

TRADING POSTS IN CYBERSPACE: INFORMATION MARKETS AND THE CONSTRUCTION OF PROPRIETARY RIGHTS

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Abstract: Technological innovation is a predominant source of persistent economic growth. Endogenous factors, principally human capital, financial capital, and government intervention play an important role in how the innovation process can enhance welfare through the grant of intellectual property rights. However, the expansive reach of such proprietary interests in cyberspace has important implications for how e-commerce might contribute to overall economic growth. Thus far, the scope of intellectual property rights in cyberspace has been examined in isolation from empirical data reflecting how businesses seek to create value and effectively capture the benefits that the Internet offers over real-space markets. This Article argues that expansive construction of intellectual property rights distorts the informational properties of such rights and reintroduces high search and use costs to transactions in cyberspace. It also deters development and use of innovative business strategies that could generate greater value from e-commerce. Consequently, there is a need for more government intervention in regulating competition for markets in cyberspace.

INTRODUCTION

It is now an aphorism that information technologies have significantly affected the social, economic, and political structure of personal, national, and international relations.¹ Although there re-

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¹ Information technology has radically altered traditional models of production, management, and governance in firms. The simultaneous elimination of distance and time as costs or barriers to the movement of factors of production has facilitated the expansion of businesses across geographic borders as well as less dependence on government actors as indispensable agents in the creation of global markets. See Ruth Gana Okediji, *Copyright*

mains some debate over the magnitude of the changes caused by the Internet,² and even lingering skepticism about the fact of any real change at all,³ the Internet has, at the very least, occasioned intense scrutiny of the justifications that inform prevailing economic theories pertaining to the regulatory function of government and, consequently, market structures. Prior to the Internet's emergence as an important subject of economic analysis,⁴ a significant body of eco-

and Public Welfare in Global Perspective, 7 IND. J. GLOBAL LEGAL STUD. 117, 117-18 (1999) (describing features of globalization); see also *id.*, at 117 n.2. Fundamentally, the phenomenon of globalization reflects a transition from land, capital, labor, and entrepreneur as basic production factors to information, technology, and skilled labor. Consequently, multinational corporate alliances have assumed increasingly powerful roles, both formal and informal, that largely determine the substance of legal regimes that regulate the global economy. The internationalization of intellectual property is paradigmatic of this phenomenon, but the influence of multinational corporations in other regulatory areas is evident in both national and international settings. See, e.g., Jeff Gerth, *Where Business Rules: Forging Global Regulations That Put Industry First*, N.Y. TIMES, Jan. 9, 1998, at D2. On the "public" law side, there has also been a significant rise in the number and influence of nongovernmental organizations. For an examination of the role of non-state actors in law-making processes in the international arena, see Peter J. Spiro, *New Players on the International Stage*, 2 HOFSTRA L. & POL'Y SYMP. 19, 24-36 (1998) and Peter J. Spiro, *New Global Potentates: Nongovernmental Organizations and the "Unregulated" Marketplace*, 18 CARDOZO L. REV. 957, 959-62 (1996).

² In this Article, the terms "Internet" and "cyberspace" are used interchangeably.

³ Some scholars have expressed skepticism about the singularity of the Internet and its effects on traditional regulatory forms, particularly in light of other revolutionary innovations. For a general critique of the idea of a specific "law of cyberspace," see generally Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207. For an international law perspective, discussing claims that the Internet is ungovernable by any single nation-state, see generally Jack L. Goldsmith, *Against Cyberanarchy*, 65 U. CHI. L. REV. 1199 (1998) (arguing that the Internet does not present any issues that international law has not hitherto successfully confronted). See also Robert J. Gordon, *Does the "New Economy" Measure up to the Great Inventions of the Past?*, J. ECON. PERSP., Fall 2002, at 49, 66-72 (expressing skepticism about the economic impact of the Internet).

⁴ See Michael Spence, *Signaling in Retrospect and the Informational Structure of Markets*, 92 AM. ECON. REV. 434, 454 (2002) (noting that the Internet has led to some productivity gains due to shifts in market parameters, particularly in the area of transaction costs and suggesting a need to study some of these shifts). Several empirical and theoretical studies of the relationship between information technology and productivity exist. See, e.g., Erik Brynjolfsson & Lorin M. Hitt, *Beyond Computation: Information Technology, Organizational Transformation and Business Performance*, J. ECON. PERSP., Fall 2000, at 23, 30-45; David Lucking-Reiley & Daniel Spulber, *Business-to-Business Electronic Commerce*, J. ECON. PERSP., Fall 2001, at 55, 56-62 (examining areas of expected increase in productivity gains in business-to-business e-commerce); Stephen D. Oliner & Daniel E. Sichel, *The Resurgence of Growth in the Late 1990's: Is Information Technology the Story?*, J. ECON. PERSP., Fall 2000, at 3, 9-21. Much of the current literature on the effect of the Internet and information technology on the market relies on Coase's seminal work on the nature of the firm. See Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937); cf. Gordon, *supra* note 3, at 54-57 (arguing that the effect of information technology is not as significant for multifactor productivity growth and may account for only twelve percent of economic activity).

conomic literature had challenged assumptions fundamental to the economic paradigm of free markets with limited government intervention. Importantly, this body of economic analysis has contributed to the study of the role of information in decision-making by firms and individuals, identifying dislocations between competitive equilibrium models and market realities, while at the same time introducing models that might better inform government policies or explain policy failures.⁵

The role of information in a market for information is an important factor in considering the appropriate function of intellectual property rights in cyberspace, including the effect of such rights on the development of e-commerce.⁶ As societies seek to appropriate maximum returns from the many markets⁷ spawned by the Internet, scholars and the public at large have intensely scrutinized the comparative effects and efficacy of public and private law regimes in regulating behavior in cyberspace and in regulating cyberspace itself.⁸ The

⁵ For discussions concerning the influence of information economics, see generally DREW FUDENBERG & JEAN TIROLE, *GAME THEORY* (1991); JACK HIRSHLEIFER & JOHN G. RILEY, *THE ANALYTICS OF UNCERTAINTY AND INFORMATION* (1992); John G. Riley, *Silver Signals: Twenty-Five Years of Screening and Signaling*, 39 J. ECON. LITERATURE 432 (2001). In my recent work, I have sought to introduce insights from information economics to explain and analyze particular concerns in international intellectual property regulation. See generally Ruth L. Okediji, *Rules of Power in an Age of Law: Process Opportunism and TRIPs Dispute Settlement*, in *HANDBOOK OF INTERNATIONAL TRADE LAW: ECONOMIC AND LEGAL ANALYSIS OF LAWS AND INSTITUTIONS* (Kwan C. Choi & James Hartigan ed., forthcoming 2004); Ruth L. Okediji, *A Cartography of WTO TRIPs Dispute Settlement and the Future of Intellectual Property Policy* (March 15, 2002) (unpublished manuscript, on file with author). Much of my knowledge and understanding has come from the work of several economists, particularly that of Professor Joseph E. Stiglitz. Some articles with interesting implications for intellectual property rights include the following: Joseph E. Stiglitz, *Information, Screening and Welfare*, in *BAYESIAN MODELS IN ECONOMIC THEORY* 209 (M. Boyer & R. Kihlstrom eds., 1984); Barry J. Nalebuff & Joseph E. Stiglitz, *Prizes and Incentives: Towards a General Theory of Compensation and Competition*, 14 BELL J. ECON. 21 (1983); Joseph E. Stiglitz et al., *Privatization, Information and Incentives*, 6 J. OF POL'Y ANALYSIS AND MGMT. 567 (1987); Joseph E. Stiglitz, *Information and Economic Analysis: A Perspective*, 95 ECON. J. 21 (1985); Joseph E. Stiglitz, *Incentives, Risk and Information: Notes Toward a Theory of Hierarchy*, 6 BELL J. ECON. 552 (1975). For a review essay of the contributions of information economics, see Joseph E. Stiglitz, *Information and the Change in the Paradigm in Economics*, 92 AM. ECON. REV. 460 (2002) [hereinafter Stiglitz, *Paradigm in Economics*].

⁶ See Spence, *supra* note 4, at 453-54 (noting that the Internet has changed the informational structure of markets and identifying forces behind those changes).

⁷ I use the terminology "markets" to denote both formal transactions markets and what I call "interaction" markets—that is chat rooms, bulletin boards, and other closed areas where individuals engage primarily in social or political exchanges.

⁸ See, e.g., Julie E. Cohen, Lochner in *Cyberspace: The New Economic Orthodoxy of "Rights Management"*, 97 MICH. L. REV. 462, 480-515 (1998); I. Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 258-60; David R. Johnson & David Post, *Law*

multiple regimes of cyberspace governance seek to bridge, or at the least to coordinate, the divide between the substance of real-space social institutions and the vast, unlimited realms of cyberspace, with its (mostly) private law and/or self-regulating norms.⁹ Much of the "law" of cyberspace thus is an experiment in social engineering between the two spheres, examining the ways in which each sphere influences the other, and the outcomes as they manifest in domestic and (less examined) global contexts.¹⁰ Intellectual property regulation assumes a central role in this engineering project.

The familiar orthodoxy of intellectual property rights justification is rooted in the classic assumption that property rights are indispensable to a well-functioning market.¹¹ The theory assumes that proprietary rights granted by statutes are necessary tools to induce creative production to promote the public good through the progress of the national economy materially, socially, and culturally.¹² However, the dynamic efficiency and social welfare goals implicit in the enabling constitutional clause for intellectual property protection¹³ require certain margins of permissible activity by users and subsequent

and Borders—The Rise of Law in Cyberspace, 48 STAN. L. REV. 1367, 1400–02 (1996); Lawrence Lessig, *The Zones of Cyberspace*, 48 STAN. L. REV. 1403, 1403–11 (1996); Maureen A. O'Rourke, *Fencing Cyberspace: Drawing Borders in a Virtual World*, 82 MINN. L. REV. 609, 640–86 (1998).

⁹ See Johnson & Post, *supra* note 8, at 1390–91.

¹⁰ See *id.* at 1393–400; cf. Lessig, *supra* note 8, at 1403 (criticizing the idea that cyberspace is distinct from real space).

¹¹ RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 36–45 (5th ed. 1998); Ronald Coase, *The Problem of Social Cost*, 3 J. LAW & ECON. 1, 19–28 (1960); Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 347–59 (1967).

¹² There is an extensive body of literature dealing with the different justifications for intellectual property. In the area of copyright particularly, several scholars have explored cultural, social, and economic justifications for such protection. See generally, Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533 (1993); Hardy, *supra* note 8; Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965 (1990); Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283 (1996).

¹³ U.S. CONST. art. I, § 1, cl. 8; see also *Mazer v. Stein*, 347 U.S. 201, 219 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that the encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.'"); H.R. REP. NO. 2222, 60th Cong., 2d Sess., 7 (1909) ("The enactment of copyright legislation by Congress under the terms of the Constitution is not based on any natural right that the author has in his writing . . . but upon the ground that the welfare of the public will be served and the progress of science and the useful arts will be promoted by securing to authors for limited periods the exclusive rights to their writings.").

innovators.¹⁴ It is the regulation of these activities that is most intractable in contemporary debates about the extension of intellectual property rights to the digital domain.¹⁵ The regulation of intellectual property rights is not a zero-sum game: "one-time" consumption where minimal or no additional value—private or social—is generated by using the product is inconsistent with the ideal of intellectual property protection.¹⁶ Additionally, if the construction of rights raises transaction costs beyond the level already internalized by the initial grant,¹⁷ then there are important implications both for whether markets for, or involving protected intellectual property will clear given

¹⁴ See Dan L. Burk, *Muddy Rules for Cyberspace*, 21 CARDOZO L. REV. 121, 121–27 (1999) (arguing that indeterminate entitlements can promote efficient transactions in cyberspace).

¹⁵ See, e.g., Tom W. Bell, *Fair Use v. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*, 76 N.C. L. REV. 557 (1998); Hardy, *supra* note 8; I. Trotter Hardy, *The Proper Legal Regime for "Cyberspace"*, 55 U. PITT. L. REV. 993 (1994); Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised*, 14 BERKELEY TECH. L.J. 519 (1999). Even in the off-line world the relationship between first and second comers is fraught with considerable tension and uncertainty as to the nature of the entitlements that legal rules reserve to either party. See Burk, *supra* note 14, at 121–27 (suggesting that the on-line world would benefit from the range of entitlements—from complete and strong to divided and weak—that currently exist in real property).

¹⁶ See Burk, *supra* note 14, at 143–44; Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives-Access Paradigm*, 49 VAND. L. REV. 483 (1996); Netanel, *supra* note 12. In the vintage utilitarian justification, the grant of proprietary rights is designed to "promote" progress. An instrumentalist view of "progress" would include both access to and use of protected works. See Lunney, *supra*; Ruth Okediji, *Givers, Takers, and Other Kinds of Users: A Fair Use Doctrine for Cyberspace*, 53 FLA. L. REV. 107, 117 (2001). The objectives of the TRIPs Agreement reflect similar public policy ideals. See General Agreement on Tariffs and Trade—Multilateral Trade Negotiations (The Uruguay Round): Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, Dec. 15, 1993, 33 I.L.M. 81, 84 ("taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade . . .").

A venerable body of literature has examined the language and intent of the intellectual property clause. What seems relatively uncontroversial is that intellectual property rights exist to benefit society in a number of different ways. See *supra* note 12 and accompanying text.

¹⁷ Most students of intellectual property are familiar with the classic trade-offs in the intellectual property bargain: exclusive rights are granted in exchange for disclosure. The economic and administrative costs of the system are a trade-off to ensure optimal levels of creativity and innovation. The costs of granting intellectual property rights are assumed to be less than the value generated by the availability of the grant for qualifying works. Intellectual property rights are thus consistent with some theories of property, namely that the allocation of rights internalizes certain externalities and affects decisions made by persons in an interactive setting. See Demsetz, *supra* note 11, at 348.

the new externalities.¹⁸ There is also the familiar problem of how overall welfare is affected by a corresponding decrease in the scope of freely permitted activities.¹⁹

The debate about the regulation of proprietary interests in cyberspace focuses almost exclusively on how to preserve the "delicate balance" between public welfare and private interests in the digital arena.²⁰ Particularly in the digital environment, every consumer/user

¹⁸ The argument advanced on behalf of owners in the digital context is that stronger rights, measured both by numbers and scope, are necessary to internalize the harmful effects of digital technology. See Hardy, *supra* note 8, at 223-28 (discussing four factors that limit copying, including state-of-the-art limitations). Professor Hardy argues that because cyberspace exponentially shrinks the assurances from copying based on the state of existing technology, there should understandably be a corresponding increase in other forms of protection to preserve the aggregate level of assurance to which owners are "entitled." See *id.* But see Cohen, *supra* note 8, at 547-49. Of course, there is always the argument that technology itself can resolve the problem of transaction costs in intellectual property bargains. In part, the rights management regime intensely debated, but nevertheless established by the Digital Millennium Copyright Act ("DMCA"), reflects this notion. See 17 U.S.C. § 1201 (1998). Two appellate decisions regarding the fair use doctrine also reflect elements of this argument. See, e.g., *Am. Geophysical Union v. Texaco, Inc.*, 60 F.3d 913, 930-31 (2d Cir. 1994) (stating that "it is not unsound to conclude that the right to seek payment for a particular use tends to become legally cognizable under the fourth fair use factor when the means for paying for such a use is made easier"). The court concluded that the development of a market for users to obtain licenses makes it appropriate now to consider the loss of licensing revenue in analysis of the fourth fair use factor which focuses inquiry on the effect of the use upon the potential market for, or value of, the protected work. See *id.* at 931-32; see also *Princeton Univ. Press v. Mich. Document Serv., Inc.*, 99 F.3d 1381, 1386-87 (6th Cir. 1996). There is a wealth of literature on the issue of market failure (failure of markets to clear) and the fair use doctrine. The leading article on the topic is Wendy J. Gordon's *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600 (1982). See also Bell, *supra* note 15, at 596-600; Lydia Pallas Loren, *Redefining the Market Failure Approach to Fair Use in an Era of Copyright Permission Systems*, 5 J. INTELL. PROP. L. 1, 32-47 (1997); Robert P. Merges, *The End of Friction? Property Rights and Contract in the "Newtonian" World of On-Line Commerce*, 12 BERKELEY TECH. L.J. 115, 130-36 (1997).

¹⁹ See generally Lunney, *supra* note 16. For discussions on the scope of rights between first and second innovators/creators, see references cited *infra*, note 21. In copyright law, secondary creators may violate both the right to copy and the right to make a derivative work from the protected work. On the scope of derivative rights, see generally Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC'Y 209 (1983).

²⁰ See generally Thomas Dreier, *Balancing Proprietary and Public Domain Interests: Inside or Outside of Proprietary Rights*, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 295 (Rochelle Dreyfuss et al. eds., 2001) [hereinafter INNOVATION POLICY] (discussing the debate over what the balance should be and what regulatory tools may be used to fashion such a balance). Professor Dreier concludes that the intellectual property framework is still the most desirable. See *id.*; see also Bell, *supra* note 15, at 596-600; Loren, *supra* note 18, at 32-47; Merges, *supra* note 18, at 130-36; Okediji, *supra* note 16, at 112, 153-73 (suggesting that the evolutionary nature of information technology requires a dynamic view of the fair use doctrine, and that efforts should focus on rethinking the nature of the balance to reflect the benefits of

is a potential creator/innovator, thus requiring a dynamic regulatory balance between the rights and interests of owners and users.²¹ Policy makers have not countered legislation and judicial decisions strengthening the proprietary interests of owners with corresponding limitations or exceptions. Indeed, as many have argued, policy makers have not sufficiently preserved even existing limitations under the new intellectual property regime designed ostensibly to offset the advantages gained by consumers with digital technology.²² In arguing for stronger protection, proprietors imply that the digital environment unleashes a "natural" brutish tendency in consumers to violate proprietary rights—a tendency that must be met and prevented with vigorous anti-copying mechanisms—both legal and technological. Commentators, however, have focused less on how the information structure of information markets should affect intellectual property regulation, and what this implies for how well, if at all, intellectual

cyberspace interactions rather than attempting to apply the balance crafted for print works to the digital environment).

²¹ This principle is at least partially evident in the exceptions and limitations available in patent and copyright law. Principally, however, the legal structure of intellectual property rights between first and second innovators/creators is fashioned by courts incrementally (and not always consistently) as they construe the scope of the statutory rights and limitations. One problematic result is that follow-on innovators/creators have no certain or predictable rights and the legitimacy or propriety of private decisions to improve on, work with, or in other ways utilize protected material is always made with a degree of risk. See Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2658–59 (1994) (discussing difficulties in applying the Coase Theorem to intellectual property transactions because of the difficulty in identifying whether externalities exist and what they are in the context of first and second creators). For a discussion of the scope of intellectual property rights and second comers, see generally Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989 (1997); Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990); Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, J. ECON. PERSP., Winter 1991, at 29. In copyright law, the fair use doctrine has provided a rich context for the discussion of copyright scope with regard to unauthorized creative uses of protected work. See Lemley, *supra*, at 1036–38; Okediji, *supra* note 16, at 126–29; see generally Dreier, *supra* note 20. Professor Joe Liu's contribution to this symposium is also an important consideration of the topic of copyright scope. The idea of a creative or interactive user illustrates the slippery slope between user/infringer and creator. See Joseph Liu, *Copyright Law's Theory of the Consumer* 43 B.C. L. REV. 397 (2003).

²² See Samuelson, *supra* note 15, at 562–66; see also Cohen, *supra* note 8, at 559–63; David Nimmer, *Appreciating Legislative History: The Sweet and Sour Spots of the DMCA's Commentary*, 23 CARDOZO L. REV. 909, 967 (2002) (noting that Congress weighed two policy judgments regarding fair use and chose the option that would preserve fair use in the digital world).

property rights can be translated into cyberspace.²³ In particular, the way in which copyrights, and more recently patents,²⁴ function in the digital environment to a large extent establishes some *a priori* norms about governance in cyberspace. As legal realists argued, property rights designate a form of sovereignty.²⁵ Consequently, the strength of those rights assumes qualities of governance that limit formal governments to the fringes of Internet regulation²⁶ in a manner consistent with laissez-faire economic models of market efficiency.²⁷ Given that the initial grant of intellectual property protection is intended to resolve the public goods problem, market creation is at least one function of intellectual property rights that applies with equal or greater force to the Internet.

My broad interest in this Article is the contest between government regulation and free markets. The very notion of a "market" in cyberspace preconditions us to anticipate certain returns based on the classic assumption of minimal or no government intervention. In a framework of competing markets and competition *for* markets, however, government is recast as the arbiter between an aggregate of forces that influence the behavior of firms and individuals, and the technological control over some of those forces that is inherent in the allocation of intellectual property rights.²⁸ With the harmonization of intellectual property rights pursuant to the Agreement on Trade Re-

²³ I deliberately use the word "translate" to distinguish my specific focus in this Article from the more familiar problem of how extant intellectual property doctrines and precepts can remain unchanged in cyberspace. This ongoing project is one of preservation. In this Article, however, my interest is narrowly confined to considering the possibilities of a change in the function or form of proprietary rights.

²⁴ Specifically, the grant of business method patents. See *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1375-77 (Fed. Cir. 1998).

²⁵ See, e.g., Morris R. Cohen, *Property and Sovereignty*, 13 CORNELL L. Q. 8, 8-12 (1927).

²⁶ Governments, however, have been increasingly aggressive in asserting jurisdictional control in a number of disputes involving cyberactivity. See Michael Geist, *Cyberlaw 2.0: New Laws and New Borders*, 43 B.C. L. REV. 323, 332-57 (2003). In a recent case where an Australian High Court asserted jurisdiction over Dow Jones, the court expressed disapproval over a jurisdictional rule that would "entrench" the United States as the forum for disputes over on-line activity. See *Dow Jones & Co. v. Gutnick* (2002) 194 A.L.R. 433 (Supreme Court of Victoria, on appeal to the Australian High Court).

²⁷ Professor Geist notes that there is increasing government regulation of cyberspace and cites examples in the e-commerce realm. See Geist, *supra* note 26, at 332-47. None of these examples, however, affect market conditions or market structure. It is in this sense that I argue that government interference is important.

²⁸ See Susan DeSanti et al., *Competition to Innovate: Strategies for Proper Antitrust Assessments*, in INNOVATION POLICY, *supra* note 20, at 317-18 (noting the tension between promoting productivity which requires innovation and promoting competition in innovation).

lated Aspects of Intellectual Property Rights ("TRIPs Agreement"),²⁹ and the likelihood that the World Intellectual Property Organization ("WIPO") Internet Treaties³⁰ may serve to harden even the "soft" norms of TRIPs into legal rules,³¹ most governments can choose this dormant role as the optimal strategy without explicitly addressing distributional effects or other welfare concerns. As global trade rules³² bring countries closer by lowering or erasing barriers to market entry, the classic assumption that markets operate most efficiently if governments refrain from regulating them is already a powerful force in molding the shape of competition *for* markets in cyberspace. If free market policies significantly influence the construction of proprietary interests in cyberspace, it is important to explore how the Internet has affected the traditional functioning of markets. To do so, we must consider the informational properties of intellectual property rights and how these properties affect the behavior of firms and individuals.³³

²⁹ Agreement Establishing the World Trade Organization, Agreement on Trade-Related Aspects of Intellectual Property Rights, April 15, 1994, 33 I.L.M. 1197 [hereinafter TRIPs Agreement].

³⁰ WIPO Copyright Treaty, Dec. 20, 1996, 36 I.L.M. 65 [hereinafter WCT]; WIPO Performances and Phonograms Treaty, Dec. 20, 1996, 36 I.L.M. 76 [hereinafter WPPT].

³¹ Ruth Okediji, *Toward an International Fair Use Standard*, 39 COLUM. J. TRANSNAT'L L. 75, 152-53 (2000) (concluding that the Agreed Statements to the WCT could be used to establish evidence of subsequent state practice and thus serve as a source of customary international law between members of the Berne Convention and the TRIPs Agreement); see also Neil W. Netanel, *The Next Round: The Impact of the WIPO Copyright Treaty on TRIPs Dispute Settlement*, 37 VA. J. INT'L L. 441, 449-51 (1997) (discussing how the WIPO Copyright Treaty could be interpreted in light of the TRIPs Agreement).

³² A preliminary word on globalization: it is common to describe the Internet as a global communications medium. The global nature of the Internet, however, is, thus far, limited to the technological promise that links the international community through information networks. In reality, the characteristics of the Internet—its users, its culture, the dominant language and even the legal norms most referenced—are distinctly those of the western hemisphere. See Neil Weinstock Netanel, *Cyberspace Self-Governance: A Skeptical View from Liberal Democratic Theory*, 88 CALIF. L. REV. 395, 445 (2000). If the domestic law of cyberspace is yet unformed, the international law of cyberspace is yet to be imagined. In the process of social engineering, cyberlaw must contend not only with competing visions of optimal governance structures, best described as a problem of "multiple and overlapping sovereignties," but with *whom* is being governed and what is the end of such governance. Keith Aoki, *Considering Multiple and Overlapping Sovereignties: Liberalism, Libertarianism, National Sovereignty, "Global" Intellectual Property, and the Internet*, 5 IND. J. GLOBAL LEGAL STUD. 443, 443-46 (1998).

³³ Recent articles have examined the role of information in the patent system and how patents themselves serve certain informational roles. See, e.g., Jay P. Kesan, *Carrots and Sticks to Create a Better Patent System*, 17 BERKELEY TECH. L.J. 763, 770-84 (2002); Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 643-78 (2002).

Two significant benefits of the Internet for markets are: (1) vast reductions in transaction costs;³⁴ and (2) shifting boundaries of the firm that require new organizational strategies to enhance productivity.³⁵ Expansive intellectual property rights in cyberspace can adversely affect the ability of firms to capture these benefits.³⁶ For cyberspace transactions, intellectual property regulation is only one piece of a chain of strategies designed to take advantage of the opportunities to use the Internet to overcome limitations present in traditional markets.³⁷ Intellectual property regulation thus peculiarly affects the link between innovation and productivity in the information economy.

Part I of this Article considers market solutions achieved by the competitive ethos as an important characteristic of cyberspace for policymakers.³⁸ Indeed, it is within this competitive framework that governance practices are likely to "harden" as multinational actors, both corporate and individual, share, modify, and ratify commercial customs.³⁹ Despite the strong influence of free market arguments in areas ranging from privacy concerns to First Amendment rights, the corresponding expansive construction of intellectual property rights only affirms a narrow vision of competition in cyberspace. As I argue, expansive rights will favor existing forms of business organization rather than encourage investment in strategies that exploit the benefits of the network beyond the pervasive pricing or advertising models that have characterized most firms' entry into cyberspace. Many of

³⁴ See Hardy, *supra* note 8, at 236-37.

³⁵ Scholars have identified four areas that are related to the drastic reduction in transaction costs: (1) efficiencies from the automation of transactions; (2) intermediation and market-making by brokers, auctioneers, dealers, and exchanges; (3) consolidation of demand and supply through organized exchanges between firms in the same industry; and (4) changes in the organization of firms reflected in economic processes that take place within the firm and those that are outsourced. See Brynjolfsson & Hitt, *supra* note 4, at 30-45; Lucking-Reiley & Spulber, *supra* note 4, at 56-62; Oliner & Sichel, *supra* note 4, at 9-21; see also Spence, *supra* note 4, at 454-55 (identifying similar areas).

³⁶ For example, business method patents threaten the ability of businesses to capture such benefits. Compare Ann Marie Rizzo, *The Aftermath of State Street Bank & Trust v. Signature Financial Group: Effects of United States Electronic Commerce Business Method Patentability on International Legal and Economic Systems*, 50 DEPAUL L. REV. 313, 361-62 (2000), with Jeffrey R. Kuester & Lawrence E. Thompson, *Risks Associated with Restricting Business Method and E-Commerce Patents*, 17 GA. ST. U. L. REV. 657 (2001).

³⁷ See generally Spence, *supra* note 4.

³⁸ See *infra* notes 43-68 and accompanying text.

³⁹ For discussion of the development and application of trade usage to supplement (and in many cases legitimize) shrinkwrap agreements, see generally David McGowan, *Recognizing Usages of Trade: A Case Study from Electronic Commerce*, 8 WASH. U. J.L. & POL'Y 167 (2002).

these schemes entail large one-time sunk entry costs.⁴⁰ Part II discusses several characteristics of information markets and how proprietary rights influence the utility of traditional market factors such as price, transaction costs, bargaining, and equilibria.⁴¹ Finally, Part III identifies some governance implications of the new challenges that a market for information poses, and what lessons can be gleaned about the future of proprietary rights in cyberspace, particularly for competition and, ultimately, for e-commerce.⁴² The discussion here is by no means exhaustive; indeed each of the issues merits significant analysis. However, by raising them in a preliminary fashion, this Article will demonstrate the risks and stakes of expansive construction of proprietary rights in a broader macroeconomic policy context.

I. LEX MERCATORIA AND THE INVISIBLE HAND

For both commercial and personal activity,⁴³ the construction of intellectual property rights largely determines the bounds of legitimate activity in cyberspace. In the classic regulatory model, the initial grant of rights rewards innovation and encourages further investment in the production of goods and services.⁴⁴ It therefore is important to

⁴⁰ See *infra* notes 43–68 and accompanying text.

⁴¹ See *infra* notes 69–109 and accompanying text.

⁴² See *infra* notes 110–126 and accompanying text.

⁴³ Distinctions of this sort are increasingly difficult to sustain in the digital context where users, consumers, and producers are often one and the same. See *supra* note 21 and accompanying text. For my immediate purposes, the distinction is intended to identify *initial* interest in using a particular product.

⁴⁴ See POSNER, *supra* note 11, at 54. This paradigmatic rationalization of intellectual property rights is somewhat reductionist. Empirical data does not support a direct relationship between property rights and investment incentives. However, “secure” property rights (i.e., enforceable rights) are not tantamount to expansive rights. In other words, having a guarantee of complete, indivisible property interests does not necessarily increase the amount of investment an individual is willing to make. For example, an individual that has decided to purchase land will likely do so despite the other property rules that permit or facilitate some encroachment on that property. Indeed, a robust body of literature has analyzed the value of less than determinate property rights. See generally, e.g., Burk, *supra* note 14; Thomas W. Merrill, *Trespass, Nuisance, and the Costs of Determining Property Rights*, 14 J. LEGAL STUD. 13 (1985); Marc R. Poirier, *The Virtue of Vagueness in Takings Doctrine*, 24 CARDOZO L. REV. 93 (2002); Carol M. Rose, *Crystals and Mud in Property Law*, 40 STAN. L. REV. 577 (1988). Once the decision to invest is made, it necessarily has partially internalized the costs of divided entitlements that permit some encroachment. Trotter Hardy makes this point about information owners. See Hardy, *supra* note 8, at 222 (noting that “would-be producers of information need some assurance that copying will be limited. The notion of ‘some assurance’ rather than ‘complete assurance’ reflects the fact that 100 percent assurance of anything—or zero risk—has never been a requirement of any business. Similarly, I use the deliberately vague notion of ‘limited’ copying rather than ‘no copying’

preserve incentives to innovate in order to secure continued productivity, and to enhance competitiveness. Even with regard to trademark protection, which is not premised on the reward/incentive model, investment in a distinguishing mark plays an important role in market structure by reducing information search costs and transaction costs.⁴⁵

Among other informational values,⁴⁶ a grant of copyright or patent protection ideally informs users/consumers about the scope of permissible uses of the protected good, including what is *not* protected and thus freely available for use.⁴⁷ In copyright, for example, where search costs (such as costs incurred locating owners or obtaining permission) can be high, and success at times impossible, several scholars have argued that the rise of institutional agencies and rights management systems may alleviate such costs.⁴⁸ The complex rules governing the scope of protection, however, make it very difficult for

because the exact amount of copying that an information producer will tolerate will vary widely . . ."). In the copyright context, extending protection to derivative works, for example, is likely less relevant to the decision to produce informational works that the right to exclude copying. This causal observation is certainly affirmed in the context of patent law where the possibility of an improvement by a secondary innovator does not deter the first inventor. The point is that the grant of proprietary rights in a creative work may, and does, lead to additional creativity by a variety of individuals other than the author/inventor. As others have argued, this outcome is a public benefit that can enhance social welfare. *See, e.g.,* Lemley, *supra* note 21; Liu, *supra* note 21; Lunney, *supra* note 16.

⁴⁵ *See* Phillip Nelson, *Advertising as Information*, 82 J. POL. ECON. 729, 730-31 (1974); George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213, 215-16 (1961).

⁴⁶ *See* Long, *supra* note 33, at 644-55 (exploring the informational role of patents in capital markets and concluding that signaled characteristics of a firm with a large patent portfolio are positive).

⁴⁷ Cohen, *supra* note 8, at 548-49 ("[I]f the public is willing to pay the prices set by copyright owners, we must ask what the public believes it is paying for, and what copyright owners believe they are selling. Any answer to that question must take existing statutorily-mandated public access and use rights into account. . . [The public] . . . count[s] among those benefits those that the public law of copyright guarantees"). Some have criticized this point by noting that the "public" generally has no idea which uses are permissible; such a recognition, however, seems to strengthen the argument for clarifying intellectual property rights in cyberspace.

⁴⁸ *See, e.g.,* Bell, *supra* note 15, at 583-84; Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293, 1377 (1996); *see also supra* note 17 and accompanying text. Note, however, that this assumption addresses the primarily economic costs involved with search, not intangible costs associated with the inability of a user to pay for the use and any resulting social loss. In the digital context, an additional cost that should factor into the equation is the cost of added attempts to "hack" or otherwise overcome barriers to access to digital works, including the development of tools that make it possible to do so. Although the DMCA has outlawed such attempts and devices, the DMCA model is not yet universal. Further, the administrative, legal, and economic costs of adding yet another layer to the already cumbersome copyright laws must still be considered in evaluating the efficiency of the system as a whole.

uninformed actors to obtain information about which acts are legitimate without permission of the owner.⁴⁹ Indeed, the most robust limitations and exceptions to exclusivity involve balancing tests that are not susceptible to bright line rules, thus making it difficult to measure the costs occasioned by "fuzzy" signals sent by the grant of a proprietary interest.⁵⁰

Consider, for example, the fair use doctrine or the idea/expression dichotomy, which have been the subject of intense scholarly debate and judicial scrutiny.⁵¹ The typical user of a copyrighted work is unlikely to have a definite sense of when a particular use qualifies as a "fair use," or how to distinguish an unprotectable "idea" from protectable "expression." The affirmative rights of the public under the copyright scheme effectively do not exist when the exercise of those rights requires users to incur such significant information costs.⁵² Consequently, although proprietary rights may motivate capital markets in positive ways and reduce information asymmetries between investors and firms, there may in fact be a corresponding *increase* in information asymmetry between consumers and owners.⁵³ The fact is, most owners tend to overstate the scope of

⁴⁹ Merges, *supra* note 21, at 2658.

⁵⁰ *Id.* (noting that with intellectual property rights, there is likely to be great debate over whether externalities exist at all because, in the patent realm, an infringer may not know *ex ante* that her independently created work is an infringement); see also Burk, *supra* note 14, at 138 (arguing that muddy rules may enhance levels of creativity by encouraging bargaining between copyright owners and would be users).

⁵¹ See, e.g., Kenneth D. Crews, *The Law of Fair Use and the Illusion of Fair-Use Guidelines*, 62 OHIO ST. L.J. 599 (2001); Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited*, 82 B.U. L. REV. 975 (2002); Honorable Jon O. Newman, *New Lyrics for an Old Melody: The Idea/Expression Dichotomy in the Computer Age*, 17 CARDOZO ARTS & ENT. L.J. 691 (1999).

⁵² Law and economics literature identifies two forms in which law may be created—rules or standards. See generally Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L. J. 557, 557 (1992). A rule is given content *ex ante*, specifying what precise conduct is prohibited or allowed. On the other hand, a standard is flexible and generally is given content *ex post*. Although rules are more costly to promulgate, individuals are better able to make informed decisions about the benefits of compliance. See *id.* A standard, however, is cheaper to promulgate, but raises the cost of acquiring information. Consequently, individuals will decide either to acquire information about the standard to make an informed decision, will fail to act, or will act only on the strongest interpretation of the standard to avoid any accusations of violation. The latter is a problem associated with levels of risk aversion. See *id.*

⁵³ I might add that intellectual property grants may also introduce asymmetries of information between investors and firms. Consider, for example, the fact that fifteen million dollars of venture capital was invested into Napster, which was ultimately ruled to be a violation of the laws protecting the proprietary interests of the content industry. P.J. Huffstutter, *Company Town EMusic, Grammy Producer Joins Legal Assault on Napster*, L.A. TIMES, Mar. 8, 2001, at C6.

their rights, and most users do not have sufficient knowledge of the increasingly complex rules of copyright law.⁵⁴ Users must therefore acquire the necessary information to determine whether and how to use the protected work. Information acquisition, however, may not sufficiently resolve this asymmetry because even an attorney's best guess as to whether a particular use is "fair," or what distinguishes idea from expression, cannot predict with certainty how a specific case will be determined in court. It is possible that this depiction exaggerates the case: indeterminacy may simply be a problem at the margins and the case law reveals some aggregation of factors that guide a court in making determinations so that outcomes are largely predictable. Although this may be true in a world of print materials,⁵⁵ the boundaries have certainly shifted in the digital context, and the scope of limitations on protected works is not at all clear.⁵⁶ Institutional solutions may be just as over-inclusive as technological systems to prevent unauthorized access to the work; a license for a use that may be guaranteed to the public by the copyright scheme arguably is still an added cost in social welfare terms.⁵⁷

It is necessary to mention a point concerning the acquisition of information by users to facilitate use of the protected work. A user's decision to acquire information is efficient and socially desirable when the accuracy of the information is certain and the social benefit of the information exceeds the cost of acquisition. In other words, will the benefits that flow from a consumer's change in behavior due to the acquired information maximize welfare? In the intellectual property context, this question specifically refers to the benefits of compliance with the scope of the right as decided by the owner when compared with the social value/benefit of the intended use. When the information is *inaccurate* and the consumer alters her behavior to conform to the information acquired, the possible welfare loss is doubled.

⁵⁴ See Jessica Litman, *Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 38-39 (1996); see also Cohen, *supra* note 8, at 547-49.

⁵⁵ But see Princeton Univ. Press v. Mich. Document Servs., 99 F.3d 1381, 1412 (6th Cir. 1996); Am. Geophysical Union v. Texaco, Inc., 60 F.3d 913, 940-41 (2d Cir. 1994).

⁵⁶ Consider, for example, that "ordinary uses" of the Internet does many infringers make. See generally Pamela Samuelson, *Toward a "New Deal" for Copyright in the Information Age*, 100 MICH. L. REV. 1488 (2002). For example, routine practices such as downloading material, forwarding email, etc., are, *strictu sensu*, copyright infringement. For an institutional solution to this problem, see Mark A. Lemley, *Dealing With Overlapping Copyrights on the Internet*, 22 U. DAYTON L. REV. 547, 584-85 (1997), proposing a license system for multiple use of works on the Internet.

⁵⁷ See Cohen, *supra* note 8, at 542-43.

Such loss consists of the cost of acquisition (search costs) and the cost of the use.

The situation may not be as bleak with respect to patents, in part because patents are subject to fewer exceptions and limitations, and because patent information tends to be much more significant between firms, rather than between firms and individuals. In most cases then, the incentive/reward model may supply sufficient motives for a firm wishing to invent around the patent to invest in costly information acquisition to determine the scope of legitimate innovative activity. Again, however, if the information is inaccurate (such as when the patent arguably is invalid), some welfare loss exists. This is because, in addition to the loss associated with the existence of wrong information, the would-be user incurred acquisition costs to innovate strategically around the invention. In light of increasing calls for patent reform,⁵⁸ reliance on the informational properties of the patent grant is also suspect.⁵⁹ Other policy interests, such as encouraging competition, may necessitate governmental interference with the way in which owners exercise patent rights in the market.⁶⁰ Such actions may alleviate some of the welfare loss by limiting the power of the patent owner.

The way informational characteristics of intellectual property rights affect market structure and behavior requires consideration of the conditions under which such regimes make the initial allocation of a property right. Because the initial grant affects investment, proprietors conventionally argue for strong property rights.⁶¹ Indeed, the traditional debate is generally cast as one of property rules versus li-

⁵⁸ Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U.L. REV. 1495, 1495 (2001); Arti Rai, *Addressing the Patent Gold Rush: The Role of Deference to PTO Patent Denials*, 2 WASH. U. J.L. & POL'Y 199, 203 (2000).

⁵⁹ See Nancy T. Gallini, *The Economics of Patents: Lessons from Recent U.S. Patent Reform*, J. ECON. PERSP., Spring 2002, at 131, 149-50.

⁶⁰ See DeSanti et al., *supra* note 28, at 317-18; see also Hauns Ullrich, *Intellectual Property, Access to Information, and Antitrust: Harmony, Disharmony and International Harmonization*, in INNOVATION POLICY, *supra* note 20, at 365.

⁶¹ See generally Simon Johnson et al., *Property Rights and Finance*, 92 AM. ECON. REV. 1335 (2002) (concluding that in five post-communist countries, the security of property rights alone sufficiently and positively affects firms' decisions to reinvest retained earnings). The authors also find a weak correlation between external credit availability and the decision to invest. See *id.* Countries in transition provide a useful analogy to cyberspace given the fact that these economies are characterized by disequilibrium, weak or nonexistent regulatory institutions, significant preoccupation with the development of legal norms, and a need for reform or adaptation of existing macroeconomic tools.

ability rules.⁶² A distinction should be drawn, however, between well-defined property rights (perhaps through the use of rules rather than standards) and strong property rights. The latter facilitate market transactions and should be sufficient to encourage optimal levels of investment.⁶³ It is difficult to define precisely how strong those rights should be, but there is a consensus that overly strong rights (either explicitly or through judicial construction) deter innovation.⁶⁴ Investing more resources in maintaining the signal (meaning the proprietary right) in the cyberspace context, and further expanding the property interest without any evidence of greater transactional efficiencies or productivity, is simply socially wasteful and regressive.⁶⁵

Perhaps then, defining the appropriate scope of rights for owners is not as pivotal as fashioning an appropriate remedy for users to deter overreaching by owners. Using remedies to encourage further creativity by users and to stimulate competition in the market, may better advance the goals of competition and innovation. In the first place, a system of remedies for infringement and for overreaching may create incentives for greater compliance on both sides of the transaction. Compliance in this sense would include cooperative bargaining by the parties to negotiate use of the protected work on mutually agreeable terms. Although this will not address the asymmetry problem, it gives creative users a bargaining tool.⁶⁶ Thus, the overall social cost of the asymmetry may be reduced by bargaining that allows productive use on efficient terms.

Another possibility is to change the *source* of information from the owner, and to rethink ways of specifying rules⁶⁷ rather than open-ended standards. This will facilitate effective screening⁶⁸ by potential

⁶² See J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. 2432, 2436–42 (1994); see also, Merges, *supra* note 21, at 2655–62 (commenting on Professor Reichman's article).

⁶³ See Jan Eeckhout & Boyan Jovanovic, *Knowledge Spillovers and Inequality*, 92 AM. ECON. REV. 1290, 1290–91 (2002) (challenging literature positing that spillovers from leading firms allow other firms to catch up and thus reduce inequalities between firms).

⁶⁴ In the patent area, a number of scholars have raised this concern. See, e.g., Gallini, *supra* note 59, at 131–33 (citing other articles); Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 698–701 (1998).

⁶⁵ See POSNER, *supra* note 11, at 53.

⁶⁶ Some commentators have suggested that the fair use doctrine could serve the same purpose. See Burk, *supra* note 14, at 140–41; Gordon, *supra* note 18, at 1614–15 (suggesting fair use when there is evidence of a market failure); Lunney, *supra* note 51, at 981.

⁶⁷ See Litman, *supra* note 54, at 19.

⁶⁸ Screening is a term used to denote attempts by an uninformed player to distinguish the well-informed player from the poorly informed player in games of incomplete infor-

users and competitive uses of proprietary works in new ways to create new markets. In essence, it requires that the government become more involved in providing information either through simpler, clearer rules, or by directing the appropriate government agencies to provide counsel about requested uses of protected work, with such advice carrying some legal significance in the event of adjudication.

II. SOME ALTERNATIVE PARADIGMS FOR THE MARKET: THE NEED FOR A VISIBLE HAND

The most noted changes to the informational structure of markets in cyberspace are those associated with reduced transaction costs. Reduced transaction costs are most evident in the overwhelming ease with which buyers and sellers can find each other, acquire information about each other, and compare prices and products in cyberspace.⁶⁹ The ability to create markets taking advantage of these characteristics can also introduce some monopoly features, as is evidenced by eBay, the largest marketplace on the Internet.⁷⁰ Indeed, commentators have noted that, when dealing with the competing media giants, like AOL Time Warner, eBay chose the path of least resistance—rather than compete with AOL, eBay decided to work alongside it.⁷¹ Price aggregation and comparison software would eliminate monopoly gains of such large markets and enhance competition by eliminating advantages of large entities like eBay where markets are much more liquid.⁷² Ironically, it was precisely the use of intelligent software

mation. When screening is successful, separating equilibria obtains. See generally Stiglitz, *Paradigm in Economics*, *supra* note 5, at 475–76.

⁶⁹ See Severin Borenstein & Garth Saloner, *Economics and Electronic Commerce*, J. ECON. PERSP., Winter 2001, at 3, 4–9 (discussing a number of ways the Internet creates value both on the supply and demand side); Spence, *supra* note 4, at 453–55.

⁷⁰ eBay has succeeded with a mix of competition and compromise. On one hand, eBay has consistently fought off efforts by competitors to break eBay's near monopoly of the on-line auction industry. See Cecilia Kang, *On-line Auction Group Prepares to Attack eBay; but Loyal Following May Help Market Leader Withstand the Assault*, CHN. TRIB., Sept. 27, 1999, at C2. But see Reid J. Epstein, *Who Needs eBay?*, WALL ST. J., Sept. 11, 2002 at A1 (describing "Tradio" an on-air swap meet that dominates small town radio stations and facilitates auction trades that, unlike the eBay format, are ultimately negotiated face to face).

⁷¹ See Press Release, eBay, America Online and eBay Expand Relationship: Multi-Year Agreement Enhances eBay's the Preferred Person-to-Person Online Auction Service on AOL (Sept. 2, 1998), available at <http://pages.ebay.com/communit/aboutebay/releases/pr98.html#19> (last visited Jan. 31, 2003); see also Mary Kwak & David Yoffie, *Inside Track—Lessons from the Dotcom Days*, FIN. TIMES (London), Sept. 28, 2001, at 12 (noting that eBay entered into business agreements with AOL to "[reduce] AOL's desire and ability to launch a crippling attack").

⁷² Spence, *supra* note 4, at 454–55 n.29.

for this purpose that the court struck down, using a property theory of trespass to chattel, in *eBay v. Bidder's Edge*.⁷³ Such intelligent software also reduces the search cost for finding the lowest price to a point close to zero.

The same economic model of intellectual property rights in real-space pervades analysis of these rights in cyberspace: there is a presumed competitive equilibrium so that the allocation of property rights facilitates efficient markets.⁷⁴ Economists, however, have demonstrated that equilibrium may be nonexistent in a competitive market with imperfect information.⁷⁵ For example, in *Bidder's Edge*, the court did not seem to give much thought to the fact that its decision at best reintroduced protection from price competition for eBay or, at worst, transferred the cost of finding the lowest price for goods back to users. The reduction or elimination of search costs *improves* competition in cyberspace;⁷⁶ Bidder's Edge's attempt to gather this information with limited cost would have made the market more liquid.⁷⁷ Price protection introduces information asymmetries that obscure what the parameters ought to be to determine whether the market is functioning well.

Imperfect information is also inherent in the construction of the permissible scope of activity with regard to exceptions to intellectual property rights. A competitive market assumes that each market participant believes that she has no effect on the activities of others. In a limitless market like cyberspace, this optimal state of competitiveness might even be considered "natural" in the classic sense, so that government intervention is hardly necessary. But, in fact, *more* government intervention may be necessary in cyberspace because the pres-

⁷³ See *eBay, Inc. v. Bidder's Edge, Inc.*, 100 F. Supp. 2d 1058, 1069–70 (N.D. Cal. 2000) (protecting eBay from competition under a trespass to chattels theory).

⁷⁴ See Stiglitz, *Paradigm in Economics*, *supra* note 5, at 467; see generally Coase, *supra* note 11.

⁷⁵ Michael Rothschild & Joseph E. Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q. J. ECON. 629, 629 (1976).

⁷⁶ See generally Maureen A. O'Rourke, *Property Rights and Competition on the Internet: In Search of an Appropriate Analogy*, 16 BERKELEY TECH. L.J. 561 (2001).

⁷⁷ In considering this issue, one has to determine if the costs to eBay's servers are worth the improvement in markets clearing. Alternatively, will a liability rule requiring Bidder's Edge to compensate eBay for damage lead eBay to forgo posting its prices? And will this result be more efficient? To the extent that price aggregation actually reduces information asymmetries, the court's decision may have actually served to benefit markets. The choice of legal rule has implications for how the market will develop and how transactions will be structured. It may still be too early to be certain which rule will best promote market efficiency in cyberspace. See *id.*

ence or absence of a particular market affects how other markets will function. For example, the presence of a market in data affects the market for licensing transactions: if consumers are highly concerned about privacy, standardized terms that give power to licensors to use consumer information in any way may induce dishonesty and reduce efficiencies in both markets. These cybermarkets are interlinked not only technologically, but also informationally. Consequently, there is a need to coordinate both types of linkages to achieve optimal social returns. Put differently, economies of scale made possible from standardization may be much less valuable where the information market reacts adversely to the proprietary tools that facilitate the interaction in the first place.⁷⁸

The justification for intellectual property rights remains the same in cyberspace despite the fundamental difference in market structure. Like the incentive story of efficiency wage theory which states that firms will attract better workers (or induce workers to do better work) when they pay higher wages, the sacrosanct presumption is that granting intellectual property rights will create incentives for creators. Rights, like wages, operate as incentives in these markets. For cyberspace to function in equilibrium, however, such incentives must be given to all—and perhaps structured differently from the extant models. Incentives only truly have their desired signaling effect if others are able to respond with some degree of accurate information. As discussed in Part I, however, imperfect information abounds in the construction of proprietary rights.⁷⁹ As such, it is possible to have an equilibrium (or multiple equilibria) where there is some “infringement” because narrower rights may force owners to be more creative and, in turn, may generate more robust markets.

Studies show that the capacity of firms to exploit the benefits of the Internet requires investment in both hardware and software.⁸⁰ The form of protection employed by owners of the technology (such as patent or copyright) may affect the choice of a firm to outsource

⁷⁸ It is worth exploring at a later time whether this is an effective way to analyze the viability of the open-source software movement.

⁷⁹ See *supra* notes 49–57 and accompanying text.

⁸⁰ See generally Stephen D. Oliner & Daniel E. Sichel, *Computers and Output Growth Revisited: How Big Is the Puzzle?* 2 BROOKINGS PAPERS ON ECONOMIC ACTIVITY 273 (1994) (examining the relationship between investments in information technology and productivity growth); Oliner & Sichel, *supra* note 4, at 9–13 (updating the earlier paper and concluding that increased efficiency gains in computer technologies and increased investments in information technology are largely responsible for the rapid growth in the non-farm business sector during the late 1990s).

certain activities or to manage them internally. Where a firm chooses the latter, the terms of a license agreement will also determine the range of business strategies a firm may pursue.⁸¹ Basically, the structure of proprietary interests and how owners choose to leverage them in cyberspace may affect directly or indirectly each stage of a firm's activities. Proprietary rights, then, impose additional costs on business decisions. Where costs are sufficiently high, firms will have to seek alternative ways in cyberspace to capture, increase, and maintain market share that do not require overly high payment of returns to owners of non-platform proprietary technology. Where costs are optimal, there should be an increase in productivity and innovation measured by Coasian bargains,⁸² innovative business strategies, or a combination of both. The ability to negotiate effectively around proprietary rights will serve to distinguish between goods and services of competitors as owners of technology learn to customize technology products to the specific needs of firms and individuals.⁸³ The liquidity of most cyberspace markets, customized technology, and the reduction of information and transaction costs will enhance strategies for preserving investments in the technological infrastructure needed to participate effectively in the information economy.⁸⁴

A large number of studies suggest that information technology is most valuable in its complementarity with other organizational changes within the firm, including the adoption of new business

⁸¹ Consider, for example, the controversial case *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511, 513, 523-24 (9th Cir. 1993) (finding a computer maintenance company liable for infringement for running plaintiff's software, licensed to Peak's customers, in the process of servicing the computers).

⁸² Some scholars are skeptical of such bargaining, particularly in the context of intellectual property rights. Where proprietary rights represent only one factor of production, however, Coasian bargaining may be feasible in the form of a division of labor between the supplier of the technology and the user/producer of goods and services in cyberspace. The valuation problem identified by Professor Merges may be reduced, if not completely eliminated, where the cooperative surplus is generated in ways distinct to each party's contribution to the final output. See Robert P. Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 7, 75-76 (1994).

⁸³ See Borenstein & Saloner, *supra* note 69, at 5 (noting the ease of customizing service as one of the characteristics of the Internet that make it valuable for e-commerce).

⁸⁴ Brynjolfsson & Hitt, *supra* note 4, at 24 (noting that as hardware becomes cheaper and more efficient, business value will be located in the ability of managers to "invent new processes, procedures and organizational structures" that make effective use of new hardware capabilities); see also Susan Kelly, *A Critical Relationship: Technology and the CEO*, EXECUTIVE INSIGHTS, Fall 2002, at 2.

models.⁸⁵ Using old organizational models and strategies with enhanced capabilities of information technology has generally been unsuccessful in markedly increasing productivity.⁸⁶ If a significant portion of non-farm national productivity is related to investments in new organizational strategies,⁸⁷ as much as capital investments in information technologies,⁸⁸ the expansive trend in intellectual property rights as a means to foster innovation and national competitiveness in global markets is at least misplaced if e-commerce is expected to significantly expand markets. Further, some proprietary rights, particularly business method patents which very well may encompass such organizational innovations, will in fact harm national productivity.

Consider, for example, that e-commerce is dominated by firms that also dominate real world transactions.⁸⁹ Indeed, e-commerce has become a shorthand for the extension of real-space power into cyberspace, instead of a means to leverage new businesses and expand the frontiers of existing business forms.⁹⁰ Those few firms who experienced early success in cyberspace have turned predictably to intellectual property rights to exclude follow-on businesses. Thus, although small businesses may nibble around the edges of cyber-transactions, very few will become dominant market forces in cyberspace.⁹¹ This outcome may not necessarily be negative, and certainly it is not un-

⁸⁵ See Brynjolfsson & Hitt, *supra* note 4, at 30–45; Erik Brynjolfsson et al., *The Matrix of Change*, 38 SLOAN MGMT. REV. 37, 37–54 (1997); Paul Milgrom & John Roberts, *The Economics of Modern Manufacturing: Technology, Strategy, and Organization*, 80 AM. ECON. REV. 511, 526–27 (1990); see also Steven Schnoll, *New Challenges Call for a New Business Paradigm*, EXECUTIVE INSIGHTS, Fall 2002, at 1.

⁸⁶ See Milgrom & Roberts, *supra* note 85, at 526–27; Brynjolfsson et al., *supra* note 85, at 37–54; see generally Brynjolfsson & Hitt, *supra* note 4.

⁸⁷ See Brynjolfsson & Hitt, *supra* note 4, at 30–45.

⁸⁸ See generally Oliner & Sichel, *supra* note 80.

⁸⁹ See Douglas L. Rogers, *Give the Smaller Players a Chance: Shaping the Digital Economy Through Antitrust and Copyright Law*, 5 MARQ. INTELL. PROP. L. REV. 13, 115–16 (2001) (reviewing a number of intellectual property/antitrust cases and arguing for construction of copyright law in a way that promotes competition).

⁹⁰ See Borenstein & Saloner, *supra* note 69, at 3–4 (noting that traditional firms hold significant strategic assets, including intellectual property rights, and their choices pertaining to how to exploit the on-line environment will powerfully affect the shape of the market).

⁹¹ There are a number of reasons for this, including scale and liquidity effects. The dominance of eBay is an example of how returns to scale and liquidity are likely to lead to only one or few markets in a particular area. As the number of participants at a site increase, buyers and sellers will be drawn to that site to better their chances of realizing an exchange, thus making the market more liquid. See Lucking-Reiley & Spulbur, *supra* note 4, at 62; Spence, *supra* note 4 at 455.

precedented in the technological history of the United States.⁹² However, it is important to identify how intellectual property rights, which are more pervasive today than at any other time in history, might further lower the optimal number of new businesses, inhibit investment in organizational innovation, and eliminate incentives for firms with large intellectual property portfolios to invest in changes that may enhance firm output while at the same time these firms stifle competition through aggressive enforcement of intellectual property rights. Even where large traditional firms do engage in e-commerce, the construction of intellectual property rights may adversely affect optimal levels of competitiveness between firms.⁹³

A few caveats are necessary. There are a number of reasons why e-commerce has not yet fully blossomed, and I do not mean to suggest that expansive intellectual property rights are the only, or even major, reason.⁹⁴ Further, it is clear that intellectual property rights in cyberspace give a competitive advantage to businesses,⁹⁵ either by providing new avenues for distribution, facilitating new business strategies, or enhancing existing ones.⁹⁶ This inceptive stage of e-commerce has witnessed only incremental adaptations—using cybermarkets as substitutes for real markets. However, mere transfers of existing business models and strategies to the on-line environment is likely to be less of a source of increased productivity than the use of information technology tools to create new markets and to alter, fundamentally, the way consumers and businesses interact. The regulatory emphasis for intellectual property rights in the digital economy so far has been to preserve established business models and organizations, not to expand them or to facilitate entry by new businesses with the possibility

⁹² See Patricia Buckley & Sabrina Montes, *The Evolving Online Environment*, in DIGITAL ECONOMY 2002, 9, 21 (2002), at http://www.esa.doc.gov/508/esa/pdf/DE2002_CH2.pdf (noting that nearly 1000 companies tried to market gas-powered automobiles prior to 1927 but only 200 survived long enough to do so—and of these, only a handful exist—but that handful accounts for a large share of the economy).

⁹³ See, e.g., *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 73 F. Supp. 2d, 1228 (1999), *vacated and remanded*, 239 F.3d 1343 (Fed. Cir. 2001) (lawsuit between rival online retailers alleging infringement of Amazon's one-click method patent); see also Rochelle Cooper Dreyfuss, *Examining State Street Bank: Developments in Business Method Patenting*, 636 PLI/Pat 437, 444–52 (Feb. 2001).

⁹⁴ See Buckley & Montes, *supra* note 92, at 12–15 (identifying some hurdles facing on-line businesses).

⁹⁵ *TicketMaster v. Microsoft*, No. 97–3055 (C.D. Cal. filed Apr. 28, 1997) (alleging trademark dilution because Microsoft included TicketMaster link on its web page without TicketMaster's permission).

⁹⁶ Buckley & Montes, *supra* note 92, at 17–18.

for exponential increases in productivity through new organizational models. In part, the ill-fated Napster experiment is at least an example of this trend.⁹⁷ Further, expansive rights, to the extent that they signal prospects for greater market share, also misdirect capital to ventures that, for organizational or other reasons, may not be sustainable over the long term. Intellectual property rights and the rights management system of the DMCA, along with common law theories that serve to augment, reinforce, and consolidate monopoly power without corresponding productivity gains, have the combined effect of inhibiting productivity and utilization of knowledge spillovers in cyberspace in unpredictable ways.

In the classic free market model, limited exceptions are recognized for government interference with a well-functioning market.⁹⁸ Of these exceptions, my argument for the need for a visible hand in the regulation of cyberspace markets draws on the infant industry limitation to the free market model espoused by John Stuart Mill. According to Mill's classic treatise, *Principles of Political Economy*, infant industries are those that are unable to withstand foreign competition without some form of protection by the government, but that with

⁹⁷ I refer here primarily to the sociology of Napster as a cultural phenomenon and the dynamics that fueled the perceptions about the legitimacy of file-sharing. Fanning, a college drop-out, wrote the source code for an application that combined a music search function with a file sharing system. Napster, the christened name for this application, made it possible to download digital music files from one computer to another via the Internet without compensation. Fanning utilized the digital music standard MP3, a technology developed in 1987, as a non-proprietary method to compress CD-quality sound files, thus enabling consumers to download digital recordings with speed and ease. Fanning predicted that his application would do everything a Web application should do, including building community, breaking down on-line barriers, and eliminating intermediaries. There was, at best, ambivalence in the music establishment (and other intellectual property interests) about Napster. On the one hand, it recognized the immense economic potential of the application, yet it was sufficiently threatened that the application was not within its control.

In May of 2000, realizing the multiple applications for such peer-to-peer software, the venture capital firm Hummer Winblad provided Napster with a fifteen million dollar infusion of capital. The RIAA responded by filing for a petition seeking an injunction against Napster to prohibit the company from facilitating the trading of copyrighted music files. In July 2000, a U.S. district judge ruled in favor of the RIAA and granted the injunction sought against Napster. On October 31, 2000, media conglomerate Bertelsmann, parent company of BMG, a mainstay of the RIAA, structured a strategic alliance with Napster, agreeing to loan Napster an estimated fifty million dollars in venture capital to allow Napster to develop a legal peer-to-peer file sharing system and agreed to drop out of the RIAA lawsuit if Napster was successful.

⁹⁸ For Adam Smith, these exceptions included national defense and education for the poor. See ADAM SMITH, *WEALTH OF NATIONS* 463-64 (R.H. Campbell et al. eds., 1981).

time, could grow and compete successfully in the global market.⁹⁹ The case for protectionism with regard to infant industries is attributed to a mercantilist policy to promote domestic employment and industry. Mill argued that government assistance to overcome entry barriers and other obstacles associated with start-up costs is necessary for a short time to make it possible for the public gains of a new industry to be a viable prospect for the nation. Some of these gains include the creation of new wealth and capital, acquisition of new skills, and production of new goods and services by domestic firms.¹⁰⁰ In addition to the considerable debate about the legitimacy of this exception to free trade and markets, scholars intensely debated which policy could best support such industries if they were to be protected. In particular, the choice between tariffs on imports or domestic subsidies evoked considerable comment. Alexander Hamilton, a strong proponent of infant industry protection, preferred the use of a subsidy.¹⁰¹ Unlike tariffs, subsidies do not lead to scarcity (and thus higher prices) and subsidies have a direct effect on the industry, thus increasing the prospects for early success. Other political economists adopted a focused theory of promoting infant industries through, for example, government assistance in the transfer of technology.¹⁰² Such an exception to free trade would be justified if the domestic industry could, with such technology, produce the goods at a comparative advantage to foreign manufacturers.¹⁰³ One of the advantages of such a specialized exception was that greater domestic production of an imported product would foster innovative activity and

diminish the propensity to servile imitation. . . . Every useful art is so connected with so many, or with all others, that whatever renders its products more easily attainable, facilitates the operation of the whole circle of arts, and introduces change—the great agent in producing investments—under the most favorable form.¹⁰⁴

⁹⁹ See generally JOHN STUART MILL, *PRINCIPLES OF POLITICAL ECONOMY* (W.J. Ashley, ed., 1909) (1848).

¹⁰⁰ See *id.*

¹⁰¹ See generally Alexander Hamilton, *Report on the Subject of Manufactures* [1791], in *THE PAPERS OF ALEXANDER HAMILTON* (Harold C. Syrett ed., vol. X 1966).

¹⁰² See generally JOHN RAE, *STATEMENT OF SOME NEW PRINCIPLES OF POLITICAL ECONOMY* (A.M. Kelley, Bookseller 1964) (1834).

¹⁰³ See DOUGLAS A. IRWIN, *AGAINST THE TIDE: AN INTELLECTUAL HISTORY OF FREE TRADE 122-24* (1996) (summarizing Rae's arguments).

¹⁰⁴ RAE, *supra* note 102, at 365.

Other economists writing from a protectionist perspective identified the infant industry exception as an important aspect of economic development.¹⁰⁵ Mill's work, however, was the formal incorporation of the infant industry exception into classical free trade theory. In later editions of his work, Mill qualified his commitment to the infant industry exception along the same lines as patent protection.¹⁰⁶ He emphasized the importance of a limited duration and added an element of decreasing levels of protection in later years of the protection.¹⁰⁷ Importantly, each of the major proponents of the infant industry exception focused on increasing domestic productive capacity and innovation returns that could be diffused to the society as a whole.

In the context of intellectual property rights, the initial grant serves to address a public goods problem by creating artificial fences around intangibles. As proprietors further expand rights by contract, real property, and even tort rules, the signaling properties of the initial grant are weakened and the informational structure of the market becomes more difficult to ascertain. This, in turn, raises information and transaction costs for would-be users and producers. To the extent that access and use are important pieces of the social value derived from well-defined proprietary interests, this value is eliminated through reliance by firms on extra-intellectual property rights to preserve market share, hinder market creation, or in other ways stifle competition in the e-commerce arena.¹⁰⁸ Consequently, courts should severely limit recourse to penumbral common law claims.

Further, as discussed earlier, increased productivity gains in the information era is not limited to innovation that results in a product or service susceptible to protection through the extant intellectual property system. Most proprietary rights are associated with technol-

¹⁰⁵ See, e.g., FRIEDRICH LIST, *THE NATIONAL SYSTEM OF POLITICAL ECONOMY* (G.A. Matile trans., 1856).

¹⁰⁶ See MILL, *supra* note 99, at V.10.12.

The expenses of production being always greatest at first, it may happen that the home production, though really the most advantageous, may not become so until after a certain duration of pecuniary loss. . . . I have therefore conceded that in a new country a temporary protecting duty may sometimes be economically defensible; on condition, however, that it be strictly limited in point of time, and provision be made that during the latter part of its existence it be on a gradually decreasing scale. Such temporary protection is of the same nature as a patent, and should be governed by similar conditions.

Id.

¹⁰⁷ See *id.*

¹⁰⁸ But see Burk, *supra* note 14, at 127-32.

ogy that provides the platform for e-commerce; these rights do not directly contribute to productivity gains. Instead, they directly facilitate novel organizational changes that enhance efficiency gains inherent in new technological capabilities: greater productivity and innovation.¹⁰⁹ Therefore, the reliance by traditional firms on large intellectual property portfolios, and the expansive trend of proprietary rights in the digital context, actually serve to *divert* investments to less desirable objects, such as investing in rights-management systems or other technological devices aimed at limiting access to proprietary works. Over-reliance on proprietary rights may suggest that the rate of *on-going* investment in innovation in such firms is less than optimal. Proprietary rights thus can serve as a *disincentive* for firms to engage in the organizational innovations that so far have been characteristic of increased productivity in the market for information.

Additionally, over-reliance on proprietary rights as a means of leveraging real-world advantage in cyberspace unduly burdens secondary users and innovators who, free from traditional organizational restraints, may bring the most value to the ways and strategies of utilizing the Internet to produce new goods and services. Finally, it is important that use of protected works in a manner that creates new markets or new goods and services in the information market should enjoy some protection from infringement claims in order to encourage the level of "risky" entrepreneurship that a new realm might involve. The infant industry exception was in part justified by the need to provide investors with some assistance to overcome the barriers to entry in market creation. Greater proprietary rights to account for shifts in externalities caused by digital technologies may be justified by property theory, but such rights also encourage a race to the bottom mentality to over-invest in "rights management" and compromise the prospects for significantly enhancing productivity in e-commerce.

III. INFORMATION MARKETS, E-COMMERCE, AND INTERNET REGULATION

Statistics indicate that e-commerce has not been a major contributor to the national economy, although there is anticipation that its effect will continue to grow.¹¹⁰ In my discussion so far, I have considered proprietary rights as part of a much larger e-commerce world. Intangible assets, such as management skills, training, and strategies

¹⁰⁹ See, e.g., Brynjolfsson & Hitt, *supra* note 4; Oliner & Sichel, *supra* note 4.

¹¹⁰ See Gordon, *supra* note 3, at 66-72; Oliner & Sichel, *supra* note 4, at 18-21.

not covered by intellectual property rights, are the key factors to enhancing innovation and productivity in a world of reduced transaction costs. The exercise of proprietary rights, however, can greatly affect the ease with which firms can implement such organizational models because these models incorporate technological platforms that are subject to proprietary control. Further, as information agents, grants of copyright or patent protection do not always send reliable signals either to investors, users, or secondary innovators. This is particularly true in new markets.¹¹¹ Thus, the case for expansive proprietary rights in cyberspace, from a macroeconomic perspective, is problematic.

The use of information in markets is different from the notion of information as the subject of a particular transaction. Both are critical components of the efficiency of e-commerce business models: the former reduces asymmetries between market actors and facilitates more efficient markets, while the latter includes goods that often are the subject of proprietary rights. Transaction costs are at least doubled when the proprietary right signals inaccurate information to users and downstream inventors, and bargaining breakdowns cannot be avoided given the strong right given to the owner of the product.¹¹² The use of institutions to address transaction cost problems in real-space may not sufficiently address the problem in cyberspace. First, as I mentioned earlier, transaction costs are not just economic: they include the cost of inaccurate information so that payment for use when that right is freely available for a particular instance is a social waste.¹¹³ Second, institutions tend to rely on standardized systems to enhance efficiency.¹¹⁴ The value of organizational changes in fostering the cyber-economy may require a flexibility in license terms that suggest that standardization might create barriers for some firms, or facilitate exit by others where the costs are sufficiently high.

If proprietary interests make use of information costly, or impossible, there certainly will be an adverse effect on the market for cyberspace. One could suggest that this simply means that proprietary rights should be weaker in cyberspace. The story, however, is more complex than this. It suggests that the structure of proprietary interests needs to be re-examined to determine how to maximize the

¹¹¹ The dotcom bust is the most vivid example of the failure of new markets.

¹¹² See Merges, *supra* note 82, at 75-77; Merges, *supra* note 21, at 2659-60.

¹¹³ See *supra* notes 54-57 and accompanying text.

¹¹⁴ See *supra* notes 80-81 and accompanying text.

benefits of property rights and the potential of the Internet to create new markets in user experiences, products, and services.

The global nature of the Internet raises important challenges for how governments may choose to interfere with markets in cyberspace, particularly with respect to the allocation and construction of proprietary rights. Governments cannot unilaterally contain strategic choices made to enhance competitive welfare in domestic markets by restructuring proprietary rights in cyberspace. Unilateral national changes in this regard may have some initial adverse consequences for domestic firms and innovation. Thus, nations should consider coordinated policy responses in these areas, particularly competition laws.

Among industrialized countries, significant differences exist in competition policies, information policies, and levels of R & D investment. Each of these regulatory schemes interact with innovative activity to yield optimal levels of productivity. These differences also contribute uniquely to the comparative advantage of each nation, thus suggesting that harmonizing the innovation regime is, at the very least, impracticable.¹¹⁵ In some aspects, it is important for nations to be able to fashion rules that benefit their own domestic e-commerce economies, while maintaining a framework that encourages regulatory cooperation. In this regard, international law offers some lessons.

International law demonstrates that it is possible, and expected, that nations should control acts/behavior that are considered deleterious to their national well-being or laws. Indeed, numerous examples of these "controls" with regard to cyberspace already exist.¹¹⁶ Further, the very existence of cyberspace is a reflection of common technological standards—"protocols"—that make it possible for interaction to occur between millions of users. The existence of a common technological language suggests that coordination games between nations and private "sovereigns" are indispensable for the viability of the Internet. For example, both the TRIPS Agreement and the WIPO Treaties are significant complementary legal protocols that are based on the current technological structure of the Internet.¹¹⁷ Certainly, U.S. implementation of the WIPO treaties indicates a supposition that the extant legal and technical design will (or should) remain the same so that owners may control their property interests in any way

¹¹⁵ But see Diane P. Wood, *International Harmonization of Antitrust Law: The Tortoise or the Hare?*, 3 CHL. J. INT'L L. 391, 405-07 (2002) (arguing for harmonization in the antitrust context).

¹¹⁶ See *supra* notes 26-27.

¹¹⁷ See generally Netanel, *supra* note 31.

necessary.¹¹⁸ The controversial anti-device and anti-circumvention provisions of the DMCA serve as the tools of such preservation.¹¹⁹

The very existence of a protocol indicates that standardization is desirable in the social design of cyberspace, and that the conditions for exclusion are inherent in this design.¹²⁰ Exclusion in this regard will not necessarily follow the traditional patterns of protection versus access. Indeed, I suggest that the coordination games, because they involve so many actors in different geographic regions, will facilitate some distributive efficiencies that will permeate orthodox barriers that have a tendency to exclude or marginalize individuals based on class, social status, or geographic location.¹²¹ A maximalist construction of intellectual property rights under new treaties, however, may erode such efficiency gains. In this regard, countries may raise sovereignty claims to facilitate bargaining around the minimum standards of the TRIPs Agreement to localize the effect of maximalist construction.¹²² Further, the presence of institutions designed to encourage compliance with evolving norms in cyberspace will not sufficiently ensure such compliance. Compliance with cyberlaw, as with international law, will depend on an aggregation of interests structured to create incentives and to maximize payoffs for a majority of the players. Thus, cyberspace, despite its seeming detachment from real-space constraints, is likely to be increasingly dependent on real-space institutions to sustain the tools that have molded its current shape.

Perhaps the most important lesson of international law for cyberspace is that the fundamental assumptions that govern the regulation of intellectual property rights may reveal biases that produce outcomes that we would otherwise not tolerate in a liberal market economy. It leaves us with the challenge that we may need to reconstruct intellectual property rights, as the currency of cyberspace, in a way that helps accomplish the constitutional goals of "progress" by elevat-

¹¹⁸ See *id.*

¹¹⁹ See 17 U.S.C. § 1201 (1998).

¹²⁰ Kenneth J. Arrow, *Higher Education as Filter*, 2 J. OF PUBLIC ECON. 193 (1973) (noting that the use of standards (such as exams) to convey information in a market with assumptions of competitive equilibrium results in gains by the more able made at the expense of the weaker, less able individuals).

¹²¹ For a recent empirical study of factors of growth internationally, see generally Subodh Kumar & R. Robert Russell, *Technological Change, Technological Catch-Up, and Capital Deepening: Relative Contributions to Growth and Convergence*, 92 AM. ECON. REV. 527 (2002).

¹²² Professor Jerome Reichman has suggested, for example, that developing countries exploit the indeterminate standards in the TRIPs Agreement to implement rights in a way that is sensitive to the public interest. 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, 16-17 (1997).

ing the twin values of freedom *per se* and freedom of commerce. Finally, international law teaches us that cyberlaw is not a unitary or isolated set of norms and legal prescriptions. Instead, the regulation of cyberspace will consist of a complementary collage of regulatory systems in a variety of subject areas to ensure that we maximize welfare in cyberspace. This will require courts to understand both the technology at issue and also the way information technology has altered our traditional notions of "markets" and how they function.

CONCLUSION

The expansion of intellectual property rights, particularly the endorsement of business method patents,¹²³ has uncannily extended a historical project¹²⁴ whose discourse focused on distance and difference to justify control and domination to an ultra-modern technological medium that relies on proprietary control to justify deference to efforts to strengthen rights and legitimize efforts to exclude access by others. The dominant laissez-faire model of international trade has been extended to e-commerce, suppressing close scrutiny of informational changes that information markets have occasioned in transactions in cyberspace. For example, prior to the Internet, firms enjoyed some protection from price competition where search costs were high and firms could not easily ascertain the expected benefits of finding a lower price.¹²⁵ When prices are posted on the Internet, however, such protection is effectively eliminated. This in turn puts pressure on the firm in deciding whether to post the price in the first instance.¹²⁶ Choosing not to post prices on the Internet, however, may eliminate some of the benefits that accrue from liquidity and reactivate transaction costs for buyers and sellers. As a regulatory matter then, proprietary interests should not be construed in a manner that impedes the ability of buyers to reduce search costs for the lowest price. The resulting increase in competition will foster creative business strategies that

¹²³ See *supra* note 24.

¹²⁴ Most are familiar with the origins of the Internet as a product of the Cold War years; both international law and cyberspace developed as responses to existing "natural" limitations on the ability of sovereigns to control what occurred within and without their borders. Thus, the development of the Internet was a preemptive resort to self-help/self-defense—the ultimate obligation and right of states to defend their geographical boundaries.

¹²⁵ See Spence, *supra* note 4, at 455.

¹²⁶ *Id.*

may spawn even greater benefits in the form of new business models or organizational structures and improved e-market performance.