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Lawrence A. Sullivan

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IS COMPETITION POLICY POSSIBLE IN HIGH TECH MARKETS?:

AN INQUIRY INTO ANTITRUST, INTELLECTUAL PROPERTY, AND BROADBAND REGULATION AS APPLIED TO “THE NEW ECONOMY”

Lawrence A. Sullivan[†]

INTRODUCTION

In a widely noted address and article, Judge Richard Posner said that “antitrust doctrine is supple enough, and its commitment to economic rationality strong enough, to take in stride the competitive issues presented by the new economy,” which he defined to include software, Internet linked businesses, and supporting communications.¹ Coming from so knowing a source, these words are a wholesome antidote to overbroad contentions that by their contributions to dynamic efficiency high tech markets earn permissive antitrust treatment.²

Yet, the Posnerian dictum was not intended to comfort those

[†] Professor of Law, Southwestern University School of Law, Los Angeles, and Earl Warren Professor of Public Law, Emeritus, University of California School of Law, Berkeley.

¹ Richard A. Posner, *Antitrust in the New Economy*, (Sept. 14, 2000), at <http://www.techlawjournal.com/atr/20000914posner.asp> [hereinafter the Posner Address]. See Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L. REV. 925 (2001) [hereinafter the *Posner Article*] (more fully developing the address by Judge Posner). See also Robert Pitofsky, *Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy*, Speech at the Univ. of California, Berkeley [hereinafter Pitofsky Remarks] (discussing the role of conventional antitrust enforcement in intellectual property dependent high tech markets), at <http://www.ftc.gov/speeches/pitofsky/ipf301.htm> (Mar. 2, 2001).

² See e.g., Thomas M. Jorde & David J. Teece, *Innovation, Cooperation and Antitrust*, in ANTITRUST, INNOVATION AND COMPETITION 55 (Jorde & Teece, eds. 1992) (discussing the problems with the application of current antitrust law to high technology firms). See also David J. Teece & Mary Coleman, *The Meaning of Monopoly: Antitrust Analysis in High Technology Industries*, 43 ANTITRUST BULL. 801, 843-46 (1998) (advocating a more permissive approach to antitrust for high technology firms).

who value effective competition. In the somber tones of a prophet, but with no prophetic assurance that a solution is at hand for those with faith enough to grasp it, the judge points to a doleful irony. Just as antitrust analysis attains maturity, the new economy confronts it with seemingly insoluble institutional problems: Despite analytical potency, courts, and agencies lack sufficient technical knowledge available either in-house or from unconflicted outside experts. Perhaps worse, neither courts nor agencies can accelerate their processes to match the dynamic rate of structural, strategic, and performance changes in the subject markets, which are characterized by intellectual property (“IP”) assets and informational outputs resulting in high fixed, low marginal, and falling average costs.

The purpose of this paper is not to challenge Judge Posner’s observations, but to widen the angle of vision. Part I suggests that the proper standard for evaluating the success of antitrust is broader than the Posner paper implies, and argues that, with a more encompassing standard, the problems identified appear less debilitating. It then evaluates how effective recent enforcement has been at the antitrust-IP interface, and stresses that post-Chicago analytical tools, and the inherent strengths of a judicial process open to information and analysis make application of settled antitrust rules to the new economy markets feasible, if difficult.

Part II considers the independent significance of IP to new economy competition. It asserts that IP is of greater importance in the new economy than in the old, because special new economy characteristics magnify the ex post rewards of IP. It invites inquiry about whether defects in new economy competition may arise directly out of IP regimes that are excessively protective, especially as applied to these markets.

Part III draws upon Judge Posner’s recognition that supportive broadband telecommunications are an important aspect of the new economy. It stresses that the extent of competition in those converging telephone, cable, and wireless technologies is more dependent upon federal and state regulatory regimes than on the direct application of antitrust, and notes that regulatory approaches to broadband have not converged nearly as much as have the markets themselves. Finally, it identifies issues that must be addressed to encourage and sustain competition in broadband and linked e-commerce and business-to-business (“B2B”) markets.

I. ANTITRUST AND THE NEW ECONOMY

A. *Dynamic Markets, Technical Complexity, and Static Procedure*

New economy markets differ from smokestack industries in ways that can strain conventional antitrust analysis. Not only are they more dynamic, they are also marked by several other differences. Characteristic structural elements include: (1) high innovation costs for information assets capable of appropriation mainly through IP; (2) resulting infeasibility of marginal cost pricing; entry barriers based on IP and network externalities; (3) recurrence of complementary products with separate demand curves; and (4) frequently forming and dissolving joint ventures. A special performance desideratum is the need for interoperability.³ Also, IP based competitive strategies and counter moves are frequently observed.⁴ Because network effects are inevitable in communications and often encountered in software, all of these markets tilt toward emergence of a dominant standard. Whether selected by competition, cooperation, or exclusionary tactics,⁵ if the standard is proprietary, the company or consortium that controls it gains significant power. Though battles occur among firms seeking standard status, network effects magnify first entry and early lead advantages and can motivate efforts to increase market penetration regardless of current profits, in order both to increase product value to new and old users, and to reduce costs by moving down the learning curve and gaining scale economies. All of this makes competitive strategies crucial and can certainly motivate exclusionary ones.

³ See Mark A. Lemley & David McGowan, *Could Java Change Everything? The Competitive Propriety of a Proprietary Standard*, 43 ANTITRUST BULL. 715 (1998) (discussing the java programming language and its impact on competition and operating systems).

⁴ See generally CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES* (1999) (analyzing the management of intellectual property).

⁵ See W. Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-In By Historical Events*, 99 ECON J. 116 (1989) (discussing network effects in technologies competing for adoption); Joseph Farrell & Garth Saloner, *Standardization, Compatibility and Innovation*, 16 RAND J. ECON. 70 (1985) (discussing the tradeoff between the benefits of standardization versus the problem of being "trapped" by an obsolete standard); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition and Compatibility*, 75 AM. ECON. REV. 424 (1985) (discussing network effects and consumption externalities). See generally William E. Cohen, *Competition and Foreclosure*, 64 ANTITRUST L.J. 535 (1996) (analyzing the economic effects of new technology of installed base and compatibility); Catherine Fazio & Scott Stern, *Innovation Incentives, Compatibility and Expropriation as an Antitrust Remedy: The Legacy of the Borland/Ashton-Tate Consent Decree*, 68 ANTITRUST L.J. 45 (2000) (reviewing the conceptual framework and the Department of Justice remedy for the Borland/Ashton-Tate merger).

Yet, Judge Posner is clearly right that antitrust doctrine is supple enough to cope.⁶ The outburst of quality scholarship on issues relevant to new economy markets has been immense.⁷ The need, as Judge Posner recognized, is to hold firmly to conventional doctrine that forbids anticompetitive practices that will cost the dominant firm less than their expected yield.⁸ But this doctrine must be implemented by identifying and responding to the contextual dynamics encountered in the particular market involved by using—with skepticism if called for—all relevant information and useful analytical tools, whether or not they bear the Chicago imprimatur. For example, in evaluating a new economy joint venture the analyst should check for possible harms and benefits and gauge their seriousness in the conventional manner. Will the increased concentration raise barriers? Will the information exchanged threaten cartel effects beyond the venture? Will non-members be prejudiced by exclusion from an important resource? Are there offsetting efficiencies? The risk of harm may be influenced by barriers from IP or network effects or by other special characteristics. In evaluating possible benefits such characteristics may also loom large. Cooperation may not only make scale or transaction cost benefits accessible, but may also yield increases in consumer values through network effects.⁹ Against this recognition—that new economy markets can be understood and that the theoretical resources needed to analyze their competitive effects are available—I will address the two institutional problems Judge Posner adumbrated. But first, a discussion of standards is in order. How should one decide when antitrust enforcement is sufficiently effective?

⁶ See *Posner Article*, *supra* note 1, at 931-33 (suggesting that the author's confidence in antitrust theory, though skeptical, does not deny the possibility that dominant new economy firms, acting alone, may injure competition).

⁷ See, e.g., Steven Salop & David T. Scheffman, *Raising Rival's Costs*, 73 AM. ECON. REV. 267 (1983) (special edition) (discussing the theory of raising rivals' costs which forces competitors to exit a market) and the works cited in *supra* notes 2-5. See also Jonathan B. Baker, *Recent Developments in Economics That Challenge Chicago School Views*, 58 ANTITRUST L.J. 645 (1989) (citing and discussing relevant recent scholarship).

⁸ See *Posner Article*, *supra* note 1, at 935 (noting that in new economy markets, the likelihood of monopoly profits obtained during an extension period gained through intellectual property rights will exceed the costs of the exclusionary practice to the monopolist).

⁹ As cable, telephone, computer, and content provider markets coverage, there may also be opportunities for efficiencies in bringing complementary resources together.

1. *By What Standard Should the Effectiveness of Antitrust Enforcement Be Evaluated?*

The two institutional problems Judge Posner identified, discussed in turn below, are real enough. Technological complexity and ponderous procedural delay certainly burden big case antitrust litigation. But the seriousness of both of these problems will vary with differences in what one regards as the proper social contribution of antitrust enforcement. While the Posner paper did not specify an evaluative standard, it does seem to imply one: antitrust enforcement is effective when it achieves economically rational remedies that correct competitive distortions resulting from misuse of market power.¹⁰ While this is certainly an admirable top tier goal, antitrust litigation is not solely a policy analog to an economic laboratory, fine-tuned to clear the field of conflict and policy debate, in order to find the nicely balanced solution to each problem presented. It is, in addition, a system for resolving disputes that should be kept open to the diverse voices of myriad interested parties. In this role, it also has its own homiletic tradition, which celebrates and reinforces values clustered around fairness and efficiency.¹¹ Antitrust enforcement should be visible and explained. Only so will it foster and encourage a commercial culture where competitive process and openness to entry are perceived and protected as normative. If antitrust is evaluated solely as a struggle to correctly solve specific cases, then problems resulting from the paucity of technical information or limits on capacity to stay abreast of a fast moving market will be amplified. But recognition that antitrust functions as a social tutorial, that it can aid the commercial culture to internalize competitive values, will place the matter in a wider perspective. Also, there is a relevant time dimension. A short-term goal of enforcement is to dispose of the case at hand correctly. But some false positives and false negatives are inevitable. A long-term interest is to keep self-corrective processes both active and visible, thus reinforcing acceptance of and commitment to competitive values.

¹⁰ This standard seems to be suggested by Judge Posner's stress on economic rationality, *Posner Article, supra* note 1, at 925, his commitment to Chicago school analysis, *id.* at 931-32, and his opposition to "complicating" effects of state *parens patriae* jurisdiction and, perhaps, of private litigation, *id.* at 940-41.

¹¹ See generally RUDOLPH J. PERITZ, *COMPETITION POLICY IN AMERICA: HISTORY, RHETORIC, LAW* (rev. ed. 2000). As Professor Peritz's work reminds us, antitrust is at the center of an ongoing public debate. Inevitably it is history, rhetoric and, most importantly, a system for settling disputes by law as well as policy that seeks economically rational solutions.

2. *Does the Paucity of Disinterested Technical Expertise Greatly Diminish Effective New Economy Antitrust Enforcement?*

Judge Posner's concern that disinterested technological information is in short supply seems overdrawn and is certainly time limited. Computer hardware, software, and networks, up to and including the Internet, involve technologically complex engineering. Until they become relevant professionally, lawyers and judges of any seniority need not be embarrassed to display limited conceptual control of the latest phenomena in these fields. After all, though the first general purpose, programmable, digital computer—the 30 ton “ENIVAC”—dates to 1945,¹² the mini computer only arrived in the mid 1960s, the microprocessor in the early 1970s, IBM personal computers (“PCs”) not until 1981, compatible desktops not until the mid 1980s,¹³ and the first Windows operating system is still a fresh memory. As for the Internet, while ARPANET, funded by the Department of Defense, dates to the late 1960s, NSNE dates only to the mid 1980s, its federal support ended only in 1995, and exponential Internet growth began scarcely more than a decade ago.¹⁴ Moreover, the extent to which non-technical people of all ages are learning not only how to use, but how to conceptualize the design processes involved in software, hardware, and networks is, if not as astounding as is the phenomenal development processes that mark these fields, nevertheless impressive. Continuing education programs for non-engineers in university engineering schools can and do bring participants, including economists and lawyers, to quite a high technical level. Law schools, as well as business schools, teach not only the law but also some of the technology and competitive strategies related to the new economy, both in regular curriculum offerings (e.g., traditional IP, jurisdictional or procedural curses), and also in courses like computer, software and Internet Law.¹⁵ Moreover, in college and graduate programs of all kinds, the digital generation

¹² See JERRY KANG, COMMUNICATIONS LAW AND POLICY 19 (2001).

¹³ See MARK A. LEMLEY ET AL., SOFTWARE AND INTERNET LAW 2-7 (2000).

¹⁴ See KANG, *supra* note 12, at 240-42.

¹⁵ An example of a jargon-free, short course in high tech electronic fundamentals for non-electronic professionals is The ABCs of Electronic Technology, U.C. Berkeley Extension. For impressive examples of technology sophisticated law school teaching books, see Lemley, *supra* note 13, at 1-45 (discussing computer history, computer technology, software design, interface design and software validation and maintenance) and STUART MINOR BENJAMIN ET AL., TELECOMMUNICATIONS LAW AND POLICY 827-65 (2001) (discussing the history and architecture of the Internet). Almost any lawyer is apt to receive numerous announcements for continuing education programs on these and related topics.

has arrived.

Remember, too, that a learning curve is experienced by courts, enforcers, and lawyers as well as by entrepreneurs when they turn their attention to new subjects or phenomena. In the analysis of antitrust problems, this can be observed in the movement from the excessive populism in the merger law of the 1950s and 1960s, to the implosion of per se and rule of reason analysis in the 1970s, to the price theory extremes of the 1980s, to post-Chicago analysis in the 1990s. That courts today are also learning to understand the new economy is already exemplified in the way they have responded to IP issues in these fields. The early cases failed to draw a sharp line between patentable ideas and copyrightable expression.¹⁶ But, as courts learned more about software, they became aware that greater access to programs were needed, lest technological development be stifled rather than advanced.¹⁷ Cases discussed in Part I.A.3, below, suggest that judicial learning about the special characteristics of and economics relevant to new economy industries is also being derived from antitrust cases.

Nor are the litigation problems in the new economy different in kind from those litigators and courts often address in the many other contexts where law and cutting edge science or engineering meet. Certainly there are potential values in some of Judge Posner's suggestions for mitigating some of the problems. Greater enforcement resources might enable courts and agencies to pay market rates for needed technological assistance.¹⁸ So, in some circumstances, might his arbitration-like proposal for party selected experts to nominate a consultant for the court.¹⁹ But the

¹⁶ First, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), subsumed technology into copyright. Next, *Whelan Assocs., Inc. v. Jaslow Dental Laboratory Inc.*, 797 F.2d 1222 (3d Cir. 1986), misconceiving the line between idea and expression in software design, granted sweeping protection for programming ideas for a term longer than would be available even if they could have qualified for patent protection.

¹⁷ There have now been several corrective and mitigating responses to overbroad copyright protection for software. *E.g.*, *Lotus Dev. Corp. v. Borland Int'l Inc.*, 49 F.3d 807 (1st Cir. 1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996) (holding that a method of operation is not copyrightable); *Computer Assocs. Int'l v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992) (holding that technical expression is public domain, and that innovative utilitarian works containing expression are copyrightable); *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992) (holding that disassembly of software code to gain access to its functional elements is a fair use under the copyright act).

¹⁸ See *Posner Article, supra* note 1, at 940. Although Posner's suggestion that a state's *parens patriae* jurisdiction be withdrawn was, as the author called it, "radical," most of the suggestions, including those concerning agency support, adoption of arbitration, and procedure were modest in nature and temperately presented. See *infra* note 19.

¹⁹ See *id.* at 937-38 (discussing possible methods that a court could use in selecting expert consultants).

litigation process should never be wholly dependent on disinterested technical experts who tell the court or jury the correct technical facts. Factual, even theoretical, issues about technology are as open to debate as are such issues in, say, antitrust economics. The way the courts should and normally do deal with them is by hearing the conflicting stories of experts whom the parties have screened to determine the thrust of their views, by hearing such experts cross-examined, and then by deciding which technical opinion is most consistent with the basic, observable facts. Antitrust litigation is not and should not become a laboratory. Like all litigation, it is a system for resolving conflicts fairly and effectively. For the same reason, anything that would remove states or private parties from the process, or diminish their roles, would not only weaken enforcement and reduce deterrence, but would erode the self-enforcement impetus that comes from wider understanding and support for open, competitive markets.

It may be that some of the relevant engineering specialties are developing a niche for forensic analysts who come to court with well-worn commitments. As yet, I have not seen evidence of this. In antitrust, this phenomenon has been experienced already with industrial organization experts. But that has not foreclosed effective litigation. I have yet to hear of an antitrust litigator incapable of finding a competent forensic economist able to carry the testimonial weight of the case. The time is probably past when lawyers were the only advocates participating in antitrust cases. But so long as the alternative ways of viewing the implications of a phenomenon—whether economic or scientific—are effectively presented to judge or jury by expert witnesses who have formed, express, and explain their opinions, and so long as the trier of fact is attentive to its task, the litigation process can bear these burdens. Often strained, occasionally overwhelmed, it has never been rendered incompetent by complexity.

3. Does Delay from Cumbersome Procedure Unduly Inhibit Effective New Economy Antitrust Enforcement?

Concern about the extent to which dynamism in the new economy will outdistance enforcement efforts is more serious; it invites confession and avoidance. Of course the demands of thorough, deliberative process cannot be accelerated to match Moore's "law of productive technology." That is no reason to give up on the law that enforces competition; it, by consensus, is good for the economy, and many know it to enrich and sustain American cul-

ture. Remember, ponderous responses to complex developments in structure, conduct, or performance are not limited to new economy markets, though features special to such markets can intensify the problems. Unexpected dynamism marked several earlier eras: when the great trusts arose, before and during both world wars, and in each of the several periods when the volume of mergers was high enough to be referred to as a "wave." (Does anyone recall a static, quiet time?) At all times of change enforcement is burdened and delayed. But courts, enforcers, and the bar generally have found ways to respond, as the "big case" literature over the decades suggests.²⁰ Indeed, while the new technologies complicate big case issues, these very technologies can aid in managing the resulting complexity.²¹ One need do no more than compare the skill and control with which the *Microsoft* case²² was managed with the manner in which the earlier IBM litigation²³ was handled to dramatize that progress has been made.

Indeed, the most instructive indicator of whether technological complexity is overwhelming new economy antitrust is the enforcement record itself. There have been some high profile cases involving Microsoft, Intel, and the World.Com/Sprint and

²⁰ See, e.g., NATIONAL COMMISSION FOR THE REVIEW OF ANTITRUST LAWS AND PROCEDURES, REPORT TO THE PRESIDENT AND ATTORNEY GENERAL (1979).

²¹ See generally Donald L. Klawiter & Thomas J. Lang, *Simplifying Complex Litigation: The Application of Internet Technologies to Antitrust Litigation*, 15 ANTITRUST 88 (2001).

²² For the district court findings see *United States v. Microsoft Corp.*, 65 F. Supp. 2d 1 (D.D.C. 1999). For the court's conclusions see *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000). For the court's final judgment see *United States v. Microsoft Corp.*, 99 F. Supp. 2d 59 (D.D.C. 2000). The unanimous, en banc per curiam court of appeals decision, *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001), *reh'g denied*, 2001 U.S. App. LEXIS 17137 (D.C. Cir. Aug. 2, 2001), *cert. denied*, No. 01-236, 2001 U.S. LEXIS 9509 (U.S. Oct. 9, 2001), upholds liability for section 2 of the Sherman Act for abusing monopoly power in the market for Intel-compatible PC operating systems, reverses section 2 liability for attempting to monopolize the browser market (because the government failed to define that market), reverses application of the per se rule to find a tying violation adversely affecting the browser market and remands for a rule of reason hearing. The decision also disqualifies the district court judge for misconduct, vacates the divestiture order and directs reconsideration of the remedy on remand, and specifically affirms the district court's 412 detailed findings of fact, all of which remain binding on all remand issues. This fast track decision, coming scarcely three years after the filing of the complaint, provides a solid foundation for settlement or, if that remains elusive, a lucid road map for party presentations and trial court deliberations that should resolve the open issues with dispatch and lead to a decree restoring effective competition. For the panel decision by the court of appeals in the earlier consent decree contempt proceeding, which was permissive of technical tying, see *United States v. Microsoft Corp.*, 147 F.3d 305 (D.C. Cir. 1998), *aff'd*, 165 F.3d 952 (D.C. Cir. 1999).

²³ In the government's monopolization case against IBM, the district court weakly managed pretrial proceedings, particularly discovery. This led to delay, confusion and an inordinately large record. The case was dismissed by the United States on the eve of trial. See, e.g., FRANKLIN M. FISHER, *FOLDED, SPINDLED AND MUTILATED* (1983).

AOL/Time Warner mergers. These and other cases can be evaluated both from the implicit Posner standard—economically rational correction of market distortions—and from the broader conception incorporating also the interaction of enforcement with entrepreneurial culture.²⁴ Let me first address the high profile cases, then summarize enforcement in the fields Judge Posner identified as troublesome, and in related areas where complex interactions between antitrust and intellectual property have occurred.

United States v. Microsoft Corp.:²⁵ The Intel-based PC operating system market requires high investment in developing IP and is marked by strong network effects. In such a market, when proprietary software becomes a standard, the firm controlling it will inevitably enjoy a period of power. Antitrust has two significant tasks: to monitor the contest to become the standard, and to inhibit the winner either from stifling such continuing dynamism as might eventually unseat it or from leveraging its power into other markets. Both objectives confronted the IP-antitrust interface with daunting, previously unresolved issues. One of the distinct successes of the government's monopolization case against Microsoft is that it raised in sharp, understandable ways important issues pertaining to the period after power is gained. Assume, as in *Microsoft*, that standard status is gained lawfully. When the dominant firm, protected by its IP and network effects, fears that innovative rivals in adjacent markets may erode power, may it respond through technical tying? Software give-aways? Bundling transactions and other exclusives with hardware manufacturers? Licensing practices that limit competitive access to distribution channels? While the full court of appeals opinion properly excoriated Judge Jackson's extra judicial comments and reversed his rejection of a remedy hearing, study of his meticulous findings²⁶ convinced that court (along with most observers): (1) that the defendant holds a dominant, well-entrenched share of a well-defined market, and (2) that by irreversibly integrating previously separate software functionalities, and using an array of other exclusionary tactics that could increase monopoly profits without offsetting efficiency benefits, Microsoft unlawfully protected that power from market forces. Equally importantly, given the district court role, Judge

²⁴ See *supra* text accompanying notes 10-11.

²⁵ 253 F.3d 34 (D.C. Cir. 2001) *reh'g denied*, 2001 U.S. App. LEXIS 17137 (D.C. Cir. Aug. 2, 2001), *cert. denied*, No. 01-236, 2001 U.S. LEXIS 9509 (Oct. 9, 2001).

²⁶ See *Microsoft*, 65 F. Supp. 2d at 1.

Jackson's rulings²⁷ served up the issues lucidly and in full context for appellate review. Moreover, the court of appeals fully understood them, analyzed them thoroughly, applied conventional doctrine in plausible ways, and lucidly explained every step of its analysis.

The court's unanimous, full bench per curiam opinion is particularly impressive in its treatment of monopoly maintenance. The court invokes complex, post-Chicago analysis of intricate facts to reach and explicate an eminently sound result. This is the most instructive and doctrinally important part of the opinion. Reversal of the attempt to monopolize claim for failure to define the browser market, by contrast, seems something of a technicality and partially inconsistent with the court's own monopoly maintenance analysis. Regarding market definition, browsers were shown to be a distinct, new category of software with its own demand and with, at the time, only two discernible participants. Shouldn't that be enough? As to consistency, the monopolization liability was predicated in substantial part on conduct shown to injure Microsoft's browser competitor. Unless the court intended to imply that conduct affecting two markets may be evaluated only in respect of one of the two—a distinctly untenable position—the views expressed about attempted monopolization are at odds with those adopted for monopolization. The court's revision of the tying doctrine, a move the Supreme Court has expressly declined (though admittedly in a different context), also is provocative. The district court, applying the Supreme Court's analytically enhanced per se rule, held that, by integrating Microsoft Explorer into Windows, Microsoft not only violated section 2 of the Sherman Act (by protecting its Windows monopoly), but also violated section 1 by stifling consumer choice in the browser market. Concluding that the separate demand test incorporated into this per se rule is only a limited proxy for overall efficiency of newly integrated software, the court remanded for a rule of reason analysis of harms and benefits. Accepting that the presumptions built into the Supreme Court rule may (like any presumption) miss some things a full analysis might disclose, should such a revision of Supreme Court doctrine come from a court of appeals—indeed, in a context where the conduct in question has already been found violative of section 2 for its adverse impact in a directly related market? Yet, the more significant facet of this holding is what the court declined to do. Relying on language from the same court's panel opinion in

²⁷ See *Microsoft*, 87 F. Supp. 2d at 30.

the earlier consent decree contempt proceeding that seemed to support such an argument, Microsoft contended that any integration into any software of any previously separate functionalities would be per se lawful. The court first rejected this claim when it ruled that irreversibly integrating Explorer into Windows violated section 2. It did so again when it remanded the government's tying charge for a fuller efficiency analysis. Given that Microsoft plans to integrate other additional functionalities into its forthcoming new version of Windows, this holding, along with the affirmance of all of the district court findings, could have profound significance when "fencing in" provisions are being fashioned at the remedy phase on remand.

The questions the case raises are now an important element in the policy debate not only here but in the European Union.²⁸ Regardless of how the balance is finally struck on the remand issues, *Microsoft* models effective enforcement and highlights the importance of not giving up on evaluation of competitive strategies in dominated new economy markets. Doing this is difficult. It can be done fully only by weighing any efficiency justification for the strategies (including any claim that they are no more than a reasonable reward for the innovative investment that yielded the IP that became the standard) against any ex post consumer injury, including harm to research and development ("R&D") competition. As in *Microsoft*, courts may seldom resolve all issues in an ideal way; debate about them should persist. Antitrust is, after all, a living tradition. Doctrinal development is never a triumphant march. It has its starts, stumbles, detours, and periods of ferment. But so long as the courts adhere to core commitments, and remain open to relevant information and analysis, progress will be made. In these respects, the court of appeals decision in *Microsoft* exemplifies much of what is best in the antitrust tradition. It has a gravitas commensurate with the status of the firm and the importance of the issues. It serves both economic rationality and the homiletic tradition well.

In re Intel Corp.:²⁹ The Federal Trade Commission ("FTC")

²⁸ Alexander Schaub, Director, European Commission, participated in the Round Table Conference with Enforcement Officials, 49th Annual Spring Meeting, ABA Antitrust Section, March 30, 2001, Washington, D.C. He and the U.S. enforcement officials emphasized policy convergence and cooperation and the tenor of remarks during the question period suggested that EU antitrust enforcement will continue to significantly affect U.S. firms in international markets.

²⁹ FTC Dkt. No. 9288 (August 3, 1999) (decision and order), available at <http://www.ftc.gov/os/1999/9908/intel.do.htm>. See also Pitofsky Remarks, *supra* note 1 ("[T]he order in Intel is the prime example of the effort by the FTC to pursue conventional antitrust

charged Intel with monopolizing the general-purpose microprocessor market by selectively withholding information from customers to force them to assign or to withhold enforcement of their own IP.³⁰ This tactic was allegedly used against a workstation manufacturer to force assignment of potentially competitive microprocessor patents and against a PC manufacturer to force withdrawal of a claim that Intel infringed a patent this customer held. In both instances patent barriers to Intel's dominated market would be raised by the conduct. In the third alleged incident the tactic was used against a PC manufacturer to deter it from enforcing its PC patent against other PC manufacturers using Intel chips.³¹ As the FTC saw it, the purpose was to stop the target firm from appropriating value based on information in the stream between Intel and its PC customers, an appropriation that might reduce Intel's share. In all three instances, the alleged investment in innovation by Intel's customers and potential competitors would be discouraged.

The facts were complex and the legal issues novel. They could be processed well only by an agency or court open to exploring all relevant information and analysis.³² Intel, like Microsoft, was competently managed by both parties and disposed of with dispatch. On the face of it, the consent relief obtained—that Intel not deny information to any customer not seeking an injunction against Intel's marketing of its own products³³—represents a balanced resolution of the issues and successful new economy enforcement. On the one hand, the conduct forbidden could discourage R&D investment thus positioning Intel as an innovation gatekeeper.³⁴ It could also raise barriers to the dominated market.³⁵

enforcement, while at the same time tailoring its complaint and order so as not to undermine incentives to innovate in the first place.”)

³⁰ See FTC Dkt. No. 9288 3, ¶ 11 (June 8, 1998) (complaint), available at <http://www.ftc.gov/os/1998/9806/intelcmp.pdf>.

³¹ See FTC Dkt. No. 9288 6-7, ¶¶ 28-29, available at <http://www.ftc.gov/os/1998/9806/intelcmp.pdf>.

³² Compare *Eastman Kodak Co. v. Image Technical Servs. Inc.*, 504 U.S. 451 (1992) in which the five to four majority affirmed the obligation and capacity of antitrust courts to process market information in a post-Chicago analysis about how particular markets work. See the discussion in Steven C. Salop, *The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millennium*, 68 ANTITRUST L.J. 187, 187 (2000) (commending the Kodak court for expertly applying “the basic principles of competitive analysis to a difficult dynamic context”).

³³ FTC Dkt. No. 9288 (August 3, 1999) (decision and order), available at <http://www.ftc.gov/os/1999/9908/intel.do.htm>.

³⁴ See Richard J. Gilbert & Willard K. Tom, *Is Innovation King at the Antitrust Agencies?*, *The Intellectual Guidelines Five Years Later*, 69 ANTITRUST L.J. 43, 66 (2001) (discussing *In re Intel Corp.*).

On the other, Intel's defenses—primarily that it could not significantly diminish R&D competition in any market and had often supported innovation by customers—would, to the extent proved, have weakened the FTC's affirmative case, but without putting much on the efficient business justification side of the scale.³⁶ It is not plausible that allowing Intel to grasp broad control of innovation in its own and related markets is no more than a reasonable reward for Intel's own innovation. Certainly the expectation of being able to gain such control would not be needed, *ex ante*, to encourage the kind of innovation that Intel successfully did. The consent settlement, which allows Intel to refuse to deal when confronted by an IP claimant seeking to enjoin Intel sales, is an ample response to concerns about fairness to a firm whose IP is challenged.

World.Com/Sprint Merger: Mergers and joint ventures are frequent in the new economy and their size and complexity has challenged the agencies. Nevertheless, enforcement, if not routine, has been significant and apparently successful. The Department of Justice ("DOJ") has challenged several mergers in the converging telecommunications industries.³⁷ The WorldCom/Sprint merger, in particular, was highly visible, thus having a homiletic effect. But most importantly it was thoroughly sound antitrust. The merger, if consummated, would have densely concentrated domestic and international long distance, Internet backbone and data network markets. Faced with the challenge, the parties abandoned it in 2000.³⁸

Other significant matters include the DOJ challenge to the Borland/Ashton-Tate merger, which effectively opened important IP assets.³⁹ So, too, the FTC proceeding against Dell Computer for deceptively manipulating cooperative standard setting.⁴⁰ Like DOJ's challenge to Borland/Ashton-Tate, this case impeded com-

³⁵ *See id.* at 67.

³⁶ *See id.* at 68.

³⁷ Ten such mergers were challenged by DOJ between October 1997 and December 2000. *See* U.S. Department of Justice Merger Challenges in Telecommunications Markets, Oct. 1997 – Dec. 2000, in Committee Program Material, ABA 49th Annual Spring Conference, ABA Antitrust Section (March 30, 2001), Vol. 1, Tab 4, at 105.

³⁸ *See id.*

³⁹ *United States v. Borland Int'l, Inc.*, 1992-1 Trade Cas. (CCH) ¶ 69, 774 (N.D. Cal. 1992) (final judgment). *See* Fazio & Stern, *supra* note 5, at 45 (exploring the types of enforcement options that are effective in preserving competition and the incentives for innovation and evaluating the remedy imposed by the DOJ in *Borland*).

⁴⁰ *In re Dell Computer Corp.*, 121 F.T.C. 616 (1996).

petitively risky conduct and gained significant relief in the form of opening IP rights.

AOL/Time Warner: This massive merger was challenged by the FTC but ultimately approved subject to consent relief that requires Time Warner to open its cable system to competing Internet services providers ("ISPs").⁴¹ While this relief can be evaluated,⁴² the outcome as a whole is difficult to evaluate with publicly available information. For that reason alone one cannot cite it as effective homiletically. Indeed, much of the news reportage might have invited the inference that this integration of two media monoliths should have been stopped. Whether this merger would pass muster under a rigorous post-Chicago analysis such as that modeled by Riordan and Salop remains an open question.⁴³

Enforcement in Other IP Intensive Markets: Antitrust enforcement in other new economy markets⁴⁴ and in related areas of technological complexity where IP is significant⁴⁵ also supports the conclusion that, taxed as the agencies are, the antitrust-IP interface is not being overpowered. When courts and agencies hew to conventional antitrust doctrine, utilize all available analytical tools and explore the particulars of complex markets,⁴⁶ effective enforcement can be achieved.

This brief summary of recent and ongoing enforcement suggests little reason for pessimism about the institutional capacity of antitrust to cope with the new economy. Antitrust always has been

⁴¹ See America Online and Time Warner Inc., FTC Dkt. No. C-3989 (Dec. 14, 2000), available at <http://www.ftc.gov/os/2000/12/index.htm>.

⁴² See discussion *infra* Part III.B.2.

⁴³ See Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513, 519-20 (1995) (arguing that vertical mergers may pose a risk of raising rivals' costs, coordinated conduct, and price regulation evasion under a post-Chicago analysis).

⁴⁴ See, e.g., Gilbert & Tom, *supra* note 34, at 63 (discussing *United States v. Visa USA, Inc.*, No. 98 Civ. 7076 (S.D.N.Y. Oct. 7, 1998)).

⁴⁵ See, e.g., *id.* at 53-60 (discussing the Glaxo/Wellcome, Ciba-Geigy/Sandoz, and Lockheed-Martin/Northrop Grumman Mergers); *id.* at 75-82 (discussing the FTC's reviews of drug patent settlements, patent pooling, and patent fraud cases). See also David Balto & Robert Pitofsky, *Antitrust and High-Tech Industries: The New Challenge*, 43 ANTITRUST BULL. 583, 584 (1998) ("The antitrust laws apply as equally to high-tech as other industries, but high-tech industries impose some special challenges for antitrust enforcers due to a number of issues that makes competition different from that observed in traditional 'smokestack' industries."); David A. Balto, *Pharmaceutical Patent Settlements: The Antitrust Risks*, 55 FOOD & DRUG L.J. 321 (2000) (discussing the critical role of antitrust enforcement in pharmaceutical markets).

⁴⁶ See *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992), where the majority opinion keeps antitrust analysis open to evaluation of the competitive effects of particularized market information. See also Salop, *supra* note 32 (analyzing *Kodak* from the first principles approach to antitrust analysis which focuses on the competitive effects of the conduct at issue).

and remains a process that transforms itself as the economy changes and the broader culture's demands upon and standards for the economy develop. Successes are achieved. Mistakes are made, too. Learning goes on. None of this provides reason to throw up one's hands as the Posner paper may seem to imply. Indeed, by his service in *Microsoft*, Judge Posner, himself, has modeled how those interested in competition should respond: Commit to finding sensible resolutions within the confines of the substantive law and procedural system, and then do the earnest, thoughtful work that this requires. Judge Posner's service as a mediator contributed very effectively to antitrust enforcement in the new economy. Under his tutelage the parties came very close to settlement, hardly an experience that suggests the case was unmanageable. But frustrating as the failure to close the case may have been, Judge Posner's participation, under the scrutiny of the media, enhanced the important homiletic contribution the case is still making to antitrust enforcement.

Finally, note that the delay and complexity associated with new economy litigation is not the special preserve of antitrust. The digital environment of e-commerce is marked by developments demanding new jurisdictional, contractual, and transactional governance arrangements, motivating novel techniques for appropriating information, defying conventional legal solutions, and confronting litigators and judges with burdensome information issues. For example, gaining IP protection and contesting claims can be frustratingly slow in a world where the United States Patent and Trade Mark Office's ("PTO") know-how is not up to speed, policy is developing only slowly, and courts may be ill at ease with the technical issues. Indeed, just as a market may have changed by the time the need for an antitrust remedy is established, so the benefits of hard-won IP protection may be obsolete by the time a patent is even granted or a software copyright found to have been infringed.⁴⁷

B. Particularized Market Information and Openness to Empirically Based Analysis by Agencies and Courts

During the 1950s and 1960s, courts dealing with patent-antitrust issues seemed more sensitive to the antitrust dangers, which they had doctrinal and some analytical tools to evaluate, than to the benefits of patent-generated innovation, which they

⁴⁷ See LEMLEY, *supra* note 13, at 323-26 (discussing the marginal benefits to society from software patents as well as their detrimental effect on writing software programs).

could not quantify.⁴⁸ Beginning in the 1970s, things began to change. During the 1980s, the elegant certainties of Chicago school economics were absorbed by courts.⁴⁹ Markets, even quite concentrated ones, were seen as robust and contestable, market failures largely self-correcting and antitrust interventions risky, sometimes defective, and even self-defeating. While Chicago hegemony gave way in the 1990s to post-Chicago thinking,⁵⁰ judges with Chicago training and instincts remain, even today, a significant, at times a dominant, force. Moreover, the 1980s and even more so the 1990s have given rise to a new disposition relevant to the IP-antitrust relationship. Courts, like much of the rest of the nation, have come to value R&D immensely. For this reason, when IP and antitrust appear to push against each other, the *ex ante* benefits of innovative investment may be over valued. Nevertheless, if one could assume that the relevant IP law was a basically sound response to the public goods market failure associated with information—an assumption discussed in Part II of this paper—there would be no need for excessive pessimism about new economy competition based on the way IP and antitrust interrelate. There would be issues, of course. And if these were resolved by an intemperate commitment to the classical models and parsimony about evidence distinguishing particular markets from traditional models, the resulting simplifications might screen out significant antitrust concerns. But that need not happen. It will be difficult to integrate IP and antitrust in new economy markets so as to maximize welfare. Achieving this will present problems of administration sufficient to strain judicial capacity. Yet, if timid “*per se* lawful” rules and overly cautious presumptions are avoided, it can be done. New economy markets are highly varied, but seldom idiosyncratic. IP costs are heavily front-loaded and network effects frequent. Because of this, new economy markets cannot be adequately understood through overarching price theory alone. Still, varied as these markets are, they do display recurring phenomena. With sufficient empirical information and both conventional price theory and post-Chicago insights, these markets can be understood. Judicial process, as well as antitrust theory, can be supple enough

⁴⁸ See LAWRENCE A. SULLIVAN, *THE LAW OF ANTITRUST* §181, at 520 (1977) (evaluating patent enforcement policy as exclusionary conduct).

⁴⁹ See HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE*, §§ 2.2b-2.2e, at 60-70 (1st ed. 1994) (describing the Chicago school antitrust analysis, its influence in major antitrust cases, and the rise of post-Chicago analysis).

⁵⁰ See *id.* § 2.2e, at 68-70 (describing post-Chicago theories as more complex and ambiguous than Chicago orthodoxy).

to manage the complexities with reasonable success.⁵¹

Regarding openness to particularized analysis, an unpublished paper by Professor Hovenkamp invites comment.⁵² It recognizes that post-Chicago analysis has shown that some market structures and some types of collaboration are more likely to have anticompetitive consequences than are supposed by the assumptions of Chicago price theory; therefore, that Chicago orthodoxy may not be the best and certainly is not the only analytical tool for understanding markets that do not fit classical models.⁵³ Yet, the paper speculates that post-Chicago thinking may be deficient because it does not yield testable propositions transposable into antitrust rules. For this reason it surmises that rules based on Chicago thinking may be appropriate. But linking antitrust to the new economy is not a rule-making task. Antitrust already has its substantive rules. They are settled, widely accepted and in modest need of refreshment. Except in the ever-narrowing field where per se responses are called for, these rules make outcomes turn on purpose and effect.⁵⁴ And the implication—that Chicago price theory yields testable conclusions while post-Chicago theory does not—is simply wrong. Chicago outcomes are “validated” only in the sense that if all of their underlying assumptions are factually correct, the outcome is inevitable. But that is a far cry from saying that Chicago theory has an empirical base. Bork, indeed, insisted that “antitrust must avoid any standards that require direct measurement and quantification of either restrictions on output or efficiency.”⁵⁵ Post-Chicago thinking, by contrast, while it, too, ends

⁵¹ See M. Sean Royall, *Editor's Note, Post-Chicago Economics*, 63 ANTITRUST L.J. 445, 454 (1995) (stating that “most post-Chicago criticisms call for refinements to—not rejection of—Chicago School approaches”).

⁵² Herbert Hovenkamp, *The Reckoning of Post-Chicago Antitrust* (2000) (unpublished manuscript, on file with author).

⁵³ The Hovenkamp paper cites ROGER D. BLAIR & DAVID L. KASERMAN, *LAW AND ECONOMICS OF VERTICAL INTEGRATION AND CONTROL* (1983) (discussing vertical integration where input proportions can be varied); Patrick Bolton et al., *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L. REV. 2239 (2000) (discussing strategic pricing above cost); Michael A. Solinger, *Vertical Mergers and Market Foreclosure*, 103 Q.J. ECON. 345 (1988) (arguing that vertical mergers can, in some cases, raise the price of the final product); Carl Shapiro, *Exclusivity In Network Industries*, 7 GEO. MASON L. REV. 673 (1999) (discussing network externalities); Michael Waterson, *Vertical Integration, Variable Proportions and Oligopoly*, 92 ECON. J. 129 (1982) (finding the “[o]verall welfare effect of vertical integration is very unlikely to be beneficial as long as the elasticity of substitution remains fairly low, though prices will often rise”); Hovenkamp, *supra* note 52, at 3 (arguing that “markets can in fact be anticompetitive over a variety of circumstances that Chicago economists generally disallowed”).

⁵⁴ See LAWRENCE A. SULLIVAN & WARREN S. GRIMES, *THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK*, § 5.3f, at 204-18 (2000) (describing the modern synthesis of per se and rule of reason analysis).

⁵⁵ ROBERT H. BORK, *THE ANTITRUST PARADOX* 117 (1978). See also PERITZ, *supra* note

with a deductive analysis, first tests and corrects relevant price theory assumptions on the basis of an empirical investigation of the particular market. The task of post-Chicago thinking is not to fashion new rules. It is precisely in applying the well established general rules of antitrust that post-Chicago thinking shows a potency that strict, ideological Chicago thinking may lack.

Of course, there need not and should not be a war between Chicago and post-Chicago analysis. The questions always are whether a particular market fits the precise assumptions to which an analysis addresses itself and, if not, in what particulars does it vary and can the effects of the variations be analyzed and understood. For example, even committed Chicagoans would not likely assert today that a conventional model about contestable markets could be applied to an information-centered market where a proprietary standard and network effects protected a first entrants' market share lead.⁵⁶ It is post-Chicago thinkers that have made theory about network effects accessible.⁵⁷ But they claim no patent on recognition that marginal cost pricing probably cannot be sustained in IP-centric markets strongly affected by such externalities. That insight is now in the public domain.

The question, in sum, is not whether rules should be rewritten in post-Chicago terms, but whether fact-finders should be given access to all relevant information and credible analysis about why given conduct in a given setting may or may not do competitive harm. To limit inquiry to Chicago orthodoxy even though it has recognized limits, especially when applied to new economy markets, gains simplicity at appalling cost. True, there are some mid-level rules or presumptions where Chicago thinking could narrow the range of issues to be presented to the trier of fact. But if the choice is between committing to more or less self executing rules—like, for example, the Areeda-Turner rule on predatory pricing⁵⁸—known to produce theoretically identifiable false negatives⁵⁹—or letting triers of fact hear the data and process alterna-

11, at 258-60 (criticizing Chicago analysis).

⁵⁶ See, e.g., *Posner Article*, *supra* note 1, at 926-29 (contrasting doctrines developed to deal with antitrust in smokestack industries with those needed to regulate the new economy). See also authority cited *supra* note 51.

⁵⁷ See the authorities cited *supra* note 5.

⁵⁸ See Philip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975).

⁵⁹ See, e.g., Bolton, *supra* note 53, at 2250-51 (noting that after the Areeda-Turner Rule was implemented, the success of plaintiffs fell drastically); Alvin K. Klevorick, *The Current State of the Law and Economics of Predatory Pricing*, 83 AM. ECON. REV. 162, 166 (1993)

tive analyses by conflicting experts, I see no basis either for a conviction or an intuition that closing off the possibility of avoiding false negatives is the more prudent course.

Tying, the most technologically complex issue in *Microsoft*, illustrates the importance of not closing off information. In the 1998 contempt case, the circuit court panel opinion can be read to suggest a per se rule that technical tying (integrating the functionality of one information product into a separate, dominant IP protected information product) cannot violate the Sherman Act, regardless of whether there are two product markets as conventionally defined, the integration transports monopoly power from the first market to the second, and the product being integrated into the dominant one is a partial or potential substitute that, were its market left open, might have tamed the dominant firm's power.⁶⁰

So urgent a resistance to difficult case management impairs basic tenets of antitrust and competitive theory and strains against the implication of *Eastman Kodak Co. v. Image Technical Services, Inc.*,⁶¹ the Supreme Court's latest tying case. If Judge Jackson's findings in *Microsoft* did nothing else they showed that issues like the one so eschewed by the 1998 court of appeals panel are judicially manageable. His findings about protecting operating system power and threatening to gain power in browsers by integrating browser functionality into Windows, are lucid, balanced, and supported by evidence. They clearly show that for strategic reasons Microsoft opted to stop offering its software without an integrated browser, although it could have offered both an integrated and an unintegrated alternative. As the court of appeals' unanimous en banc 2001 decision recognized, whether such findings warrant concluding that the Sherman Act was violated ought not to be based on misgivings about complexity, or disdain for the capacity of district courts, but on weighing the welfare effects of the alternative courses which Microsoft could have chosen.

In new economy markets such balancing will often be complex. Not only do these markets differ from old economy markets,

(special edition) ("If substantial informational asymmetries constitute an important prerequisite for rational predation, then it would seem essential that any 'test' for predation include an assessment of the information characteristics of the market in which it is alleged their predation occurred.").

⁶⁰ See *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C. Cir. 1998), *aff'd*, 165 F.3d 952 (D.C. Cir. 1999).

⁶¹ 504 U.S. 451 (1984). See also *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984) (finding no tying arrangement between anesthesiology and hospital services).

they also differ considerably inter se. Though most of the special features noted in Part I.A⁶² may appear in most of these markets, they are likely to present themselves in different mixes and to stimulate a variety of different strategies for exploiting the IP: Price and other tactics to gain an early lead that network effects may expand and switching costs protect; tying; inhibiting interoperability; inter-generational strategies, and so forth.

The first question, of course, is whether the IP proprietor by strategic use of the IP is reducing consumer welfare ex post—whether, in short, the tactic being used raises consumer prices, reduces the value of the output product or service, or inhibits R&D. If no such ex post harm is apparent, the IP proprietor cannot be violating the Sherman Act, even if it has monopoly power. If consumers are adversely affected, the inquiry proceeds to whether the tactic is defensible because allowing it is within the reasonable reward for the investment yielding the IP. To assure a policy-centric integration of IP and antitrust, the answer should turn on whether the expectation of being able to exploit the IP in the way under challenge would be reasonably anticipated as one of the incentives for making the ex ante investment that led to the IP. Hypotheticals can illustrate this line.

First, assume X Co. reconfigures computers and installs application programs for specialized functions in the widget industry. It has monopoly power in this niche market because its computers and the software have become standards. X also provides service and originally dominated this aftermarket, too. However, independent service providers (“ISPs”) have entered, undercut X’s prices and gained significant share. X responds by developing diagnostic software, which it refuses to license to service competitors. X successfully reduces its service costs and prices and regains share. It seems fairly obvious that the hope of that outcome is what generated X’s innovative investment. Were X charged with monopolization, a quick-look conclusion of no violation would be warranted.

Now add to the hypothetical: After the above event, an outside company designs equally efficient diagnostic software and licenses the ISPs. X responds by developing and migrating its customers to a new generation upgraded application package, and licenses this to widget firms only if they will agree to a long-term contract for hardware and software service. If the tactic reinstates X’s downstream monopoly, the resulting competitive harm—the service monopoly—would be evident. It would also be evident

⁶² See *supra* text accompanying notes 3-5.

that it was achieved by tying. If the current truncated per se rule survives (and if consumer choice is highly valued, it should) that would end the inquiry.⁶³ But consider the matter under the rule of reason that the *Microsoft* court of appeals' decision required. The analysis might be complex. No doubt downstream competition is one of the things that spurred X to move to a new generation product. But was the expectation of being able to tie in service a significant motivation for developing the application package? If so, does the welfare benefit from that new package outweigh the loss attributable to the reinstated service monopoly? In a lean hypothetical such questions may seem intractable. However, they are of no different order than the kinds of balancing that courts must regularly undertake to apply the rule of reason. Evidence could be gathered, evaluated and weighed. It is a difficult, but manageable task.

II. DOES EXCESSIVE IP PROTECTION CAUSE ALLOCATIVE DISTORTION AND REDUCE CONSUMER WELFARE IN THE NEW ECONOMY?

The goal of IP, to correct "free rider" market failures that keep investment in innovation below optimum levels, is economically rational. Yet, that overprotective IP can distort allocation, hurt consumers and impede further innovation, is wisdom long in the public domain.⁶⁴ That major IP regimes sometimes do excessively protect is also sadly familiar.⁶⁵ Both observations have fresh significance, moreover, because the new economy is built on information and its participants, often debarred from marginal cost pricing, rely heavily on IP-linked competitive strategies and network effects. In consequence, any harm from excessive IP protection is amplified. For this reason, those who value effective competition must take seriously the task of understanding and evaluating the actual allocative and consumer welfare results of the IP system. This is imperative because, unlike antitrust, IP is anything but supple. Its "one size fits all" rules leave courts painfully little discretion to weigh costs and benefits before applying them.

⁶³ See SULLIVAN & GRIMES, *supra* note 54, at § 7.2d, at 414-15 (applying the modified per se rule or structured rule of reason to tie-ins and noting that an aftermarket may be a separate market for purposes of the second prong of the rule).

⁶⁴ See *id.* § 15.2a., at 809-12.

⁶⁵ See, e.g., *White v. Samsung Electronics America, Inc.*, 989 F.2d 1512, 1513 (9th Cir. 1993) (Kozinski, J., dissenting from denial for rehearing en banc) ("Overprotecting intellectual property is as harmful as underprotecting it . . . Nothing today, likely nothing since we tamed fire, is genuinely new . . .").

A. Patent Law

The greatest risk that excessive patent protection unduly impedes new economy competition is shared with all segments of the economy where substantial corporate R&D is common. Efficient allocation, consumer welfare, and even dynamic efficiency are imperiled if the patent system is hemorrhaging and needs to be staunched. And it may well be. Not only are applications, grants and the rate of grants per dollar of R&D all at towering heights, but the percentage of grants on corporate applications may be approaching 100%.⁶⁶ When applicants in R&D-centric industries face PTO resistance they can bring sufficient technological resources to bear in the ex parte proceeding to overwhelm the examiner with information, expertise, argument and docket delay.⁶⁷ My purpose is not to select among the many mitigations that have been suggested,⁶⁸ but to insist that anyone who values free markets should be concerned. The patent system should not be allowed to deteriorate into a regulatory regime that doles out exclusive licenses for myriad ideas, technologies, algorithms, and business methods without adequate policing for novelty or non-obviousness and then cloaks the grants with presumed validity when they are challenged. Whether by greater resources for training of, and higher standards for, examiners, the repeal of the presumption of validity, switching to a straightforward registration system, or by other means, the current system can and should be improved. If it is not, gratuitous rewards in excess of those needed to encourage innovation may distort allocation, reduce consumer welfare, and impede innovation by closing off research paths too early, too broadly, or on the basis of too trivial a contribution. In Parts II.A.1. and II.A.2., following, particular areas of patent law where over protection may threaten new economy competition are explored.

⁶⁶ See discussion in James Langenfeld, *Intellectual Property and Antitrust: Steps Toward Striking a Balance*, 52 CASE W. RES. L. REV. 91 (2001).

⁶⁷ See Flavio Rose, *Patent Truths*, L.A. LAW., Oct. 2001, at 40, 40 (arguing that patents have become easier to obtain in part because PTO "examiners have become increasingly overworked and susceptible to strategies that exploit their overload").

⁶⁸ See, e.g., LEMLEY, *supra* note 13, at 333-34 (discussing problems related to obviousness and computer-implemented inventions); Robert P. Merges, *As Many As Six Impossible Patents Before Breakfast: Proprietary Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 557 (1999) (advancing patent system reforms such as restructuring jobs and incentives in the patent office and obtaining information from the requesting firm's competitors); Pitofsky Remarks, *supra* note 1 (suggesting the need to strike a balance between intellectual property and antitrust).

1. Proprietary Control of Software Algorithms

The debate about computer software as patentable subject matter, long a contentious area, appears to be over. The court in *Gottschalk v. Benson*⁶⁹ denied 35 U.S.C. § 101⁷⁰ patent coverage to software because the applicant's claim comprehended a generalized formulation for programs to solve the mathematical problem of converting one form of notation into a form easier for a computer to comprehend.⁷¹ The Douglas opinion resonated with earlier doctrine that excluded patentability of mathematical formulae, methods of calculation, and so-called mental steps. So doing, it was also consistent with two propositions often encountered in discussion about patents, the pragmatic conviction that no patents should be so broad as to preempt unforeseen technologies, and the basic value stance that patents should not be granted on ways of thinking.

The second of these propositions—the value-based concept—was reinforced in 1978 in *Parker v. Flook*.⁷² Section 101 coverage was denied to a method for updating alarm limits for catalytic conversions in three steps: measuring the operating conditions, using a mathematical calculation to update the limit, and adjusting the alarm to the updated value.⁷³ Four years later in *Diamond v. Diehr*,⁷⁴ the last Supreme Court case to address patentability of software, the pragmatic theme behind *Benson* was further advanced, but with a different outcome. For the first time the Court upheld as § 101 subject matter a computer related process claim that used a mathematical algorithm.⁷⁵ But this process, well-embedded in the technical fatherland of patents, affected a tangible, transformation of physical material in a specified technological field, thus not fully appropriating the algorithm. Then followed a period when the Court of Customs and Patent Appeals ("CCPA") would evaluate computer related claims by a two-step procedure. First, is a mathematical algorithm recited directly or

⁶⁹ 409 U.S. 63 (1972). The most salient issues concerning patent protection of software are more fully explored in LEMLEY, *supra* note 13, at ch. 3. I have drawn on the insights of these authors.

⁷⁰ See 35 U.S.C. § 101 (2000) ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.").

⁷¹ See *Gottschalk*, 409 U.S. at 65.

⁷² 437 U.S. 584 (1978).

⁷³ See *id.* at 585-86.

⁷⁴ 450 U.S. 175 (1981).

⁷⁵ See *id.* at 184-85.

indirectly? Second, if so, is the claimed invention no more than the algorithm itself, or is the algorithm applied to and limited by physical elements or process steps.⁷⁶

A development from that tradition occurred in 1994 when the Federal Circuit decided *In re Alappat*.⁷⁷ The invention there dealt with displayed data in waveform on an oscilloscope (the front of a cathode-ray tube (CRT)).⁷⁸ The problem addressed was that, because of the limited number of pixels on a CRT screen, rising and falling portions of the wave appeared discontinuous. Through software, the invention modulated the illumination intensity of the pixels, thus eliminating the discontinuity. The Board rejected the claim as falling within the “mathematical algorithm exception” to patentable subject matter.⁷⁹ The Federal Circuit reversed. In *Benson*, *Flook* and *Diehr*, it found no such exception, but only three limits to patentable subject matter: laws of nature, natural phenomena and abstract ideas.⁸⁰ The three Supreme Court cases were viewed as saying no more than that certain mathematical subject matter, “standing alone, represent nothing more than abstract ideas.”⁸¹ To evaluate whether a software claim fails for that reason, the court must “see whether the claimed subject matter as a whole is a disembodied mathematical concept . . . which in essence represents nothing more than a ‘law of nature.’”⁸² Only if so does *Diehr* exclude it as patentable subject matter. The majority recognized that the elements in the claim mathematically transformed one set of data to another, but construed the claim as limited to the particular transformation, one which altered something physical—a wave on a screen from a discontinuous image to a smooth one. The substantive thrust of *Alappat* was that, when the software claimed was embedded in a structure, it became patentable subject matter. Its practical effect was to open the floodgates to software related patent applications.

While *Alappat* might have left the inference that something physical, perhaps even technological, still had to be involved to bring software within patentable subject matter, after the Federal

⁷⁶ See *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1058 (Fed. Cir. 1992) (reciting the history of this so-called Freedman-Walter-Abele test and applying it to a claim directed to a procedure for determining when heart attack victims are at high risk).

⁷⁷ *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994) (*en banc*).

⁷⁸ *Id.* at 1537.

⁷⁹ *Id.* at 1539.

⁸⁰ *Id.* at 1542-43.

⁸¹ *Id.* at 1543.

⁸² *Id.* at 1544.

Circuit decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*,⁸³ such limiting references are no longer warranted. It is now clear that any programmed hardware and that any process involving software is patentable subject matter, so long as it can achieve a “useful, concrete, and tangible” result.⁸⁴ Indeed, *State Street Bank*, which articulated this rather coarse grained screen, accepted software that solved a complex financial bookkeeping problem by transforming financial data inputs into a current monetary value, hardly a “tangible” transformation in the same sense as *Diehr’s* change in the form of physical material or even *Alappat’s* change of the display on a cathode-ray screen. While the non-obviousness test may yet remain a barrier, this new, generous view of software patentability, embraced and extended by the PTO, pushes against the policy that patent protection should not be granted too far upstream, lest too broad a swath of exclusive technological territory be ceded. Indeed, the PTO now regards pure data structures as patentable subject matter, though it is hard to find any basis for this view either in *Diehr* or the post-*Diehr* CCPA or Federal Circuit case law.

This risk of patent protection effectively preempting broad development areas and unduly inhibiting competitive innovation is magnified for software because, as the *Computer Associates International v. Altai, Inc.*⁸⁵ court recognized in the copyright context, even a straightforward application program contains not one idea, but many. Indeed, Robert Merges quotes Daniel Brecklin (who designed one of the first spread sheet programs) as saying that “a sophisticated application program may involve from . . . [10 to 10,000 separately] patentable processes.”⁸⁶ Patents, remember, are often issued long after the application date.

A program long in the market may ultimately be found to contain one or more modules or sub-routines that infringe one or more earlier invented but later granted patents. At the time of development the infringer may have had no practical way of avoiding the risk.⁸⁷ All of these effects, significant in themselves, may well have a tendency to increase software concentration. Software grows increasingly complex and expensive to produce as hardware and semiconductor technology become more powerful and

⁸³ 149 F.3d 1368 (Fed. Cir. 1998).

⁸⁴ *Id.* at 1373 (quoting *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)).

⁸⁵ 982 F.2d 693 (2d Cir. 1992).

⁸⁶ ROBERT PATRICK MERGES, PATENT LAW AND POLICY 119 (2d ed. 1997).

⁸⁷ *See id.* at 120.

cheaper. As members of the large firm software oligopoly incur the expense of expanding their patent portfolios, the numerous fringe firms, still important in the industry, face a Hobson's choice: either (1) divert limited resources from software design into the patent chase or (2) frequently find innovation paths blocked by portfolios accumulated by others.⁸⁸ Also, as more and more algorithms are patented, even the transaction costs of clearing away impediments through licenses may develop into a significant barrier to entry and to effective software development, especially by small firms.⁸⁹ Beyond that, as software becomes more complex, more expensive to produce, and more the preserve of large producers, the contention that protection beyond copyright is needed to support innovative investment may weaken. First entrant advantages, trade secret protections, non-competition covenants in employment contracts, and strategies such as periodic upgrades and even contractual protection against reverse engineering can be brought into play to appropriate informational assets.⁹⁰ If these are reinforced by network effects, they may be impermeable.

Interestingly enough, these developments—with their risks to optimum allocation and effective competition in software—have occurred at about the same time that some (though not all) excesses in copyright protection for software were being tamed. Most particularly, the abstraction–filtration–comparison test of *Computer Associates*⁹¹ diminishes greatly the risk of overprotection signaled by earlier cases like *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*⁹² Additionally, *Fiest Publications, Inc. v. Rural Telephone Service Co.*,⁹³ by establishing at least minimum creativity as a constitutional prerequisite for protection under Article I, Section 8, Clause 8,⁹⁴ and even *Campbell v. Acuff-Rose Music, Inc.*,⁹⁵ by emphasizing the significance of transforma-

⁸⁸ See *id.* at 119-20.

⁸⁹ For a collection of literature on IP licensing transaction costs, see LEMLEY, *supra* note 13, at 323-24.

⁹⁰ See generally SHAPIRO & VARIAN, *supra* note 4, at 83-102 (discussing the management of information assets).

⁹¹ See *Computer Assocs.*, 982 F.2d at 706-12.

⁹² 797 F.2d 1222 (3d Cir. 1986) (protecting non-literal elements of computer program under copyright law).

⁹³ 499 U.S. 340 (1991).

⁹⁴ See *id.* at 358.

⁹⁵ 510 U.S. 569 (1994).

tive expression to the availability of the fair use defense,⁹⁶ signaled other possibilities for narrowing copyright protection for software, given that its technical nature weighs against its being particularly expressive. As courts learned more about software, they recognized that wide IP protection could threaten rather than advance the social interest in technological growth and development. Perhaps more experience with software patents will tend toward similar caution.⁹⁷ In evaluating software patents there is, then, considerable heft on the negative side of the allocative efficiency and consumer welfare scale. Nor is much benefit apparent that weighs against this. As the Court noted in *Benson*,⁹⁸ but ignored in *Diehr*,⁹⁹ not only do software authors already hold copyrights, there is no dearth of innovative investment in software, nor was there even before the ready availability of patent protection was established.

2. *Proprietary Control of B2B and e-Commerce Business Methods*

About the time it started freely granting software patents, the PTO moved the patent system away from its traditional link to technology in another, related area. It began to award computer related business method patents. This administrative rejection of a long assumed “business method exception” to § 101 coverage¹⁰⁰ was also validated in *State Street Bank*.¹⁰¹ Since that decision, the number of applications and PTO grants has accelerated. Not surprisingly, given the limited experience and resources of the PTO, a

⁹⁶ See *id.* at 581 n.14.

⁹⁷ Ironically, the market effect of these positive changes in software copyright case law has been to increase the extent to which patent replaces copyright as the IP regime of choice for software.

⁹⁸ See *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972) (quoting from REPORT OF THE PRESIDENT’S COMMISSION ON THE PATENT SYSTEM (1966)). See also DONALD S. CHISUM, PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY, AND INFRINGEMENT § 1.03(6) (2001).

⁹⁹ See *Diamond v. Diehr*, 450 U.S. 175, 187-90 (1981).

¹⁰⁰ See *Hotel Sec. Checking Co. v. Lorraine Co.*, 160 F. 467, 469 (2d Cir. 1908) (noting that methods of doing business are abstract ideas).

¹⁰¹ See *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998). The patent in *State Street Bank* was not the first computer related business method patent to be upheld by a court. In *Paine, Webber, Jackson & Curtis Inc. v. Merrill Lynch, Pierce, Fenner & Smight, Inc.*, 564 F. Supp. 1358, 1368 (D. Del. 1983), the court rejected a challenge to Merrill Lynch’s broad financial product claim for a Securities Brokerage-Cash Management System noting that no procedure for solving a mathematical problem was claimed. A PTO spokeswoman was recently reported to have said that only about sixty percent of business method applications are granted, a statistic she apparently thought should reduce concern about overprotection. See William M. Bulkeley, *A Billion-Dollar Patent?*, WALL ST. J., August 28, 2000, at B1.

number of the recently granted business method patents seem awesomely broad and, hence, dangerously anticompetitive. The Signature Financial patent, upheld in *State Street Bank*, could be but one example of a spate of patents that may effectively accord patent control to each step in the on-going process of innovation in investment products and hedging and speculation products such as financial instruments and derivatives. Indeed, the PTO's open floodgates approach currently in vogue goes well beyond assigning proprietary control to new financial instruments. It also applies to using computers to effectuate sometimes quite conventional business activity.¹⁰² It is almost as though after the telephone was invented a merchant could have patented a process for making a sale by answering the phone and recording the customer's order, name and address. The first merchant to do that was an innovator, but should he have been empowered to block further, related innovation for the better part of two decades? Nor does patent protection appear necessary to encourage entrepreneurs to initiate new business methods. It is hard to make a case that under-investment in developing business methods is a market failure that distorts allocation—that American entrepreneurs put too much into carrying on business in conventional ways and too little into generating B2B or e-commerce approaches. Computer oriented adaptations of conventional business methods were highly dynamic without the encouragement of patent protection. This new legal climate promises more harm than good.

3. *Non-Obviousness as a Bar to Patentability of Computer-Related Inventions*

Of course, both software patents and business method patents should not issue or be valid unless the claimed invention is non-obvious. How effective this screen will ultimately be remains to be seen. Certainly the plethora of seemingly trivial patents being granted for computer related business methods provides little basis for predicting that the PTO will prevent gratuitous overprotection. Few of the patents currently being granted show any inventive spark beyond gaining some efficiency by using computers for quite conventional tasks. The danger that non-obviousness will not be an effective screen for patents (such as

¹⁰² See, e.g., the Hartman patent, a "Method and System for Placing a Purchase Order via a Communications Network," U.S. Patent No. 5,960,411 (issued Sept. 28, 1999). See also Bulkeley, *supra* note 101.

that approved for Signature in *State Street Bank*) that recite a mathematical algorithm is also real. Citing Julie Cohen, Lemley and his colleagues stress that the hypothetical person skilled in the art (against whom non-obviousness is tested) must be assumed to know of the algorithm, to have intended to solve the problem the invention solves, and to do so with a computer.¹⁰³ Absent rigor such as this in applying the test for non-obviousness, almost any machine or process claim that passes the *State Street Bank* subject matter test—any useful, concrete, tangible transformation of some data may seem patentable. As yet, there is no sign of such rigor in applying non-obviousness by the PTO. The hope that judicial challenges will be able to plug the leak provides small comfort, given the cost of patent litigation, the barrier effect that portfolios of numerous patents can have on a market, even when the patents are not all concentrated in the same hands, the difficulty and expense of uncovering relevant prior art in these novel fields, and the presumption of validity granted by the statute¹⁰⁴ but unearned when PTO procedures are porous.

B. Copyright Law

The most blatant over-protection afforded by computer copyrights is the seventy year-plus period of protection.¹⁰⁵ This is much longer than needed to encourage optimum investment in developing software. Fortunately the risk of allocative harm is reduced because the market life cycle of most software tends to make the protection obsolete during much of the term. Still, an operating system or application program that has become a standard can sometimes be sustained for lengthy periods through generational upgrades or other strategies. This can delay and increase the expense to competitors relying on reverse engineering to commercialize competitive or interoperative programs. Furthermore, the automatic nature of copyright protection¹⁰⁶ can increase the

¹⁰³ See LEMLEY, *supra* note 13, at 333-34 (quoting Julie E. Cohen, *Reverse Engineering and the Rise of Electronic Vigilantism: Intellectual Property Implications of "Lock-Out" Programs*, 68 S. CAL. L. REV. 1091, 1169 (1995)).

¹⁰⁴ See § 282 of the Patent Act of 1952, to which the Federal Circuit has given substantial force as policy. See Patent Act of 1952, ch. 950, 66 Stat. 812 (1952) (codified as amended at 35 U.S.C. § 282 (1994)) (establishing a presumption of validity for patents and setting out defenses to infringement). See also Donald R. Dunner et al., *A Statistical Look at the Federal Circuit's Patent Decisions, 1982-1994*, 5 FED. CIR. BAR. J. 151 (1995) (discussing whether the U.S. Court of Appeals for the Federal Circuit is biased in favor of patents).

¹⁰⁵ Currently the term of a copyright is life of the author plus seventy years; for unidentified or fictitious authors or for works made for hire, it is the shorter of ninety-five years from first publication or one hundred twenty years from creation.

¹⁰⁶ Under §102 of the Copyright Act, copyright subsists as soon as the work is fixed in a

barrier effect of software patent portfolios. Even the developer who prevails on non-infringement or invalidity grounds after expensive litigation may remain vulnerable under copyright if the plaintiff's code is similar and was accessible to the defendant.

Decisions about copyrightability that were made early in the development of software appear with hindsight to have been bad policy.¹⁰⁷ No doubt a program expressed in English or another modern language would, if creative enough, meet the literal subject matter requirement for copyright. So, too, if a sufficient creative program were reduced to an expressive flow chart. The same line of reasoning might warrant copyrightability of creative source code, also readable by humans knowing the language. That literal copying of elements of these might infringe seems sound as a matter of statutory construction. But object code—the language used to enable a machine to talk to another machine—performs a utilitarian, technical function much like a standard “H” gear in an automobile. It can be far better rationalized as an uncopyrightable “method of operation” under 17 U.S.C. § 102(b) than as a “literary work” under 17 U.S.C. § 102(a).¹⁰⁸ Moreover, anything that can be fixed in object code could also have been wired into the computer's hardware. Indeed, choices between software and hardware are based solely on cost and efficiency. And certainly if the “communication” (i.e., the signals to a machine's switches) expressed in object code were a hard-wired component of the machine itself, courts would not likely have characterized it as authorship. Additionally, when the object code in question is an operating system, the argument for classifying it as an uncopyrightable system or method of operation (though rejected in *Apple v.*

tangible medium.

¹⁰⁷ The story of early Copyright Office doubt about software copyrightability, and, the Congressional decision to establish the Commission on New Technological Uses of Copyright (“CONTU”) is implicated, and that Commission's conclusion that copyright already subsisted in software is criticized, and resulting policy concerns are noted in Pamela Samuelson, *CONTU Revisited: the Case Against Copyright Protection for Computer Programs in Machine Readable Form*, 1984 DUKE L.J. 663.

¹⁰⁸ Although the case against copyrightability of machine readable object code is strongest, given the utilitarian character of software, even when expressed in English, a flow chart, or a programming language, it will focus on function and means without expressive flourish. The critical line to be drawn is between elements appropriately called authorship (expressive material) and elements better characterized, in the terms of § 102(b), as an unprotectable “idea, procedure, process, system, method of operation, concept, principle or discovery.” 17 U.S.C. § 102(b) (1994). See Peter S. Menell, *An Epitaph for Traditional Copyright Protection of Network Features of Computer Software*, 43 ANTITRUST BULL. 651, 667-80 (1998).

Franklin Computer Corp.,¹⁰⁹ now widely accepted as settled law) is even more compelling logically. After all, given that the machine cannot function without it, the operating system is as embedded a part of the machine as is its power source. While there may be no realistic likelihood that this object code issue, or the source code variant of it, will be explicitly reconsidered either by the courts or Congress, the distinct limits to and weakness of the arguments which brought the law to where it is today stand as a suitable backdrop for some of the issues that should be, and may well still be, open to allocatively useful development. Below, some of these are discussed.

1. *Abstracting and Screening out Unprotectable Elements*

When the copyrightability of object code is being evaluated, elements of originality are essential to pass muster under the constitutionally mandated *Fiest* "creativity" test. The originality requirement of § 102(a) is not met merely by not copying from someone else, or by expending large amounts of effort or money to complete the task. Moreover, this constitutional requirement strongly implies that the technical skill of a programmer is no better substitute for creative expression than is substantial effort or investment. *Fiest Publications, Inc. v. Rural Telephone Service Co.*¹¹⁰ held that a compilation of white page telephone numbers arranged alphabetically by surname, followed by addresses and phone numbers, was so lacking in creativity as to be denied protection even against literal copying.¹¹¹ Although much more complex than compiling phone numbers, software design is also a utilitarian task, as the Second Circuit recognized in *Computer Associates*.¹¹² There, defendant, by reverse engineering an application program, designed with different code an alternative program that achieved the same result. The issue was whether defendant had taken so much of the structure, sequence and organization of the code as to constitute non-literal, yet illicit, copying. The court recognized

¹⁰⁹ See 714 F.2d 1240 (3d Cir. 1983) (holding computer program written in object code as suitable for copyright protection). But see *Lotus Dev. Corp. v. Borland Int'l Inc.*, 49 F.3d 807, 815 (1st Cir. 1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996) (noting that the first question in determining a computer program copyright issue is whether code, such as a menu command hierarchy, as a whole can be copyrighted at all).

¹¹⁰ 499 U.S. 340 (1991).

¹¹¹ See *Fiest*, 499 U.S. at 340-41. See also *BellSouth Adver. & Publ'g Corp. v. Donnelley Info. Publ'g, Inc.*, 999 F.2d 1436 (11th Cir. 1993) (holding that business and geographic classifications in yellow page telephone directory not sufficiently creative).

¹¹² See *Computer Assocs. Int'l v. Altai, Inc.*, 982 F.2d 693, 704 (2d Cir. 1992).

that many of the individual elements in utilitarian software will be dictated by functionality or efficiency, others by the requirements of compatibility with the hardware or the operating system or interoperability needs, and still others drawn from a public domain¹¹³ (i.e. made up either of old elements or ones which, though new, were so obvious as to be scenes a faire accessible to any skilled software designers). Because it thought none of these elements protectable, the court designed an abstraction—filtration—comparison test:¹¹⁴ Break both the copyrighted and accused software down into the routines and subroutines from which they were constructed. Remove all of the unprotectable elements. Then a similar procedure emphasizing the first element—filtration—could be used preliminarily, thus applying the *Fiest* test at the outset. Break the copyrighted software into its constituent building blocks. Eliminate everything un-copyrightable on every ground other than lack of creativity. Then ask: (1) whether there is anything left that is sufficiently creative so that were it copied there would be an infringement and (2) whether the sequence in which un-copyrightable elements are combined into a functional whole is sufficiently creative so that if the sequence were copied there would be an infringement. This would rivet attention on the constitutional need for creativity to protect either a routine or the manner in which routines are combined. If this approach were used by a court also mindful that there is reason to doubt the logic of protecting object code by copyright at all—that many of the arguments for such protection, because they stress programmer skill, are but refined versions of the “sweat of the brow” theory that *Fiest* flatly rejects—an increased sensitivity to the need to balance protection against the value of ex post competition could well result.

2. Characterizing Initially in § 102(b) Terms

Lotus Development Corp. v. Borland International Inc.,¹¹⁵ a First Circuit case affirmed four to four by the Supreme Court, held that a hierarchy of numerous commands in a spread sheet interface constituted a “method of operation,” un-copyrightable under § 102(b).¹¹⁶ The decision accepts, in this interface context, the ar-

¹¹³ See *id.* at 707-11.

¹¹⁴ See *id.* at 706-08.

¹¹⁵ 49 F.3d 807 (1st Cir. 1995).

¹¹⁶ *Lotus Dev. Corp.*, 49 F.3d at 815. *Lotus* is insightfully discussed in LEMLEY, *supra*

gument that *Apple v. Franklin* rejected when urged as a basis for classifying all operating systems as un-copyrightable. The *Lotus* opinion is in tension with opinions in other circuits, including *Computer Associates*. The *Computer Associates* analysis, if cautiously used in planning and counseling at the reverse engineering stage, and aggressively used at the litigation stage, could free a good deal of software from copyright. This will be so especially if *Fiest*, when applied to software, were construed either to raise the originality bar significantly or to reject technical skill as itself creative. Yet, the *Lotus* approach, if ultimately validated, might well keep considerably more software of all kinds in the public domain. Once the characterization is made that invokes § 102(b) the debate is over. If a menu tree structure, like that in *Lotus* can, as a whole, be characterized as a method of operation, what else might as appropriately be so characterized: A status screen? A user interface? A protocol? And what of the other § 102(b) categories of un-copyrightable elements: procedure, process, system? Might one or more of these cover substantial parts of some software? By contrast, the abstraction and filtration process, although it can screen much out, might allow considerable material to continue enjoying copyright protection that, under a spacious use of the *Lotus* approach, might be "filtered" at the outset. Concern for efficient allocation and consumer protection supports such a tightening of copyright protection for software. Given the special elements of the new economy, where software lives out its commercial life, IP protection, due to network externalities and standard status can yield considerable market power, an ex post reward far in excess of that needed to encourage sufficient software investment. Such over-protection results in allocative harm and consumer injury.

Whether the *Lotus* approach will be accepted by a Supreme Court majority is hard to predict. Some current justices, including some in the usual conservative majority, might respond favorably to arguments about allocative harm due to over protection. Also, *Lotus* can be linked in interesting ways to *Fiest*, a unanimous decision and an opinion concurred in by eight justices of the Court. The hierarchy of several command terms, for which *Lotus* sought a copyright shield, became competitively significant only because, once accepted as a standard, they yielded network effects. When originally selected, the hierarchical order was likely chosen for

note 13, at 164-67.

convenience (i.e., either for efficiency and/or functionality) or more or less randomly. Certainly the terms had no competitive value based on expressive felicity. Any alternative way of expressing them would suit any competitor as well. Only after network effects kicked in did access to them become significant. In short, interfaces and protocols are not likely to have much in the way of authorship or creativity about them. Therefore, accepting the § 102(b) “method of operation” characterization for interfaces and protocols would be supported by *Fiest*. Moreover, these allocatively wholesome goals could be achieved without bringing the *Apple v. Franklin* holding directly into question.¹¹⁷

III. CONVERGING TELECOMMUNICATIONS MARKETS AND DISPARATE REGULATORY REGIMES

Broadband transport (which the Telecommunication Act of 1996 denominates “advanced telecommunications capability” and defines to cover “high speed, switched, high quality voice, data, graphics, and video telecommunications using any technology”)¹¹⁸ can utilize a variety of public and private transmission paths and protocols. It was such advanced services, including the use of these channels for Internet connection, to which Judge Posner apparently referred when he included communications in the new economy that confronts antitrust with institutional problems.¹¹⁹ My purpose, here, is to emphasize that regulatory interventions at the federal, state, and even municipal levels have as much or more of an effect on competition in broadband markets than does antitrust. In Part III.A., below, the elements of the broadband network are described; in Part III.B. interconnection, unbundling, and open access policies are discussed and evaluated; and in Part III.C. a role for the Antitrust Division of DOJ is considered.

¹¹⁷ In addition to *Fiest*, 499 U.S. at 340 and *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994), the Supreme Court has shown that it is alert to the competitive and welfare risks of excessive IP protection in several other opinions during the last decade. See *Traffix Devices, Inc. v. Mktg. Displays, Inc.*, 121 S. Ct. 1255 (2001) (stating that prior utility patent was strong evidence that claimed features are functional, thus precluding trade dress protection); *Wal-Mart Stores, Inc. v. Samara Bros., Inc.*, 529 U.S. 205, 210-12 (2000) (finding that functionality, including aesthetic functionality in product configuration, precludes trade dress protection); *Quality King Distrib. v. L'anza Research Int'l*, 523 U.S. 135, 144-45 (1998) (holding that the first sale doctrine trumps implication from § 622(a) of Copyright Act).

¹¹⁸ Telecommunications Act of 1996 § 706(c)(1) (codified as a note to § 157 Communications Act, 47 U.S.C. § 157 (1996)).

¹¹⁹ See *Posner Article, supra* note 1, at 925 (“[T]he enforcement agencies and the courts do not have adequate technical resources, and do not move fast enough, to cope effectively with a very complex business sector that changes very rapidly.”).

A. *The Structure of the Broadband Network*

Broadband accommodates packet switching like that on which the Internet is based. In its Second Report on the Deployment of Advance Telecommunication,¹²⁰ the Federal Communications Commission (“FCC”) described broadband as including backbone, middle mile, last mile, and last hundred feet—four vertical levels and their interconnections, analogizing to auto paths from interstate highways, to driveways. Backbone includes transport over fiber optic lines of great capacity constructed along public rights of way and provided by firms like Cable & Wireless, AT&T, WorldCom, Genuity, Sprint, and others, as well as satellite wireless backbone with similar capacity. Middle mile facilities interconnect traffic from last mile aggregation points to backbone (or directly to other middle mile carriers), mostly over fiber optic lines built for ordinary telephone or cable traffic, although there are also fixed wireless and satellite connections at this level.

Last mile connection services are now widely available to businesses and residents using digital subscriber lines (“DSLs”) provided by both incumbent and competitive local exchange carriers (“ILECs” and “CLECs”), and cable modem service offered by cable companies.¹²¹ Though most businesses use DSL (because they lack cable connections), cable is the principal broadband provider to residential users. Other technologies (e.g., terrestrial and satellite wireless) are feasible and being used to some extent, although satellite—unless enhanced by an expensive transmitting antenna—is “downstream” to the subscriber only and depends on telephone for upstream connections initiated by the subscriber.

The various regulatory regimes which impact the business of providing broadband have not converged as rapidly or thoroughly as have the relevant markets. Today, some broadband participants cannot be sure what agency may regulate what aspect of their activities under what statute or ordinance. While competitive issues could occur and the antitrust laws would apply at any vertical stage in the provision of broadband, the issues on which regulatory intervention is most significant arise at the “last mile,” the local communications delivery network. The major concern is whether interconnection,

¹²⁰ INQUIRY CONCERNING THE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS, FCC SECOND REP. NO. 00290, available at 2000 WL 1199533 (Aug. 21, 2000) [hereinafter SECOND REP.].

¹²¹ See *id.* at ¶¶ 28-39.

unbundling and open access are required. Until the regulatory apparatus itself is brought to order, such issues will not be satisfactorily resolved. The defining necessity for advance (i.e., broadband) service, in the view of the FCC, is a capacity to provide high-speed packet switch transmission in both directions, as measured by bandwidth in excess of 200 kilobits per second. That speed is sufficient to exclude ISDN service, the highest speed generally available from LECs when the Telecommunications Act of 1996¹²² became law and, indeed, a speed which the asymmetrical DSL service most used by residential subscribers attains only downstream—data directed to and downloaded at the residence—not upstream.

While there are differences among all the services available for Internet connections (including dial up telephone, still used by most resident subscribers), and while dial up, ISDN and even asymmetrical DSL (much used by residential subscribers) do not fully meet the FCC definition of advanced service, all means of linking computers (or other devices) to the Internet constitute a market which could support significant price and service competition among alternative providers. There will be different geographic markets and in some areas the available alternatives to dial up service may be very limited. There may also be sub-markets—perhaps grouping households and small business subscribers and differentiating these from larger commercial enterprises, perhaps also separating out users for which only very high speeds will do. Despite such issues, to introduce the discussion of interconnection, unbundling, and open access which follows, it is enough to recognize that competition is already occurring between dial up and ISDN telephone, cable modem, and DSL suppliers, and that suppliers of other broadband technologies are potential entrants. Additional competition could and probably will occur.

B. Interconnection, Unbundling, and Open Access on the Broadband Last Mile

While the FCC views broadband as nascent, by August 2001 almost five percent of U.S. households (over ten percent of those connected to the Internet) will have been carried there by broadband; over half by cable modem. Almost forty-five percent will be using used DSL, ISDN, dedicated leased lines or other telephone technologies. The remainder, slightly less than five percent, will

¹²² Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of Titles 15, 18, and 47 U.S.C.).

link by satellite or other spectrum based technologies.¹²³ This is a significant broadband build out, although large additional investment will be needed to complete it.¹²⁴ Already in regulatory hands are inter-modal, intra-cable, and intra-telephone competition issues. These are discussed below in reverse order.

1. Telephone Broadband

The salient intra-telephone competitive questions are: (1) whether ILECs, both because of their dominant positions in conventional local telephone service and because a local loop is also necessary for DSL service, have or can rapidly attain bottleneck positions in telephone broadband; (2) if so, whether interconnection of their packet switched service with such services offered by CLECs should be required; and (3) whether unbundled access for CLECs to particular ILEC broadband elements should be mandated in order to accommodate entry by effective competitors.

Consider this hypothetical: Oldtel, an ILEC, offers analog, circuit-switched voice (plain old telephone) and packet-switched broadband services in its region by routing packet-switched data over the high frequency portion of the same lines that carry analog voice at a lower frequency. Newtel, a CLEC, with its own fiber optic lines and switching facilities in some densely used segments of Oldtel's area, and which has an interconnection agreement with Oldtel for circuit-switched voice traffic, seeks to interconnect also for broadband. Additionally, Nichetel, a CLEC with packet-switching capacity and marketing experience, wants to compete with Oldtel only in providing broadband and asks Oldtel to unbundle the high frequency portion of its loop and sell unbundled access to Nichetel at wholesale rates so that it can offer a competi-

¹²³ See KANG, *supra* note 12, at 496.

¹²⁴ See generally *id.* Each of these means of broadband connection has strengths and weaknesses. While backbone and middle mile fiber build-out has been massive, not so for the final mile where some CLECs in concentrated areas have used fiber, but ILECs as well as CLECs seeking wider voice service generally have not. However, both ISDN (128-Kbps over circuit-switched voice network) and DSL (128-Kbps to 8-Mbps over a high frequency packet-switched network over the same line as the voice network) enable fast transmission over copper lines at modest cost and are the major solution for telephone suppliers. ISDN can be provided anywhere that dial-up telephone is available. DSL can be provided only within, roughly, three miles of a switching station (which covers roughly 80% of telephone subscribers). A hybrid fiber-coaxial build out of cable systems provides a high-speed (maximum 27-Mbps downstream, 10-Mbps upstream, reducing with increase in traffic on the shared line) data service with cable modems. See also Howard A. Shelanski, *The Speed Gap: Broadband Infrastructure and Electronic Commerce*, 14 BERKELEY TECH. L.J. 721, 721 (1999) (discussing high-speed broadband telecommunication service and regulation).

tive DSL service to customers subscribing to Oldtel's voice service.

Suppose there were no regulatory regime and refusals by Oldtel to comply with Newtel's interconnection and Nichetel's unbundling request were challenged under the Sherman Act. How would they be analyzed? First, the market would be defined, probably much as suggested in Part III.A. above. Concentration ratios would then be computed and entry barriers evaluated. Only if Oldtel were a monopolist and its broadband and related assets warranted labeling the denied facilities both essential and irreplaceable, would refusal of interconnection raise any serious issue.¹²⁵ As to monopoly power, any existing broadband competition in the relevant geographic market either from CLECs, cable modems, or others would loom large, any slower competitive telephonic Internet connection would be significant and any potential broadband entry at least relevant. If essential and irreplaceable characterizations were warranted, analysis would proceed much as it did in the case against AT&T that led to divestiture.¹²⁶ At this analytical stage, the risk that requiring interconnection would dampen ILEC incentives to continue the build out would be evaluated as an efficiency related business justification for any refusal. The capacity of a forced access remedy to generate meaningful competition would also be subject to an efficacy review. Would providing interconnection for Newtel create an effective competitor? Would granting Nichetel's request provide competition that might, in time, find its own alternatives for all or part of the now essential Oldtel facilities, or only one that would remain largely a reseller? In short, analysis under the antitrust laws would be complex, but manageable. The case for interconnection with Newtel would seem strong, that for unbundling for sale to Nichetel arguable, but weaker. The principal institutional strain imposed by both claims would pertain to how the reasonable price for interconnection or access should be established if, on the merits, essential facilities relief were warranted.

¹²⁵ See, e.g., *Otter Tail Power Co. v. United States*, 410 U.S. 366, 374 (1973) (stating that interconnection with and unbundled provision of some of the services offered by an integrated utility exercising monopoly power under a publicly issued franchise required under the Sherman Act). See also SULLIVAN AND GRIMES, *supra* note 54, § 3.4(b)(3), at 110-14 (discussing access to essential facilities).

¹²⁶ *United States v. AT&T*, 522 F. Supp. 131, 225 (D.D.C. 1982) (holding that proposed antitrust consent decree ordering divestiture by telecommunications corporation of local operating companies is in the public interest). See Roger G. Noll & Bruce M. Owen, *The Anticompetitive Uses of Regulation: United States v. AT&T*, in *THE ANTITRUST REVOLUTION* 290, 291 (John E. Kwoka, Jr. & Lawrence J. White eds., 1989).

Under the Telecommunications Act of 1996, however, these issues are shunted to the FCC. The Act establishes a framework for competition in local telephone markets through statutory requirements and implementing rules made by the FCC.¹²⁷ Most relevant here, section 251 of the Act obligates ILECs to open their networks to competition by providing interconnection, giving access to unbundled elements (when technically feasible and when denial would impede competition), and making their own retail services available to resellers at wholesale rates.¹²⁸ In a 1999 report and order, the FCC ruled that section 251 applied to advanced services, required ILECs to interconnect packet-switched data traffic with ILECs and that, where a showing of feasibility and competitive impairment could be made, the Act's unbundling obligation would also apply.¹²⁹ In findings and conclusions that are not models of complete consistency, the Commission noted, nevertheless, that several competitive local exchange carriers were providing service with their own packet switches.¹³⁰ It therefore concluded that the lack of competitive impairment precluded any general requirement that ILECs unbundle packet switching functionality.¹³¹

In a later order, however, the Commission required ILECs offering both circuit-switched voice and packet-switched broadband data channels over the same line to unbundle the high frequency data portion of the loop for any CLEC seeking to offer only packet switched broadband service to customers using the ILECs circuit-switched voice service.¹³² The Commission found that the impairment test was met because (unlike packet-switching functionality, which CLECs could and were building out themselves) the ILECs seeking to offer only broadband services to customers subscribing to the ILECs voice telephone service would, if

¹²⁷ See Harvey L. Zuckman et al., *The Telecommunications Act of 1996*, in MODERN COMMUNICATIONS LAW 324 (1999).

¹²⁸ See 47 U.S.C. § 251 (Supp. V 1999) (requiring telecommunications carriers to make equipment and facilities available to other carriers).

¹²⁹ Local Competition Provisions of the Telecommunication Act of 1996, 15 F.C.C.R. 3696, 3698 (1999) [hereinafter Local Competitions Provisions] (reevaluating the unbundling obligations of § 251 of the Telecommunications Act of 1996).

¹³⁰ Local Competition Provisions, 15 F.C.C.R. at 3702.

¹³¹ Local Competition Provisions, 15 F.C.C.R. at 3707.

¹³² Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, 14 F.C.C.R. 20912, 20914 (1999) [hereinafter Deployment of Wireline Services] (discussing line sharing obligations for incumbent LECs and establishing spectrum management policies and rules).

unbundling were not required, need to incur the high cost of building out the line only for their broadband service.¹³³ Competitive impairment would thus result from the loss of the scope efficiencies available to the ILEC (that uses the same line for two services).

The Commission thus claims (and apparently has) discretion either to grant or, under its power to forebear applying any regulation or provision of the act, to deny ILEC-CLEC advanced service interconnection, and to impose or refuse to impose unbundling duties either for packet-switching functionality or for line sharing, or for both. Are the Commission's decisions on these matters calculated to encourage the development of broadband services and the development of last mile competition? Should the predicate, even for interconnection for advanced services, be that the ILEC controls a bottleneck; that broadband customers cannot turn to cable modem or wireless systems as alternatives? Local loop dominance certainly remains a significant bottleneck for conventional service to residential users, but does that still substantial structural power migrate to broadband? Each of the three discretionary calls made by the FCC is quite complex. ILECs have substantial capital costs still ahead of them if they are to complete the broadband packet-switching build-out. CLECs have too, whether or not they may rely, in part, on unbundled ILEC capabilities. As to each of the three choices, the analysis requires one (1) to evaluate the likely effect on broadband investment by all LECs, both ILECs and CLECs (taking account of broadband investment by cable companies and others), and (2) if interconnection and unbundling obligations are deemed to reduce aggregate LEC investment, but to increase last mile competition, then to factor in the benefit of that additional competition.

Manifestly, these are not easily manageable problems—less manageable, perhaps, than those that would be encountered in a conventional antitrust approach. Despite the FCC's vaunted expertise, industry experience, and data, and despite evidence that it is identifying some of the right questions, the FCC's reports do not indicate that its conclusions on the issues here discussed constitute anything other than rough judgment calls. If nothing sharper than that is feasible, perhaps forbearance is warranted except in situations where, with the advice of the DOJ, the FCC concludes that interconnection or unbundling is required by conventional antitrust principles.¹³⁴

¹³³ See *Deployment of Wireline Services*, 14 F.C.C.R. at 20916-17.

¹³⁴ 47 U.S.C. § 160(a) (Supp. V 1999) authorizes the FCC to forebear from applying any

2. Cable Broadband

The intra-cable broadband competitive issue differs from the telecom question because it involves self-dealing by cable companies with ISPs that they own and denial of cable platform access to unintegrated, competing ISPs. If this issue—whether an ISP-integrated cable company has an obligation to provide access to its ISP competitors—were addressed under the antitrust laws, there would be two plausible modes of analysis. An essential facilities evaluation would entail the same inquiries and standards discussed in Part III.B.1, above. But self-dealing by a vertically integrated firm with market power that denies access to its up- or downstream competitors raises an additional, less complex, yet more intrusive, antitrust issue: Whether limiting access to its own subsidiary constitutes unlawful tying or exclusive dealing by the cable franchisee. Such a firm could have something close to a natural monopoly power in the multi-channel video program services market. In broadband, however, it would have less power if other (telephonic or spectrum-based) alternatives were available (or if most customers regarded a dial up Internet connection as viable). Nevertheless, given that more than one-half of residential broadband connections are by cable and that there are high regulatory barriers (as well as investment barriers) to entry into any broadband technology, it is

regulation or provision of the act to a telecommunication carrier or telecommunication service if it determines that (1) enforcement is not necessary to assure just, reasonable, non-discriminatory prices, practices and classifications; (2) is not needed to protect consumers; and (3) is consistent with the public interest. There are a number of circumstances in which it is appropriate for regulatory agencies evaluating competition issues to borrow antitrust norms and standards. See *e.g.*, *McLean Trucking Co. v. United States*, 321 U.S. 67, 90-92 (1994) (affirming refusal by three judge panel to set aside orders of the Interstate Commerce Commission which had authorized the consolidation of seven large motor carriers). See generally SULLIVAN & GRIMES, *supra* note 54, § 14.5, at 738 (discussing significant Supreme Court decisions about the application of antitrust to issues of conduct and of structure in federally regulated industries). Whether market forces, subject to antitrust, would be enough to assure and sustain effective competition in last mile broadband is, of course, debatable. It is interesting to note, however, that interconnection and access issues among Internet backbone suppliers have thus far been left to competitive interaction, subject only to antitrust intervention to restructure mergers tending to increase concentration. While an efficient backbone system depends on carriers interconnecting and completing each other's traffic, this has been accomplished without any governmental (or concerted industry) rules by means of "peering" and "transit" contracts, apparently with reasonable success. See MICHAEL KENDE, *THE DIGITAL HANDSHAKE: CONNECTING INTERNET BACKBONE*, 1 (FCC Offered Plans and Policy Working Paper No. 32, 2000), available at http://www.fcc.gov/Bureaus/OPP_working_papers/oppwp32.pdf (last visited Sept. 12, 2001) (discussing internet connection arrangements). The biggest danger, were last mile broadband deregulated, would probably be lax antitrust enforcement, which has at times burdened consumers following deregulation in other areas, for example, the airline industry.

likely that most cable companies offering broadband Internet access would have sufficient market share to meet the standard which *Jefferson Parish* implies would be needed for a tying violation under the section 1 of the Sherman Act.¹³⁵ But here, too, as for telephone broadband, there is a regulatory overlay. Federal and state regulatory statutes must be considered in dealing with claims for open access to a cable modem platform. For cable companies and competing ISPs, however, it is less clear than for ILECs and CLECs in which agency that regulatory responsibility reposes or from what statute its power derives.

Unlike telephone, cable has not traditionally been viewed as a public utility; its regulation has differed considerably from telephone. Cable franchises are granted by state and municipal authorities, subject to federal prohibition of exclusive franchises,¹³⁶ federal requirements that some channels be available for local broadcast,¹³⁷ leased access,¹³⁸ and public interest, educational and governmental programming,¹³⁹ and shifting state-local/federal responsibilities for rate regulation.¹⁴⁰ Save for the ban on exclusives, little in the regulatory tradition fosters competitive entry into cable. Nor, other than the narrowly focused must-carry, channel dedication, and limited leased access rules, does conventional cable regulation suggest interconnection, unbundling, or other open access obligations, or imply any inhibition on self-preference by vertically integrated cable carriers. Nonetheless, as LECs and ca-

¹³⁵ See *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 31-32 (1984) (holding that hospital's exclusive contract with an anesthesiologist does not violate section 1 of the Sherman Act). See also *United States v. Microsoft*, 253 F.3d 34 (D.C. Cir. 2001), *reh'g denied*, 2001 U.S. App. LEXIS 17137 (D.C. Cir. Aug. 2, 2001), *petition for cert. filed*, 70 U.S.L.W. 3107 (U.S. Aug. 17, 2001) (No 01-236) (evaluating tying under the rule of reason laid out by the court of appeals would be more complex); *supra* text accompanying note 61.

¹³⁶ See 47 U.S.C. § 541(a) 1 (1994) ("A franchising authority may award, in accordance with the provisions of this subchapter; except that a franchising authority may not grant an exclusive franchise and may not unreasonably refuse to award an additional competitive franchise.").

¹³⁷ See 47 U.S.C. §§ 534-35 (1994 & Supp. V 1999) (requiring cable operators to carry commercial television signals and non-commercial educational television).

¹³⁸ See 47 U.S.C. § 532 (1994 & Supp. V 1999) ("A cable operator shall designate channel capacity for commercial use by persons unaffiliated with the operator . . .").

¹³⁹ See 47 U.S.C. § 531 (1994 & Supp. V 1999) (allowing a franchising authority to designate channel capacity for public, educational or government use).

¹⁴⁰ Before 1984, rate regulation was a state and local matter with no federal statutory role. In 1984, Congress deregulated premium channels, permitted state-local regulation of basic tier prices only if there was not effective competition as defined by the FCC, a power the FCC exercised to effectively deregulate about 97% of basic service. In 1992 Congress authorized local authorities to regulate rates subject to FCC established formulas. See KANG, *supra* note 12, at 154-61 (discussing cable television regulation).

ble companies build out their broadband capabilities, the question arises whether cable companies that own a proprietary ISP unduly injure competition by declining the broadband cable platform to competing ISPs.¹⁴¹ Just as the ILEC unbundling issue is assigned primarily to a regulatory solution, this ISP access question may be also. But while Congress clearly placed the ILEC-CLEC relationship with the FCC under the Communications Act of 1934¹⁴² as amended by the Telecommunications Act of 1996, which regulatory standards apply and which regulatory agency has responsibility for the cable company-ISP relationship are both debatable issues. Although the FCC has some regulatory responsibilities for cable,¹⁴³ open access for cable broadband is not one where it has a statutory mandate. In 1998, in connection with the AT&T/TCI merger, the FCC displayed its intention to refrain from regulating cable modem service.¹⁴⁴ By contrast, some local franchise authorities have shown a disposition to insist on such open access.¹⁴⁵ Since then, a serious question has arisen whether cable modem data transport service is not a telephone service, subject to FCC's telephone, rather than its cable jurisdiction.¹⁴⁶ In 2000, the Com-

¹⁴¹ In addition to the legal issues, note that there has been considerable debate on the policy issues. See *infra* text accompanying notes 125-35. See also Mark A. Lemley & Lawrence Lessig, *The End of End-To-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925, 929-30 (2001) (arguing that open access needed to preserve end to end architecture of the Internet); Shelanski, *supra* note 124, at 721 (stating that regulation of advanced services may slow residential broadband deployment); William E. Kennard, then FCC Chairman, *The Road Not Taken: Building a Broadband Future for America*, Remarks at the Meeting of the National Cable Television Association (June 15, 1999), at <http://www.fcc.gov/Speeches/Kennard/spwek921.html> (stating that open access would create uncertainty and slow down the cable build out).

¹⁴² Communications Act of 1934, ch. 652, 48 Stat.1064 (1934).

¹⁴³ See, e.g., *supra* text accompanying notes 136-40. The Commission has also often successfully claimed a regulatory authority over cable in order to protect broadcast TV from excessive competition. See Stanley M. Bensen & Robert W. Crandall, *The Deregulation of Cable Television*, 44 LAW & CONTEMP. PROBS. 77, 78 (1981).

¹⁴⁴ See Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Notice of Inquiry, F.C.C. GN Dkt No. 00-1855, (August 12, 2001) at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-00-355A1.pdf [hereinafter High-Speed Access]. See also Kennard, *supra* note 141.

¹⁴⁵ See *AT&T Corp. v. City of Portland*, 216 F.3d 871, 880 (9th Cir. 2000) (holding that state cable authorities could not condition franchise transfer and operator's provision of standard cable service on maintaining open access of its cable broadband network to competitors).

¹⁴⁶ In statutory terms, the question is whether a cable modem link to the Internet is a "cable service" as defined in 47 U.S.C. § 522(6) (1994 & Supp. V 1999) and thus subject to regulation by state or local franchise authorities, a "telecommunications service," as defined in 47 U.S.C. § 153 (46), and thus subject to regulation only by the FCC. As suggested in *KANG*, *supra* note 12, at 508-09, there are also other possibilities: an "information service" (47 U.S.C. § 153(20) (Supp. V 1999)) or an "interactive computer service" (47 U.S.C. § 230(f)(2) (Supp. V 1999)). The relevant provisions were drafted without foresight that telephone and cable service would converge to the extent that they have in the broadband market.

mission opened an inquiry into whether it should so conclude and adopt an appropriate regulation.¹⁴⁷

In *AT&T Corp. v. City of Portland*,¹⁴⁸ the Ninth Circuit held that the Portland franchising authority could not condition TCI's transfer of its cable franchise to AT&T upon AT&T's grant of unrestricted access to its broadband transmission facilities for ISPs other than @Home, AT&T's own proprietary service.¹⁴⁹ Portland's jurisdiction to do so depended on whether broadband service on a cable platform is a "cable service," defined in the Act as: (1) one-way video transmission to subscribers of video or other programming service made available to all subscribers and (2) subscriber interaction, if any, required for the selection or use of video programming or other programming service.¹⁵⁰ The court read this as limiting cable service, in essence, to one-way transmission to subscribers, who presumably interacted little beyond turning the set on and selecting a channel. ISPs like @Home provide much more, including accessing Web pages, navigating hypertext links, corresponding via e-mail, and accessing chat groups. All this, the court concluded, could not be crammed under the cable service definition.¹⁵¹ Assuming the court's conclusion is correct (and it seems reasonable if not inevitable), power to order open access does not exist in state or local franchise authorities.

The opinion also addressed another issue, one implicitly raised. It ruled that the city could not condition AT&T's offering of standard cable service on broadband open access. It concluded that conventional ISP activities are an "information service" as defined in the Act¹⁵² when they link their customers to the Internet. Thus, integrated cable companies, in providing the ISP service, are not subject to regulation as telecommunications service providers

¹⁴⁷ See High-Speed Access, *supra* note 144, at 1-3 (requesting public and industry comment on a large array of technical legal and competition policy questions about whether open access would be feasible or appropriate).

¹⁴⁸ 216 F.3d 871 (9th Cir. 2000).

¹⁴⁹ See *id.* at 880. *But cf.* *Gulf Power Co. v. FCC*, 208 F.3d 1263, 1278 (11th Cir. 2000), *cert. granted*, 121 S. Ct. 877 (U.S. Jan. 22, 2001) (No. 00-832) (holding that cable Internet access neither a cable service nor a telecommunication service). See also *Media One Group, Inc. v. County of Henrico*, 97 F. Supp. 712 (E.D. Va. 2000), *aff'd*, 257 F.3d 356 (4th Cir. 2001) (stating that cable Internet access service is a cable service).

¹⁵⁰ 47 U.S.C. § 522(6) (1994 & Supp. V 1999).

¹⁵¹ See *AT&T*, 216 F.3d at 876-77.

¹⁵² See 47 U.S.C. § 153(20) (Supp. V 1999) (defining information service as offering capability for "generating, acquiring, sharing, transforming, processing retrieving, utilizing or making available information via telecommunication . . .").

either.¹⁵³ Up to this point, the court's conclusion was consistent with that reached earlier by the Universal Service Board that makes recommendations to the FCC.¹⁵⁴ However, the court went on to hold that, to the extent that @Home "provides its subscribers Internet transmission over its cable broadband facility," it is providing telecommunication service as defined in the Act.¹⁵⁵ This being so, Portland's efforts to regulate was preempted by 47 U.S.C. §§ 541(b)(3)¹⁵⁶ and 253(a).¹⁵⁷ The implication would seem to be that cable companies offering interactive broadband are common carriers that ought to be regulated under the Telecommunications Act of 1996, much as are CLECs offering DSL. Whether this will result in an FCC decision to require open access is yet to be finally resolved.¹⁵⁸

3. *Inter Modal Broadband Competition: Is Regulation Tilting the Playing Field?*

A contention frequently made in favor of giving ISPs open, common carrier-like access to cable modern platforms is that to subject all broadband telephone to common carrier obligations, and interconnection duties and to hold ILECs subject to unbundling, while freeing cable of all such duties, tilts the playing field in favor of cable. This, it is argued, encourages investment in cable broadband while discouraging such investment by ILECs and CLECs, thereby threatening a less than optimum mix of resources. When regulation affects competitive or potentially competitive modalities differently, there is always a risk of distorting market outcomes. But there seems little data available from which the seriousness of this risk for alternative broadband technologies

¹⁵³ See *AT&T*, 216 F.3d at 878-79.

¹⁵⁴ See Federal-State Joint Board on Universal Service, 13 F.C.C.R. 11501, 11507-11508, ¶ 73 (Apr. 10, 1998) (finding that Internet access services are appropriately classified as information, rather than telecommunications services).

¹⁵⁵ See 47 U.S.C. § 153(43) (Supp. V 1999) (defining telecommunications as "the transmission, between or among points specified by the user, of information of the users choosing, without change" in form or content). See also 47 U.S.C. § 153 (44) (Supp. V 1999) (defining a "telecommunications carrier" as "any provider of telecommunications services"); 47 U.S.C. § 153(46) (Supp. V 1999) (defining such services as the offering directly to the public of "telecommunications for a fee").

¹⁵⁶ See 47 U.S.C. § 541(b)(3) (Supp. V 1999) (forbidding a franchise authority from imposing any requirement "prohibiting, linking, restricting or conditioning" a cable operator from offering telecommunication services).

¹⁵⁷ See 47 U.S.C. § 253(a) (Supp. V 1999) (forbidding any state or local authority from prohibiting any entity from providing any telecommunication service).

¹⁵⁸ See High-Speed Access, *supra* note 144.

could be evaluated. Build-out is proceeding, seemingly apace, in both DSL and cable modem technologies. Indeed, it may well be that build-out by either prompts responsive investment by the other.

If the *AT&T* case is correct that a state may not compel open access and that transmitting to the Internet by cable modem is a telecommunication service, the FCC would likely have power to level the playing field by forbearing from imposing interconnection and unbundling obligations on ILECs, CLECs or cable companies (operating as CLECs). This would be a simpler solution, technologically, than trying to impose interconnection and unbundling duties on both telephone company and cable company broadband providers. But it would probably give ILECs with residential loops a considerable advantage over CLECs without them.

4. *Summarizing, Clarifying, and Deciding*

Antitrust standards might well impose interconnection but not unbundling obligations on ILEC broadband and would likely impose open access to cable broadband platforms for ISPs seeking to compete with ISPs integrated with the cable carrier, but it would not likely open cable platforms to interconnection by horizontal broadband competitors. Set against this hypothetical antitrust background, the FCC decision to open ILEC broadband to CLEC interconnection seems reasonable, at least unless a forceful factual case could be made that this obligation leads to distortion by shifting broadband investment away from telephone to cable. As an economic matter, the wisdom of the FCC's decision to require limited unbundling by ILECs may be debatable, but given the thrust of the 1996 amendments toward opening local telephone services to competition, it, too, is at least defensible, absent a showing of harmful shifting of investment from telephone to cable. By contrast, antitrust standards would not likely obligate cable to open its broadband service to interconnection by horizontal competitors.

On the other hand, obliging ISP-integrated cable companies to open their broadband service to competing ISPs would be indicated on antitrust and on other grounds. First, as antitrust analysis suggests, it is competitively sound given cable company power and integration. Second, it would partially level the broadband playing field (since ILECs, as common carriers, must accommodate all ISPs). Third, the Internet protocols, as the *AT&T* opinion notes, construct an architecture based on maintaining a network neutral as to the data it transmits (the so-called "end to end" principle,

where no control intervenes between the source and the destination).¹⁵⁹ When ISP access is obtained through a LEC, a common carrier, the same principle applies. It would be inconsistent with that protocol and somewhat anomalous to allow a cable company linking a customer to the Internet to impose control not available to LECs. Indeed, it may be, as Lemley and Lessig argued first to the FCC¹⁶⁰ and have since supported more fully and forcefully in an article,¹⁶¹ that maintaining this neutral architecture is important to the continued growth of the Internet and to the innovative competition it invites and sustains.

C. A Role for One of the Antitrust Agencies

The resolution of telephone and cable broadband regulatory issues being raised about interconnection, unbundling and open access may significantly affect the state of competition in this new economy segment. The trend of decisions on these issues should be monitored by one of the antitrust enforcement agencies, both of which are competent to evaluate whether effective competition is being facilitated or perhaps inhibited by the regulatory interventions. This role might be particularly appropriate for the FTC, given its position as an independent agency and the traditional expectancy that it be available for studies useful to Congress and the executive departments. Yet, since most of the issues arise under the shadow of the 1996 amendments to the Communications Act of 1934, the DOJ's experience with the telephone industry and its statutory role under that Act probably make it the more appropriate agency to take on such a task.

CONCLUSION

Speaking about antitrust and the new economy, Lawrence Summers recently reminded his audience of the wise Hippocratic dictum, "first do no harm."¹⁶² That is sound advice in any context,

¹⁵⁹ See *AT&T Corp. v. Portland*, 216 F.3d 871, 880 (9th Cir. 2000).

¹⁶⁰ Application for Consent to Transfer of Control of Licenses Media One Group, Inc. to AT&T Corp., FCC CS Dkt. No. 99-251 (Nov. 10, 1999) (ex parte declaration by Mark A. Lemley and Lawrence Lessig), available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6010050443.

¹⁶¹ See Lemley & Lessig, *supra* note 141, at 929-32. See also Lawrence Lessig, *Architecting Innovation*, 49 *DRAKE L. REV.* 397, 403 (2001) (noting that the new internet innovations are being built "to empower strategic action by network owners, built to undermine the neutrality of the original regime").

¹⁶² Lawrence H. Summers, *Competition Policy in the New Economy*, 69 *ANTITRUST L.J.* 353, 358 (2001).

but of the three areas of competition policy here discussed, it is least needed in regard to antitrust. In that area, the law is indeed supple and its basic rules essentially sound. With available micro-economic theory and manageable empirical inquiry, particular new economy markets can be well enough understood so that these rules may be effectively applied. Institutional problems are real but need not overwhelm.

In two other areas of competition policy, the outlook is less sanguine. As even strong supporters of free markets sometimes forget, intellectual property is a comprehensive regulatory intervention. It, too, was designed for a simpler economy. Unfortunately, IP regulation lacks the suppleness of antitrust. Explicit statutory provisions can mandate outcomes without opportunity for a cost-benefit analysis taking market particulars into account. While there is some room for judicial adjustments where antitrust and IP interact, and, perhaps, even in the application of IP alone at points where characterizations are debatable,¹⁶³ to adequately protect new economy competition from distortion, legislative change in the IP system may well be needed. So, too, with broadband competition. Today, broadband is affected by two different regulatory regimes each designed for its own distinctive market, without recognition or expectation that these markets would converge. Here, again, legislative adjustment is indicated.

For both IP and broadband the interim solution may well be to accept Hippocratic guidance by attuning both IP and broadband regulation as closely as current statutes permit to the basic policy goal and analytical tools that imbue antitrust. That goal is generally consistent with IP theory, though much telecommunications regulation may make it difficult to adapt to it. Wise restraints are those that serve allocative efficiency and consumer welfare. Rule of reason analysis, informed by an understanding of market particulars and open to all relevant analytical tools, is the best way to identify these restraints. Any discretion available to those administering the IP and broadband regulatory systems should be responsive to this approach.

The long run solution may be less obvious. A thorough study of patent administration and patent policy seems essential; perhaps the FCC could initiate this. More generally, Congress might do more serious balancing of costs and benefits when it considers IP amendments. Perhaps, indeed, Congress could build

¹⁶³ See the fuller discussion in SULLIVAN & GRIMES, *supra* note 54, § 15.1, at 800 (evaluating the effectiveness of IP and antitrust goals and enforcement in high tech markets).

some suppleness into major IP statutes, thus reducing the compulsion on courts to grant excessive protections. And certainly broadband regulatory statutes could be amended to take account of inter-modal convergence and to tie FCC discretion to consumer welfare and efficiency.