&guiLanguage=en>.

³⁵¹ ROBERT J. GORDON, *MACROECONOMICS* 5 (10th ed. 2006). Economics have become more and more empirical; "[m]acroeconomic theory examines the

economists should try to help “de-esoterise” market effects of copyright and competition law.³⁵² Economics has managed to produce respected analysis with concepts such as “happiness,”³⁵³ and should likely be able to produce copyright access models based on “reasonableness.” Indeed, recent literature has produced promising economic models to properly calibrate the prices in compulsory licensing of copyright.³⁵⁴ Empirical testing may exclude alternative hypotheses, thus proving that a given

behavior of aggregates such as national income and the unemployment rate while ignoring differences among individual households.” *Id.* Gordon further notes that microeconomic theory “reaches striking conclusions by pretending that there is just one interest rate, instead of the many rates reported in daily newspapers.” *Id.*

³⁵² RUDIGER DORNBUSCH ET AL., *MACROECONOMICS* 12 (9th ed., 2004) (“We cannot overemphasize this point: The only way to understand the very complicated world in which we live is to master a toolbox of simplifying models and to then make quite explicit decisions as to which model is best suited for analyzing a given problem.”). Vikram Khanna once stated:

For me, John Kenneth Galbraith was the first economist—and he remained one of the few—to make economics come alive and seem relevant to the real world. I read him all the way from my teens to the present; fortunately, he was prolific throughout that period. While I did not agree with everything he wrote, I always found it insightful and refreshing.

Vikram Khanna, *Remembering John Kenneth Galbraith 1908–2006: He was the First Economist to Make Economics Seem Relevant to the Real World*, *BUS. TIMES* (Sing.), May 4, 2006.

³⁵³ See, e.g., John Lloyd, *What Price Happiness? How Economics is Learning to Lighten Up*, *FIN. TIMES* (U.K.), May 1, 2006, at 13. Further, quantifying abstract concepts is not altogether an unfamiliar concept to economists. *Id.* Generally, economists assumed a rational decision. *Id.* However, some now want to see how decisions are made in the real world. *Id.* Dr. Andrew Oswald is a renown researcher of the economics of happiness. *Id.* Adair Turner, who led the U.K. Pensions Commission, stated that the field has integrated other disciplines to analyse “how people really think, and what makes them really happy.” *Id.* Turner has found that “[t]he rational approach is often not what people do. It’s determined by what they know, whom they trust and when they make the decision.” *Id.* Charles Murray has been a strong critic of the research and has observed that definitions of happiness are often of a European variety. *Id.* “That is, the purpose of life is to while it away as pleasantly as possible.” *Id.*

³⁵⁴ Baumol and Willig propose an interesting economic model where entry only occurs “if the new entrant, being able to produce with lower marginal cost, is more efficient than the incumbent.” Heimler & Nicita, *supra* note 1, at 11. Another suggestion points to the use of Demsetz auctions to grant access to the firm that bids the lowest user fee. Eduardo M.R.A. Engel, Ronald D. Fischer, & Alexander Galetovic, *How to Auction an Essential Facility When Underhand Integration is Possible* (Nat’l Bureau of Econ. Research, Working Paper No. 8146, 2001), available at <http://www.nber.org/papers/w8146>. Lévêque proposes a model for optimal price royalty based on a bargaining approach. Lévêque, *supra* note 343, at 118–20.

explanation is correct. With established general economic principles, every EFD case need not be analyzed on the basis of *ad hoc* fact specific arguments. This saves time, and introduces simplicity and certainty to the results of weighing arguments. Should an economic model fail, it should not swept under the rug, but rather is used to highlight what the model misses.³⁵⁵ However, courts must remain sensitive to fallacies in economy theory and never “rubber stamp” what has been put forth without getting dependable counsel.

Once the preliminary roles of economists are clarified, the next step is to harmonise the fusion of legal and economic analysis. “Market definition,”³⁵⁶ “barriers to entry,”³⁵⁷ and “product substitutability”³⁵⁸ are clearly economic issues. Whether a copyright owner has “justifiably” refused access as means of defensive leveraging is a legal inquiry.³⁵⁹ Indeed, courts routinely make findings of “reasonableness,” even in the most esoteric subject matter.³⁶⁰ Competition policy should not retreat to purely econometric standards in its attempt to use scientific means to resolve or mask what is an inherently normative dispute requiring a measure of “hunch, faith and intuition.”³⁶¹

³⁵⁵ See GORDON, *supra* note 351, at 334–39 (citing the example of how the Solow Growth Model’s failure opened the way to a unique treatment of the debate between the new institutional economics and the exponents of the tropical geography explanation of the failure of poor countries to converge to the income level of rich countries).

³⁵⁶ POSNER, *supra* note 123, at 147–58.

³⁵⁷ A barrier to entry is “a condition that imposes higher long-run costs of production on a new entrant than are borne by the firms already in the market.” *Id.* at 74 (citing GEORGE J. STIGLER, *Barriers to Entry, Economies of Scale, and Firm Size*, in *THE ORGANIZATION OF INDUSTRY* 67 (1968)).

³⁵⁸ See *id.* at 149–50.

³⁵⁹ See Hovenkamp et. al., *Unilateral Refusals to License in the US*, *supra* note 343, at 12.

³⁶⁰ See, e.g., Jeremy Au Yong, *Room Without a View: Condo Owners Win Suit*, STRAITS TIMES (Sing.), May 28, 2006. Singapore courts were able to quantify the value of a view at SG \$15,000. *Id.*

Buyers said they were enticed by the showflat and floor plans that featured a large ceiling-to-floor window running the entire length of one wall, promising expansive views of the city skyline as well as the sea.

But when they received their keys in early 2004, that was not what they got. In fact, the bedroom windows had shrunk to nearly half their showroom size.

Id.

Architectural “experts on both sides offered wildly differing values” stating that the lost view had decreased the value of the apartments from as low as \$500 to as high as \$97,000. *Id.*

³⁶¹ Robert Pitofsky, *The Political Content of Antitrust*, 127 U. PA. L. REV.

These determinations are in the end a function of the bias or ideological conviction of the CEOs or judge. It is in areas such as these where those with cross-disciplinary training can make a useful contribution.³⁶² Recent developments of the Faculty of Law at the National University of Singapore have provided a timely reminder that the law coexists in an ecosystem with other disciplines.³⁶³ The double-degree program with the economics department now complements the traditional four-year LLB program to train a new generation that are neither lawyers nor economists, but “*lexonomists*” who are able to integrate the training in each field into a synergistic whole.³⁶⁴ This may well reflect the multidisciplinary competence that those researching and practicing competition law will eventually be expected to possess. These individuals have the expertise to make sure that competition law is grounded in logical analysis and provide tools to assess the relative merits of competing economic hypotheses and legal theories.³⁶⁵

In addition, copyright tribunals which have long determined the appropriateness of licensing fees may be better suited to determine this issue once the competition authorities or courts have determined that access is necessary.³⁶⁶ Having a specialist copyright tribunal would certainly allow an institutional balance to competition law intervention.³⁶⁷ Copyright tribunals may offer a regime more sensitive to balancing copyright appropriability with spreading the ripple effects of innovation from the original

1051, 1065 (1979). *But see* Morton J. Horwitz, *Law and Economics: Science or Politics?*, 8 HOFSTRA L. REV. 905, 905 (1980).

³⁶² Even the US government's chief economic expert, Dr. Franklin Fisher, described the threat posed by Microsoft in non-economic terms when he testified that if Microsoft's actions went unchecked, “[w]e will live, as it were, in a Microsoft world in which choices are the choices that Microsoft makes.” Transcript of Proceedings at 30, *U.S. v. Microsoft Corp.*, 2006 WL 2882808 (D.C. Cir. Sept. 7, 2006) (No. 98-1232), available at <http://cyber.law.harvard.edu/msdoj/transcripts/0112a.doc> (last visited June 7, 2007).

³⁶³ *See, e.g.*, Nat'l Univ. of Singapore, The New Double Honours Degree in Economics and Law, <http://www.nus.edu.sg/prog/econlaw/overview.htm> (outlining the joint degree program between the disciplines of economics and law) (last visited April 22, 2007).

³⁶⁴ *See id.*

³⁶⁵ *See id.*

³⁶⁶ GHIDINI, *supra* note 181, at 66–67 (arguing that the amount of royalties can “efficiently be addressed, as international experience shows, by quick arbitral procedures, even at administrative level—take, for example, the model that has been offered by the US Copyright Royalty Tribunal.”).

³⁶⁷ Anderman, *Issues Raised*, *supra* note 42.

work. The need to achieve a balance is recognized in TRIPS.³⁶⁸ This has led Valentine Korah to observe “[t]he lack of criteria is one of the reasons for seldom requiring supply. Some arbitrary test will have to be set by the Commission, perhaps a proportion of the licensee’s sales, as is fixed by some Member States for the compulsory licensing of performing rights in records.”³⁶⁹

It is interesting to note that in Singapore, the Copyright Tribunal has determined that “reasonableness” did not mean a “logically rational” (or economically efficient) standard, but bore the broader meaning of “fair” and similar to “equitable remuneration.”³⁷⁰ It was to be assessed in the particular circumstances of parties based on commonsense. This translated into a percentage of the requestor’s revenue.³⁷¹ This may provide a yardstick for pricing access. However, if the current situation of the Singapore Copyright Tribunal is at all indicative of corresponding tribunals elsewhere, a radical expansion in jurisdiction and resources will be necessary in order for them to properly assist CEOs and courts.³⁷²

IV. CONCLUSIONS

There is no retreat from the growth of copyright over functional works. Business needs shape the law. As economies become more technology dependent, the case for exclusive rights in database and software industries will be more compelling. To reduce the commercial risks from misappropriation in already risky ventures, businesses appreciate and, in some cases, demand the security that copyright provides in safeguarding

³⁶⁸ See Agreement on Trade-Related Aspects of Intellectual Property Rights art 7, Apr. 15, 1994, 1869 U.N.T.S. 299, 33 I.L.M. 1197, available at http://www.wto.org/english/docs_e/legal_e/27-trips.pdf. Article 7 states that

[t]he protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

Id.

³⁶⁹ KORAH, *supra* note 35, at 163.

³⁷⁰ Singapore Broad. Corp. v. Performing Right Soc’y Ltd, [1991] F.S.R. 573, 593 (Copyright Tr.) (Sing.).

³⁷¹ *Id.* at 599.

³⁷² The Singapore Copyright Tribunal was set up to investigate performing, broadcast and cable program licenses. See GEORGE WEI, THE LAW OF COPYRIGHT IN SINGAPORE 1124–32 (2d ed., 2000). It would therefore not have been able to hear cases on access to databases and software.

their investments. This is not ideal, as it trades one form of risk for another—the risk that information gets balkanised by copyright owners controlling access to interface information or raw data. As Herbert Hovenkamp noted:

Congress has continuously expanded the scope of patent and copyright, and . . . [a] strong case can be made that today we overprotect at least certain intellectual property rights, perhaps severely so. This problem is in the first instance not one for the antitrust laws, but it necessarily shows up in the attitude that antitrust takes toward intellectual property practices that are alleged to be anticompetitive.³⁷³

The danger is real, particularly where copyright owners also generate that information, as in the case of databases. A strong case may be made to support the EFD in requiring access in such cases. The owner has expended no creative effort. While in some cases, the incentive to create may be dampened by access, it is difficult to see how, on the facts of cases such as *Magill*, *Feist* and *BHB* that will be the case. However, policing banal rights is not the role of competition law. Its purpose is to make markets perform more competitively, and intervention is justified only when it moves the market toward that goal.³⁷⁴ It is clear that private firms should not be allowed to stifle distinctly new products outside the scope of their copyright based on dynamic efficiency arguments. The owner's right to appropriation is not an unlimited one. Neither should firms previously protected from competition by government policies be allowed to prevent the emergence of alternatives. In these cases, the net dynamic efficiency gains are relatively clearer. These instances should be contrasted with situations such as in *IMS Health*, where rivals are seeking access simply to parasitically duplicate the copyrighted content of a private firm.³⁷⁵ This lowers the likelihood of false convictions, though it does not eliminate it completely. At some level, determining an optimal approach can be maddeningly speculative. But it is impossible to see how determining the *potential* effects of intervention in a regime created to promote *incentives* to create could be otherwise.

³⁷³ HOVENKAMP, *supra* note 194, at 3. Similarly, the Commission's interim decision in *IMS Health* is devoid of such an express limitation. If the Commission and EC Courts had wished to limit the application of competition in the compulsory licensing setting to banal copyright-protected works, they could have done so.

³⁷⁴ See HOVENKAMP, *supra* note 194, at 48.

³⁷⁵ See Lang, *supra* note 240, at 74.

It is more controversial whether an identical attitude can be transposed in “superdominant” owners or industries tipped in favor of the copyright owner’s standard. Interventionist strategies may pay off by generating more competition in the domestic market through greater product variety and lower prices. However, rather broad economic theories would force CEOs and courts to confront problems that they may be not capable of solving. Misplaced intervention directs attention away from efficient product to a mere paper shuffling. It adds nothing to efficiency, and in fact, subtracts from it. Many industries in the global markets are porous. Copyright in functional works more so than most. Open markets may come at the cost of licensing and even research and development being chilled—such activities could be carried out elsewhere with the loss of many well-paid and interesting jobs.

At the very least, it must be conceded that this makes the market less attractive to large copyright conglomerates with much to lose by risking disclosure of their assets—a disclosure that in an interconnected digital world, can permeate far beyond national borders very quickly. US jurisprudence suggests that it recognizes this, and has decided instead to adopt an approach that cedes more discretion to internal regulation in the form of exceptions and limitations within copyright law.³⁷⁶ Against the relative polarity in the EU this position may attract investment growth and generate attractive job opportunities for many Americans in database and software industries, as well as industries that support them. Singapore will soon have to decide its own path. It is economically far more vulnerable to negative market sentiments, and must be even more careful than the EU and US. On a larger scale, it will be interesting to see which model will become the benchmark for an international competition policy equivalent of TRIPS.³⁷⁷

The EFD is a defensible doctrine only if it can make markets more competitive—that is, if intervention produces lower prices, larger outputs, or improved product quality. Developing rules that reliably promote consumer welfare is a daunting task that

³⁷⁶ See generally Hovenkamp et. al., *supra* note 343, at 12–56 (offering an overview of the exceptions and loopholes of antitrust application to intellectual property rights in the US).

³⁷⁷ Eleanor M. Fox, *Antitrust: The Big Picture*, in ANTITRUST UNDER THE CLINTON ADMINISTRATION 347, 350 (MCLE 1993) (speculating on whether the EU model will become the world standard).

courts and CEOs can perform with confidence only if they are applying theories that are within their grasp.³⁷⁸ The rules at the Interface must be administrable by courts with reasonable accuracy. They must also be robust and improve market performance. This is where economics plays a critical role in making dynamic efficiency less esoteric, by providing useful ways to measure the impact of regulation on innovation and calibrate the correct prices for compulsory licenses. In addition, economic theory provides an important safeguard against rivals who do not have the skill or drive to blaze their own path, but instead simply wish to appropriate the capital investment and business efforts of their successful predecessors in the relevant market under the guise of requiring fair access to essential facilities. In this regard, SERCI and the IP Academy are critical forerunners. While both are only in their early years of existence, they already have a commendable history of promoting economic research and constructive debate in copyright and other forms of IPRs, and in bringing together legal and economic minds at a common platform. It is highly significant that their individual efforts dovetailed this year at the present conference. It is hoped that such events will catalyse more constructive debate that work towards establishing a sound and equitable framework to nurture the growth of innovation.

³⁷⁸ HOVENKAMP, *supra* note 194, at 39 (noting that “[t]he biggest danger presented by post-Chicago antitrust economics is not that the variety and likelihood of anticompetitive practices are exaggerated, although that too has happened,” but the self-assurance that courts and regulators are capable to handle its complexity).