
Antitrust Governance: The New Wave of Antitrust

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ABSTRACT

Antitrust law has entered a new phase of an always-controversial existence. The role of antitrust in moderating interfirm relationships depends both on the problems that arise in such relationships and the institutional capacity of antitrust decision-makers to respond to those problems effectively. For much of the twentieth century, the model firm was hierarchical: vertical integration within the business organization was a way of achieving transaction cost efficiencies and delivering to market higher levels of output at a lower price. The argument that integration was beneficial for organizing efficient production was used to induce a shift in the focus of antitrust law away from its traditional concern about concentrated power, to a policy focused on economic efficiency. This change in emphasis produced a more modest antitrust policy. Moreover, courts responded by insulating antitrust decision-making from economic knowledge necessary either to formulate *ex ante* efficiency rules, or to pursue outcomes that were *ex post* efficient, both because they were not institutionally well-suited to engage in such analysis and because the increased complexity and heterogeneity of economic relationships made it more difficult to formulate such rules.

The past two decades have witnessed a transformation in the paradigmatic model of the firm as a combined result of both changes in technology and the greater volatility in market environments in which

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firms operate. Production is increasingly de-integrated, and characterized by looser networks of independent collaborators: ongoing innovation and speedy adjustment to new market conditions are key aspects of firm success. This article brings together the emerging literature that describes the reasons for, and manifestations of, these changes in firm organization, as well as the governance problems that may arise in the new forms of joint development where collaborators must engage in deep information-sharing and face profound uncertainty about the future market landscape. The author argues that antitrust law can play an important role in governing these new forms of collaborative production, in a way that both resolves concrete problems arising in such collaborative relationships and advances the public interest. Importantly, the article also provides normative principles for the design of the institutions and remedies of the new antitrust policy.

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I. INTRODUCTION

Much maligned and more modest than in its recent heyday, antitrust law is yet again said to be in search for an equilibrium,¹ in order to adjust both the goals and instruments of antitrust intervention to changes in the underlying market environment. The paradox of this field of law is evident—antitrust tries to save the market mechanism from itself—which means that it has no strong friends either among free-marketers or interventionists. If we asked hypothetically: “What would happen if the antitrust laws were no longer enforced?” the response of our collocator is likely to be rather muted.² With other areas of regulation (such as environmental or labor law) the policy trade-offs are, at least conceptually, much clearer and more apparent.³ Not so with antitrust. In a world of increasingly open markets characterized by intense global competition, and a legal universe of targeted legislative interventions to correct specific market failures, it is legitimate to ask whether there remains even a residual role for antitrust law. From such a skeptical point of view, antitrust is nothing more than an anachronistic legal-regulatory nuisance, an obstacle to hard-nosed competition and beneficial firm integration or collaboration. With a more sinister twist, antitrust can be viewed as an extraordinary tool allowing less efficient competitors or opportunistic collaborators and plaintiff-bar attorneys to disrupt successful firms and claim a share of their revenues.

From its earliest stages, antitrust law was assimilated to the field of business crime and misfeasance. Because of the progressivist concerns prevailing at the time of the enactment of the Sherman Act in 1890 about the accumulation of economic and political power in the trusts, and the practices used by business to buttress such power, including

1. Cf. Phillip Areeda, *Monopolization, Mergers, and Markets: A Century Past and the Future*, 75 CAL. L. REV. 959, 959 (1987) (“My theme is the narrower one of, to borrow a phrase, the law in search of itself.”); Eleanor M. Fox, *The Modernization of Antitrust: A New Equilibrium*, 66 CORNELL L. REV. 1140, 1140 (1981) [hereinafter Fox, *Modernization*].

2. Some attempts have been made in the literature to engage in more precise speculation on this question. Compare, Robert W. Crandall and Clifford Winston, *Does Antitrust Policy Improve Consumer Welfare? Assessing the Evidence*, 17 J. ECON. PERSPECTIVES 3, 23–24 (2003) (arguing that the evidence of the net benefits of antitrust enforcement is weak and that this justifies only minimal interventions in the most egregious cases), with Jonathan B. Baker, *The Case for Antitrust Enforcement*, 17 J. ECON. PERSPECTIVES 27, 42 (2003) (arguing that the benefits of antitrust intervention far outweigh the costs of enforcement while emphasizing the point that the quantitative calculus is speculative).

3. See Eleanor M. Fox, *Antitrust and Regulatory Federalism: Races Up, Down and Sideways*, 75 N.Y.U. L. REV. 1781, 1790–91 (2000) (comparing the nature of regulatory races to the bottom in environmental law to race to the bottom arguments in antitrust law).

bid-rigging and cartelization, the standard tools of antitrust intervention were rooted in law enforcement.⁴ In deciding antitrust cases, generalist courts aimed to elaborate clear rules that would isolate species of prohibited business conduct and thereby provide a guide for business compliance. Such prohibitions, combined with both government enforcement and the availability of treble damages in private suits, also aimed to create a powerful deterrent for firms not to engage in anticompetitive conduct. Despite changes in the focus of antitrust policy and substantial evolution in antitrust doctrine in over a century,⁵ the basic institutional and remedial forms for implementing antitrust law through the courts remain largely unchanged.

Nonetheless, over time a number of intractable problems have emerged with the standard antitrust enforcement approach. First, efficient deterrence requires the elaboration of rules that isolate anticompetitive from innocent conduct. Yet such delineation has often proved impossible, in part due to a recognition that the competitive significance of most business conduct subjected to antitrust scrutiny is *ex ante* ambiguous, irrespective of how the goals of antitrust policy are defined.⁶ As a result, antitrust doctrinal rules have been either under-inclusive, over-inclusive, or worse, mere conclusory labels that approve or condemn particular conduct but lack substantive content which might guide future compliance.⁷ Second, because of limits in their capacity to analyze conduct on a case-by-case basis and to formulate effective remedies that correct violations *ex post*, courts increasingly tended to limit the reach of antitrust intervention. And finally, because of the difficulties associated with formulating and supervising effective injunctive or structural remedies, courts prefer to rely on antitrust damage awards,⁸ yet damage awards often do not fully correct the

4. The key antitrust statutes were enacted in the U.S. long before the tools of the modern regulatory state were put in place during the New Deal period.

5. *State Oil Co. v. Khan*, 522 U.S. 3, 19 (1997) (stating that antitrust law has “recogniz[ed] and adapt[ed] to changed circumstances and the lessons of accumulated experience”).

6. Eleanor M. Fox, *What Is Harm to Competition? Exclusionary Practices and Anticompetitive Effect*, 70 ANTITRUST L.J. 371, 381 (2002) (commenting on the reliance on the elusive notion of anticompetitive effects as a touchstone of antitrust liability).

7. See, e.g., Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN. L. REV. 253, 253 (2003) (commenting that monopolization doctrine relies on standards that provide little meaningful guidance as to the kind of conduct that is exclusionary under the antitrust laws).

8. American antitrust lawyers do not view themselves as regulators. The ideal form of antitrust intervention is a one-off remedy that releases the forces of competition as the main discipline on firm conduct, and thereby avoids the need for the heavy hand of regulation. See Robert H. Lande, *Professor Waller's Un-American Approach to Antitrust*, 32 LOY. U. CHI. L.J. 137, 142–44 (2000) (explaining why the U.S. antitrust community does not view antitrust as a form of regulation); Spencer Weber Waller, *Bringing Globalism Home: Lessons from Antitrust*

identified problem. In addition, in the context of a murky doctrine, damages may encourage opportunistic misuse of antitrust litigation against successful firms. Therefore, it is no surprise that its assimilation into the field of business crime has ultimately resulted in a restrained antitrust law, which most actively polices only conduct that closely resembles traditional criminal offenses—namely, clandestine price-fixing conspiracies.

A few stylized facts set the background for this article. Since it achieved dominance in the academy and the courts over two decades ago, the Chicago School dramatically reshaped antitrust law. The so-called “Chicago revolution” led to a shift away from the traditional antitrust concerns about fairness and the politics of concentrated economic power to a view of antitrust and competition as a tool to promote economic efficiency. This transformation was driven by arguments drawn from the industrial organization literature, and used to explain that the old proxies for antitrust liability, such as firm size and integration, were not necessarily inimical to efficiency. Moreover, because courts were not institutionally well suited to engage in economic regulation, the new paradigm advocated a more minimalist antitrust policy.⁹

In this context, the principal response to the Chicago revolution was an effort to advocate a more ambitious antitrust policy through providing a better set of efficiency-based doctrinal rules to aid courts, rather than relaxing the institutional and remedial constraints on decision-making.¹⁰ However, complicating matters in this regard was the fact that the static efficiency criterion was elusive when applied to heterogeneous industry contexts and has become less relevant due to a fundamental transformation in the production environment and the

and Beyond, 32 LOY. U. CHI. L.J. 113, 127–28 (2000) (noting that antitrust agencies define their mission as “law enforcement” rather than “regulation”).

9. Under the Chicago view, there is no logical reason for a court that does not understand a particular practice to outlaw it. Ronald H. Coase, *Industrial Organization: A Proposal for Research*, in 3 POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION 59, 67 (Victor Fuchs ed. 1972); Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 4–9 (1984).

10. Some authors have suggested proposals that relax the institutional constraints of antitrust decision-making. See, e.g., William E. Kovacic, *Achieving Better Practices in the Design of Competition Policy Institutions*, 50 ANTITRUST BULL. 511, 511 (2005) (arguing that “decentralization of competition policy authority . . . supplies a useful way to test different procedures”); William E. Kovacic, *Evaluating Antitrust Experiments: Using Ex post Assessments of Government Enforcement Decisions to Inform Competition Policy*, 9 GEO. MASON L. REV. 843, 844–45 (2001) (arguing that competition authorities should regularly evaluate the outcomes of antitrust interventions).

model firm itself.¹¹ The new business organization, rather than emphasizing top-down integration as a way of achieving efficiencies within the firm, relies on networks of collaboration between independent units as a way of managing uncertainty and developing innovative products in an unstable market environment. Antitrust law has only begun to respond to these changes in the very nature of markets and firms.

The article describes these developments and proposes a framework for assessing both the doctrinal and the institutional reactions to them. The key claim is that antitrust can play an important role in overcoming governance problems of interfirm collaboration that can create bottlenecks in the process of joint innovation. However, such a role requires an institutional shift away from the traditional deterrence model and standard remedial forms; a shift that, perhaps imperceptibly, is already under way.

To make this claim, I begin with a demonstration of the institutional strains on enforcement that became apparent with the adoption of the static efficiency paradigm in antitrust. Once the former rule-based approach to antitrust decision-making needed to be relaxed, instead of incorporating case-specific evidence (*ex post*) or economic knowledge (*ex ante*), the courts responded through doctrinal and procedural shortcuts allowing them to avoid becoming embroiled in complex antitrust disputes. Those strains were exacerbated as novel technologies and different kinds of strategic interaction in more dynamic and heterogeneous environments made the efficiency calculus even less tractable.¹² In this new production environment, innovation is essential for firm success, and ongoing collaboration and joint development are key tools used by firms to innovate. This article maps out the governance problems that may arise in such collaborative production relationships and the new challenges they pose not only for antitrust, but also for other forms of regulating interfirm relationships, such as contract and intellectual property rights. In the absence of guidance from doctrine, antitrust courts and agencies have responded by steering away from the imposition of antitrust liability on antitrust defendants, relying instead either on new doctrinal short-cuts or on the design of novel remedial forms.¹³ These novel remedies are more sensitive to the

11. See generally, John Roberts, *THE MODERN FIRM: ORGANIZATIONAL DESIGN FOR PERFORMANCE AND GROWTH* (2004) [hereinafter ROBERTS, *MODERN FIRM*]; Charles F. Sabel, *Real Time Revolution in Routines*, in *THE CORPORATION AS A COLLABORATIVE COMMUNITY* 107 (C. Hecksher & P. Adler eds., 2005) [hereinafter Sabel, *Real Time Revolution*].

12. Richard A. Posner, *Antitrust in the New Economy*, 68 *ANTITRUST L.J.* 925, 939 (2001).

13. Robert Pitofsky, *Antitrust at the Turn of the Twenty-First Century: The Matter of*

complexities of the underlying problems and, rather than being court-centric, seek to involve a broader set of concerned actors.¹⁴ To the extent that the novel remedial forms can be built upon to provide an effective antitrust response to the problem of governing collaborations (in a way that both resolves the problems among collaborators and advances the public interest), I argue that they supply the constructs of the new form of competition policy.

II. THE ELABORATION OF ANTITRUST DOCTRINES

From the very beginning of the U.S. antitrust tradition, with the enactment of the Sherman Act, Congress entrusted the courts with the development of competition policy with little textual or contextual guidance. The text of the Sherman Act, as well as that of the subsequent statutory elaborations of antitrust, was vague and open-ended. While concerns about the agglomeration of economic power motivated the statutory entrenchment of antitrust, the goals of the new policy were largely inchoate.¹⁵ Both the scope and the application of federal antitrust law was left to be developed from the experience and learning that emerged out of resolving actual antitrust controversies. In an environment where the main concerns for antitrust were seen to be clandestine tactics and conspiracies to fix prices, rig bids, cartelize, or monopolize markets, courts were an understandable institutional choice.

As economic relationships moved away from fairly simple modes of arms-length exchange towards more complex forms of organizing production, this presented new challenges for antitrust. The elasticity of statutory language gave the courts flexibility to adjust legal doctrine to changing circumstances, but this left antitrust law only with a long-term ability for learning and self-correction. Courts were constrained in their ability to respond to new challenges precisely because doctrine is backward looking and path-dependent, so it can continue to develop unhinged from the potentially new role that antitrust might need to play in a novel production environment. Furthermore, courts are not institutionally well-suited to the task of monitoring and evaluating the

Remedies, 91 GEO. L.J. 169, 177 (2002) (emphasizing the importance of novel antitrust remedial forms).

14. Cf. Charles F. Sabel and William H. Simon, *Destabilization Rights: How Public Law Litigation Succeeds*, 117 HARV. L. REV. 1015, 1017–19 (2004) (describing similar trends in remedial formulation in other areas of public law).

15. The Sherman Act is often used as the paradigmatic example of a delegating statute implementing a new policy in very imprecise terms to be elaborated by the courts following the common law method. Pierre N. Leval, *Trademark: Champion of Free Speech*, 27 COLUM. J.L. & ARTS 187, 197 (2003).

outcomes of their own decisions. Specifically, the law enforcement paradigm makes it difficult to monitor the effectiveness of individual interventions and remedies (particularly given the preference for one-off remedies),¹⁶ and as a result, the opportunity to either correct errors or adjust was likely to come too late and only after a backlash.

A. The Rule-Based Approach and the Makings of a Backlash

The limits in the capacity of the judiciary to engage in economic regulation were always a central consideration in the elaboration of antitrust doctrines, and at various times those limitations were invoked to justify either an activist or a minimalist antitrust policy. For example, the years of the post–World War II expansion had been characterized by stable markets for standard goods. In such an environment, hierarchically specialized firms could deliver significant efficiencies to the market by eliminating transaction costs through vertical integration.¹⁷ Yet in that same period the antitrust jurisprudence of the Warren Court was very activist, as it aimed to promote decentralized modes of production characterized by individual traders, unshackled by interfirm restraints.¹⁸ Moreover, the Court was unwilling to consider the efficiency benefits from partial or full vertical integration as part of antitrust analysis. As a result of the Court’s activism, the category of interfirm restraints that were declared illegal *per se* grew rapidly, at a high level of generality, across different markets and even in cases where courts could not fully comprehend the purpose or effect of particular contracting devices.¹⁹

The foregoing approach to antitrust decision-making was consistent with the Court’s broader view of the appropriate role for the judiciary in a democratic society. Chastened by earlier judicial forays into economic regulation and in an environment of greater deference to the other arms of government,²⁰ the Court adopted a view of antitrust as a

16. Walter Adams, *Dissolution, Divorcement, Divestiture: The Pyrrhic Victories of Antitrust*, 27 IND. L.J. 1, 31 (1951) (“[T]he government . . . has won many a lawsuit, but lost many a cause.”).

17. Susan Helper, John P. MacDuffie & Charles F. Sabel, *Pragmatic Collaborations: Advancing Knowledge While Controlling Opportunism*, 9 INDUS. & CORP. CHANGE 443, 464 (2000).

18. Earlier attitudes towards antitrust were far more ambivalent. For example, during the Great Depression, a growing suspicion towards the deflationary effects of ruinous competition resulted in attitudes against active antitrust enforcement. ALAN BRINKLEY, *THE END OF REFORM: NEW DEAL LIBERALISM IN RECESSION AND WAR* 86–91 (1995) (describing the shifting attitudes to the antitrust laws and to competition more generally through the late 1930s).

19. See, e.g., *Int’l Salt Co. v United States*, 332 U.S. 392, 396 (1947).

20. By 1937 the Supreme Court pulled back from any constitutional supervision of Congressional economic legislation and yet in subsequent years courts began to reassert their

procedural tool that guaranteed the vibrancy of the competitive process so as to ensure opportunity, representation, and democratic control over economic agglomerations.²¹ The role played by industrial monopolies and cartels in buttressing totalitarian regimes in Germany and Japan in the lead up to the War reinforced the earlier suspicions towards concentrated economic power.²² This democracy-enforcing view of antitrust guided government policy more broadly, as the United States promoted an activist antitrust law, both at home and abroad.²³ It is also worth noting that the emphasis on deconcentrated production by small traders was also supported by early antitrust economics. The structure-conduct-performance paradigm, current in the then nascent field of industrial economics, suggested the existence of a direct and causal relationship between a concentrated market structure, exclusionary firm conduct, and poor market outcomes.²⁴ Low market concentration, and the absence of restraints on the atomistic conduct of small (price-taking) firms were thought to be conducive to superior market performance and therefore ultimately beneficial for consumers as well.

The courts were not necessarily hostile towards claims of productive and other efficiencies that might result from different forms of integration or collaboration.²⁵ Instead, they were particularly sensitive to the difficulties associated with any effort that involved a full-fledged analysis of the market effects of particular contractual restraints, conduct, or mergers under the rule of reason. Thus, where a business

authority, not only in areas such as racial discrimination, civil liberties, but also in new forms of economic regulation where common law institutions were seen to be well-adapted to the post-New Deal regulatory context. *See* John F. Witt, *The King and the Dean* 46–47 (unpublished manuscript, on file with the editors).

21. *See, e.g.*, JOHN HART ELY, *DEMOCRACY AND DISTRUST* (1981); Gary Minda, *Antitrust at Century's End*, 48 *SMU L. REV.* 1749, 1763–65 (1995) (noting that antitrust laws sought to protect the competitive process allowing individuals to act freely in the market place).

22. DAVID J. GERBER, *LAW AND COMPETITION IN TWENTIETH CENTURY EUROPE: PROTECTING PROMETHEUS* 147–48 (1998) (the German Nazi government overturned the cartel regulation, required the formation of cartels and sought to integrate them into the state apparatus). *See also* GARY HERRIGEL, *INDUSTRIAL CONSTRUCTIONS: THE SOURCES OF GERMAN INDUSTRIAL POWER* 139–40 (1996).

23. Harry First, *Antitrust in Japan: The Original Intent*, 9 *PAC. RIM L. & POL'Y J.* 1, 3 (2000).

24. *See, e.g.*, JOE S. BAIN, *BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES* (1956) (viewed as the progenitor of the structure-conduct-performance paradigm).

25. Robert Pitofsky, *Past, Present and Future of Antitrust Enforcement at the Federal Trade Commission*, 72 *U. CHI. L. REV.* 209, 211–12 (2005) (referring to merger cases where the Court refused to consider efficiencies as a defense). Even the firms proposing a merger in most cases cannot evaluate the likelihood of efficiencies, thus the significant number of failed mergers. *See* Oliver Budzinski, *Towards an International Governance of Transborder Mergers? Competition Networks and Institutions Between Centralism and Decentralism*, 36 *N.Y.U. J. INT'L L. & POL.* 1, 13 (2004) (stating that a majority of mergers lead to business inefficiency).

practice did not fall within a *per se* prohibition, it was rarely subjected to a comprehensive inquiry into its likely purpose and effect, so that rule of reason analysis amounted to *de facto* legality.²⁶ This approach, which avoided substantive evaluation and weighing of efficiency claims or assessment of how they would be distributed, was quite orthodox, precisely because *ex post* balancing is not a good *ex ante* guide for firm compliance.

In that environment, judicial modesty combined with judicial ignorance often led to judicial over-reaching. In the same breath, the courts would both profess ignorance about competitive dynamics in the industry under scrutiny, and deny themselves the opportunity to overcome this constraint:

The fact is that courts are of limited utility in examining difficult economic problems. Our inability to weigh, in any meaningful sense, destruction of competition in one sector of the economy against promotion of competition in another sector is one important reason we have formulated *per se* rules.

In applying these rigid rules, the Court has consistently rejected the notion that naked restraints of trade are to be tolerated because they are well intended or because they are allegedly developed to increase competition.²⁷

B. The Chicago New Learning: Institutional Limitations

The foregoing approach to the elaboration of antitrust doctrine was in tension with the tendency towards mass methods of production, with the aim of delivering efficiencies from integration to market. The restrictive antitrust doctrine imposed serious limits on interfirm contracting practices and collaboration that were unlikely to produce any other harm, except perhaps to inefficient competitors or opportunistic downstream firms. The combined effect of the bias in favor of *per se* illegality, the reliance on proxy evidence of anticompetitive intent (including easily discoverable general statements by management of plans to squash or destroy competition), and the availability of treble damages in private suits was to encourage opportunistic use of the antitrust laws as a tool for market manipulation. However, in this context it is worth noting that the antitrust regime was not a particularly precise or effective re-distribution tool either, because it could be misused to protect the inefficiencies and profits of market rivals under the guise of protecting competition. Because they could

26. Richard A. Posner, *The Rule of Reason and the Economic Approach: Reflections on the Sylvania Decision*, 45 U. CHI. L. REV. 1, 14 (1977).

27. *United States v. Topco Assoc., Inc.*, 405 U.S. 596, 609–10 (1972).

present their arguments directly to receptive, and relatively less informed, courts and juries, firms did not even have to spend resources to lobby or capture the enforcement agencies as a regulatory screening mechanism.

These shortcomings came into sharper relief as a result of the broader disenchantment about the ability of government and bureaucracy to solve pressing social and economic problems, thereby setting the stage for the Chicago School re-examination of antitrust doctrines.²⁸ During and after the 1970s, public policy debates increasingly focused on questions of the efficiency and world competitiveness of American industry, and the antitrust regime was scrutinized for its effects on the ability of American firms to compete with foreign products. The United States were cast in the role of the world's antitrust enforcer,²⁹ and yet U.S. firms found it difficult to withstand foreign competition even in U.S. markets. American firms attempted to use domestic antitrust law not only to fend off competition from Japanese firms,³⁰ but even to pry open Japanese markets for American firms.³¹ Irrespective of the underlying causes of the differences in competitiveness, it was important for rhetorical purposes that many other countries (such as Japan) had substantially more lax antitrust enforcement, and yet, Japanese firms could deliver products to consumers at a better quality and price. This strengthened the perception that once U.S. firms were subjected to the rigors of foreign competition, U.S. antitrust policy could no longer afford to promote its non-efficiency civic goals.³²

The Chicago scholars' proposal to make antitrust policy more pragmatic and accountable by focusing enforcement on the goal of economic efficiency resonated in such a context.³³ Analytically, the

28. See Michael C. Dorf, *After Bureaucracy*, 71 U. CHI. L. REV. 1245, 1254 (2004) (describing the shift in public opinion as a response to the centralized bureaucracies' inability to respond to complex social problems).

29. See, e.g., *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 782–84 (1993) (holding that English antitrust defendants could be liable under the Sherman Act for foreign conduct even if such conduct was consistent with the English insurance regulatory scheme so long as there were anticompetitive effects in the U.S. market); *United States v. Nippon Paper Ind. Co.*, 109 F.3d 1, 4 (1st Cir. 1997) (holding that Sherman Act applies to foreign conduct with a substantial effect within the United States).

30. See *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 578 (1986) (suit against Japanese manufacturers alleging an illegal conspiracy with the purpose of eliminating American producers from the U.S. market).

31. Eleanor M. Fox, *Toward World Antitrust and Market Access*, 91 AMER. J. INT'L L. 1, 11 (1997).

32. Fox, *supra* note 3, at 1798.

33. See, e.g., ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978) (the seminal book that became the manifesto of antitrust (non)enforcement during the

Chicago School drew upon the growing literature explaining the vertically integrated firm as a vehicle for generating efficiencies, through reducing transaction costs from contracting among independent traders, as well as enabling specialization while controlling opportunism and bargaining problems. Within this new paradigm, the only residual role for antitrust was to police conduct that could clearly reduce consumer welfare, conduct that would restrict market output and result in price increases.³⁴ While market structure or firm conduct could potentially affect other policy goals—distributional, political, civic or environmental—taking these into account made antitrust analysis too complex, and reduced the accountability of antitrust interventions.³⁵ These other goals could be assigned to other, more appropriately targeted policies.

Nor was the Chicago New Learning a program for an ambitious antitrust policy to promote economic efficiency. The main aim of the Chicago project was to curtail the growth of the *per se* prohibitions and the courts' hostility to vertical integration and efficiency justifications for business conduct. Importantly, Chicago scholars were content to leave antitrust enforcement in the hands of the generalist courts. In describing the limits of antitrust, Chicago scholars relied (unsurprisingly) on the limits of law, and also (perhaps more surprisingly) on the limits of economics, because, as Judge Easterbrook explained: (i) economic analysis may have limited predictive powers; (ii) economists may only be able to fully explain the reasons for, and effects of, particular conduct retrospectively and with the benefit of hindsight; and (iii) the judicial task of weighing anticompetitive against procompetitive effects and efficiencies may be either difficult or impossible at the time of a court's decision.³⁶

Therefore, Chicago scholars relied upon a standard institutional allocation of responsibilities argument. Whatever the limits to their capacity to act as enforcers of democracy through implementing antitrust law, courts were certainly not the appropriate institution to promote economic efficiency. In light of those limitations, Chicago

Reagan Administration).

34. Fox, *Modernization*, *supra* note 1, at 1145.

35. The foundations for this shift away from the "civic" and towards the "consumerist" grounds for antitrust had been laid much earlier, with Thurman Arnold's tenure as the head of the Antitrust Division of the Department of Justice in 1938. BRINKLEY, *supra* note 18, at 91. *See also* Michael J. Sandel, *Democracy's Discontent: America in Search of a Public Philosophy*, 85 GEO. L.J. 2073, 2077–79 (1997) ("Producer-based forms of political identity, which informed the civic tradition from Jefferson to Brandeis and Theodore Roosevelt, began to give way to consumer-based notions of citizenship.").

36. Easterbrook, *supra* note 9, at 2–3, 39–40.

scholars asserted a conviction that unfettered market outcomes should be treated as presumptively efficient, or at least that market outcomes are less likely to be detrimental than government interventions. In the absence of *clearly* demonstrated restrictive effects on output leading to higher consumer prices, an antitrust intervention is not justified because the false positives of government intervention are likely to be more harmful than false negatives.³⁷

C. Responses to Chicago

The New Learning had a profound impact on antitrust doctrine and the level of antitrust litigation in the United States at least in part because it was consistent with the growing understanding of the role of the vertically integrated firm in modern production. Moreover, courts were receptive to the Chicago prescriptions because they involved minimal adjustments to the standard approach of deciding antitrust cases.³⁸ Accepting that courts have a limited capacity to engage in antitrust decision-making, the Chicago School did not advocate a policy of learning. Instead Chicago scholars took the ignorance of the antitrust institutions, at least on the issue of efficiency, as a given and proposed a simple switch in presumptions: the default antitrust rule was to treat the conduct as legal and defer to business decisions. The antitrust plaintiff has a high burden to show how conduct would enhance the defendant firm's market power, enabling it to exploit consumers, and that such conduct would not be disciplined by existing or new entrants, assuming that the courts will even hear the plaintiff's theory of competitive harm (in the same way that the courts previously invoked the *per se* rule in order to preclude explanations proffered by antitrust defendants).

The academic response to the Chicago New Learning in favor of a more robust antitrust policy developed in two broad directions, both of which had a limited impact on doctrine. Antitrust lawyers steeped in the earlier (civic) tradition accepted that in some cases the old antitrust doctrine was consistent with the Chicago insights, and in those cases economic arguments could guide antitrust decision-making.³⁹

37. Eleanor M. Fox, *Consumers Beware Chicago*, 84 MICH. L. REV. 1714, 1719–20 (1986) (book review) (arguing that Chicago antitrust involves not only a methodological shift, but is underpinned by a particular social and political philosophy). Cf. Gabrielle Meagher & Shaun Wilson, *Complexity and Practical Knowledge in the Social Sciences: A Comment on Stehr and Grundmann*, 53 BRIT. J. SOC. 659, 662 (2002) (“[T]he practicality of knowledge is determined not only by the careful judgment of social scientists but also by the politics and environment in which scientific knowledge is used.”).

38. *E.g.*, *Continental T.V., Inc. v. GTE Sylvania Inc.* 433 U.S. 36, 59 (1977) (exempting from *per se* treatment vertical non-price restraints used to control free-riding).

39. Fox, *Modernization*, *supra* note 1, at 1180–81.

However, they also insisted that courts had a duty to accommodate economic considerations within the established doctrine. The rule-based approach to antitrust adjudication has the additional benefit of a reasonably settled state of the law, providing greater certainty for business actors. A more freewheeling (case by case) inquiry into the effects of conduct or mergers is regulatory and would increase the *ex ante* uncertainty about the legality of business conduct.

On this view, the Chicago School restriction on the goals of antitrust and competition was fundamentally illegitimate. The early antitrust rules were sensitive to the broader political and social context in which competition law operates, and promoted civic objectives.⁴⁰ Quite apart from its democracy-enforcing paradigm, Eleanor Fox has described the Warren Court's view of antitrust as "humanistic," and consistent with the promotion of the rights and the economic empowerment of systemically disadvantaged groups championed in its constitutional and civil rights jurisprudence.⁴¹ As she further points out, a competition law regime that does not merely focus on market *outcomes* (such as consumer prices), but that also maintains an open market architecture while protecting the competitive *process* and the opportunities for new or smaller firms to bring their product to market and compete on the merits, is not necessarily detrimental to consumer welfare either. This holds true, provided that antitrust enforcement does not incidentally shield inefficient competitors.⁴²

These and similar arguments, however, have not provided a sufficient basis for an antitrust resurgence, largely because they do not supply an institutional framework through which such broader considerations and goals can be effectively incorporated in antitrust analysis, without the courts slipping into the excesses of the earlier era. In particular, it is not clear how a court can implement and balance the various potentially legitimate considerations within the confines of an antitrust case. The old antitrust rules were over-inclusive and path dependent *because* in an adjudicative context antitrust cases present a zero-sum game (whereby conduct is declared legal or illegal), and because judicial reasoning is backward looking and yet it has a precedential effect in other market settings. A court cannot regulate the competitive process, which is

40. Robert Pitofsky, *The Political Content of Antitrust*, 127 U. PA. L. REV. 1051, 1051–52 (1979); Phillip Areeda, *Always a Borrower: Law and Other Disciplines*, 1988 DUKE L.J. 1029, 1040 [hereinafter Areeda, *Always a Borrower*].

41. Fox, *Regulatory Federalism*, *supra* note 3, at 1798; Fox, *Modernization*, *supra* note 1, at 1151–52.

42. See, e.g., Eleanor M. Fox, *We Protect Competition, You Protect Competitors*, 26 WORLD COMPETITION 149, 162 (2003).

ongoing by definition, through one-off interventions adjudicating upon a particular practice. Once the need to go beyond broad and over-inclusive rules of prohibition is accepted, antitrust decision-making must balance context specific considerations. Even if scholars are willing to entrust this function to the courts,⁴³ the courts are apparently unwilling to accept it. For similar reasons, it is unhelpful to insist that antitrust traditionally embodied civic or democratic values other than economic efficiency, unless those values can be translated into rules that guide judicial decision-making in particular cases.⁴⁴

The second line of research was spurred by post-Chicago developments in the economics of industrial organization, with the growth of theoretical and empirical work that models competitive market interactions. Improved understanding of the connection between observed structural and behavioral market variables to future market outcomes could identify situations in which anticompetitive conduct is likely to present a policy concern. Like Chicago, post-Chicago antitrust accepts that the objective of a coherent and accountable competition policy is to enhance economic efficiency. However, it also has greater faith in the assistance that economists can offer antitrust decision-making in predicting the likelihood of consumer price effects of given conduct in particular markets, instead of relying on the (unverified) claim that market forces are self-correcting and thus erode entrenchments and abuses of market power, or at the very least do so faster than antitrust intervention.⁴⁵ Moreover, to the extent that such

43. Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards and Microsoft*, 7 GEO. MASON L. REV. 617, 671 (1999) (“[I]f a court were to conclude that any ‘plausible’ benefit should immunize a monopolist’s conduct because the high tech issues are too complicated for judges, that court must recognize that it is dealing the courts out of antitrust.”); Richard Schmalensee, *Agreements Between Competitors*, in ANTITRUST, INNOVATION AND COMPETITIVENESS 82, 112 (Thomas M. Jorde & David J. Teece eds., 1992).

44. For example, the argument that a more activist antitrust policy promotes democratic values by supporting the self-sufficiency of smaller traders and by reducing the concentration of economic power, so as to ensure democratic control over corporations, does not supply a set of coherent principles which can provide concrete guidance for deciding particular cases. At best, it is a heuristic that is available for courts to use in deciding how to set the presumptions (such as the level of mistrust towards business conduct) or burdens of proof. Even in setting the presumptions, courts cannot rely on any jurisprudential or theoretical arguments, instead presumably having to rely either on their own or on broader social attitudes, to the extent they can accurately discern them.

45. See Herbert Hovenkamp, Mark Janis & Mark A. Lemley, *Anticompetitive Settlement of Intellectual Property Disputes*, 87 MINN. L. REV. 1719, 1766 (2003) (noting that post-Chicago antitrust prefers “accuracy over ease”). Despite this stated preference for accuracy over ease, Hovenkamp et. al. propose an easily administrable rule for the antitrust condemnation of pharmaceutical patent litigation settlements. *Id.* at 1765.

forces are themselves endogenously determined, the likelihood of self-correction can also be modeled.

U.S. antitrust doctrine is capable of incorporating the insights of modern industrial economics in at least two ways. The first route is to rely on more sophisticated economic models to develop more nuanced *ex ante* rules describing conduct that would raise competition concerns.⁴⁶ Those rules could either take the form of *per se* prohibitions of unambiguously pernicious conduct or of more general standards which, applied to particular contexts and cases, could help judges distinguish legitimate competition from conduct with likely anticompetitive effects. The alternative route is for the court to rely upon economic expert evidence in order to determine, on a case-by-case basis, whether the specific conduct is likely to harm consumers.⁴⁷ Of course, these two methods of economic input into antitrust decision-making are not mutually exclusive. Admission of expert evidence to resolve a specific question in a particular case may help the elaboration of a rule that can be applied in later cases as precedent, assuming some degree of stability and similarity of competitive interactions across different markets.⁴⁸

D. *The Incorporation of Knowledge*

Despite the above routes available for the incorporation of economic knowledge, courts have not welcomed the more nuanced post-Chicago approach into antitrust decision-making. The incorporation of economic knowledge has been constrained both by the way in which economic knowledge develops and by the limits of the courts' capacity to absorb such knowledge in decision-making and rule formulation. After all, analogical reasoning is the main tool of judicial analysis and at least one important lesson of the Chicago revolution has been that analogies apparent at first sight may end up being poor and misleading guides to decision-making, especially in a heterogeneous economy. Furthermore, as Philip Areeda observed, the process of incorporation of knowledge into doctrine is burdened by the fact that "[t]he needs and purposes of the law are not necessarily the same as the interests and objectives of the expert pursuing his own discipline."⁴⁹

46. Areeda, *Always a Borrower*, *supra* note 40, at 1040.

47. *E.g.*, *Eastman Kodak Co. v. Image Technical Services*, 504 U.S. 451 (1992) (accepting a switching costs argument as a theory of anticompetitive harm in the market under consideration).

48. *See* Areeda, *Always a Borrower*, *supra* note 40, at 1036.

49. *Id.* at 1040.

In a recent contribution that examines the impact of economic expertise on antitrust doctrine, Lopatka and Page argue that courts do not rely on expert assistance in order to acquire the economic knowledge incorporated into doctrine.⁵⁰ Instead of relying on expert input, courts develop “economic authority” through an unstructured common law method of “pragmatically examining the scholarly literature in the context of existing case law and adopting the most persuasive and plausible accounts” available at the time of decision.⁵¹ Lopatka and Page explain that this process of selection is influenced by “intuitions,” “social visions,” and “ideologies,”⁵² as well as legal process considerations about the institutional capacity of courts to process highly fact specific expert testimony.⁵³ Furthermore, they recognize that once such economic authority is accepted into the doctrine even without expert input, it takes precedence over, and sets limits on the scope of expert testimony that a court can admit in a later case to demonstrate that the economic authority is incorrect, or at least inapplicable to the circumstances of that case.⁵⁴

In light of this last conclusion, Lopatka and Page’s view that “the informal process of economic authority has decisive advantages within the antitrust system”⁵⁵ is surprising. For instance, they argue that the process of unstructured selection is legitimate because it is based on the same foundations as the development of precedent.⁵⁶ However, it was precisely the limitations of the method of analogical reasoning in antitrust cases that led to the excesses evident during the Warren Court era. True, courts have legitimate reasons to set up some barriers to additional context-specific factual inquiry, such as, for example, to ensure coherence in the law,⁵⁷ and to limit the extent to which courts would have to act as super-arbiters of alternative economic theories. This is especially important since, in most cases, economists do not come to unambiguous or unanimous predictions about either the purpose or the likely effects of the conduct in question. However, a more appropriate response to the contestable and evolutionary nature of economic, like any other, knowledge is to ensure that the doctrine

50. John E. Lopatka & William H. Page, *Economic Authority and the Limits of Expertise in Antitrust Cases*, 90 CORNELL L. REV. 617, 631 (2005).

51. *Id.* at 632.

52. *Id.* at 636.

53. *Id.* at 640–41.

54. *Id.* at 643, 698.

55. *Id.* at 694.

56. *Id.* at 696.

57. *Id.* at 695.

permits (and does not foreclose) further inquiry to both develop new learning and to incorporate it into decision-making.

The problem of conflicting expert testimony in antitrust cases is often presented through the prism of the paid expert.⁵⁸ Many argue that the courts' decision-making in antitrust cases is impaired by the absence of truly neutral and competent experts because experts hired by the parties will testify to any proposition in support of their client's case.⁵⁹ However, there are other explanations for expert contests. It may be that the difference of opinion among two economic experts is genuine, yet one economist has employed faulty reasoning or methodology. Or alternatively, even with both proper reasoning and methodology, the economists may arrive at a genuine disagreement about the competitive significance of the case, particularly if the outcomes of interest extend to the medium to longer term. A survey of articles in the peer reviewed journals in any discipline will reveal numerous disagreements between experts outside the litigation context. Whatever the reason for the contest, in most cases courts do not have the tools to resolve it. Yet to deny access to such input altogether by invoking authority based on judicial "intuitions" and "ideologies" seems a peculiar response to this problem.⁶⁰

Such a response is particularly problematic in light of the fact that the economic understanding of particular types of conduct or market phenomena evolves, not least because market structures, organizations, and strategies themselves change. Antitrust decision-making relied on economic theory long before the Chicago School, even if such reliance was not openly acknowledged by judges.⁶¹ Controversy among

58. Areeda, *Always a Borrower*, *supra* note 40, at 1033–34.

59. Posner, *supra* note 12, at 937.

60. Areeda has argued that the solution to the problem of expert contests is through some form of institutional innovation. One possible strategy for dealing with this problem would require experts to publish their testimonies in peer-reviewed economic journals, as a way of incurring reputation costs for testimony which is markedly implausible. Areeda, *Always a Borrower*, *supra* note 40, at 1036. However, Areeda recognizes that this proposal is impractical because it only (partially) corrects for the "hired gun" problem, but not the other reasons for contest and disagreement which could provide an obstacle to courts in resolving concrete antitrust problems. Timing is crucial in this context. Even if an expert has employed, in good faith, some form of faulty methodology, *ex post* publication will reveal this error later, after the judicial tribunal has already decided the case. The key is to incorporate this process of peer-review into the resolution of the particular case. The only proposal that is seriously being considered by the Antitrust Modernization Commission (AMC) to deal with the problem of contested economic expert evidence is the appointment of independent experts by the court. *AMC asks panelists for details of assignment: Considering court-appointed economic experts*, FTC:WATCH, No. 668, Jan. 30, 2006, at 2–4.

61. Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 259–66.

economists about the welfare implications of past business practices continues long after those practices have ceased. Conduct which might be recognized as predatory or anticompetitive today might not have been seen in the same way in the past, not only because economists understand the world better today, but also because the same type of conduct might not have had the same competitive significance in a different market environment. Yet, if the courts insist on filtering out factual evidence about the wider context of current antitrust problems through the prism of past “economic authority,” they fail to appreciate the ways in which current problems may be different, or the ways in which conduct which was once benign may now be of concern, and vice versa.

In his book *An Empirically Based Microeconomics*,⁶² Herbert Simon criticized the modern approach to developing economic theory, by arguing that economic modeling is detached from reality and does not provide concrete advice to policy-makers.⁶³ In a thoughtful review of Simon’s book, the economist Ariel Rubinstein makes the following claim:

[W]hat we really do in economic theory is to study arguments. Understanding what sort of arguments could be made about a situation does not guarantee our understanding of when this or any other argument will be made. And understanding arguments that people use is very far from predicting the kinds of things that economists attempt to predict or at least try to understand.⁶⁴

This claim provides both a glimmer of hope for, and suggests an inherent limitation on, the use of economics in antitrust decision-making, including the use of more theoretically ambitious economic modeling. To the extent that economics seeks to understand the kinds of arguments that can be made about a particular situation, this gives us hope that economic learning can be incorporated into the legal regime. After all, lawyering is all about crafting arguments that explain the reasons for, and likely consequences of, particular conduct against the background of rules which regulate that conduct. But, to the extent that economics enhances our tools of argumentation and helps antitrust advocates, how does it help the decision-maker? It might help the judge discard certain arguments because they cannot validly be made in particular circumstances, but beyond that it only provides additional valuable arguments without necessarily giving further guidance on how

62. HERBERT A. SIMON, *AN EMPIRICALLY BASED MICROECONOMICS* (1997).

63. *Id.* at 26, 63.

64. Ariel Rubinstein, Book Review, 37 *J. ECON. LIT.* 1711, 1712 (1999).

to weigh them against each other—in order to determine whether anticompetitive effects are likely and in what timeframe—or, against other valid legal or policy arguments. As a result, what Lopatka and Page call “economic authority” may be nothing more than the courts’ formulation of a simple proposition that disposes of the majority of cases, relieving them of the responsibility to mediate and balance such arguments. Such an approach on the part of courts may well be appropriate, but only if there exists some other mechanism that can resolve the underlying problem that resulted in an antitrust dispute better than the court.

E. The Law and Economics of Predatory Pricing

The evolution in the law of predatory pricing provides a good illustration of the limits of the process of judicial learning described thus far. During earlier stages of antitrust thinking, injury to a competitor in itself was seen as destructive to the competitive process. Putting a competitor out of business through aggressive pricing not only destroyed the productive capacity of a firm, in turn affecting the livelihood of the owners and employees, but also increased market concentration, eliminating the competitive constraint on other market players. Therefore, predatory pricing was a vibrant area of public and private enforcement in the Warren Court era. In the absence of a method to distinguish predatory from ordinary price cuts, courts relied on proxy evidence of anticompetitive intent. And since juries were receptive to these claims, the lower courts frequently made large treble damage awards against price-cutting firms even in cases where the defendant firm had an insubstantial share of the market.

However, attempts to develop easily administrable rules based on economic theory that would provide a more nuanced approach to predation have been generally unsuccessful. At a time when there was little economic analysis of the predation phenomenon, Areeda and Turner used a simple economic argument, based on profit-maximization, to develop a clear rule that could provide guidance to both the courts and the marketplace.⁶⁵ Under Areeda and Turner’s proposed test, below-cost price cuts were presumptively considered predatory because such price cuts could not be profitable unless the firm was expecting at some future date to recover the losses through higher prices after the exit of some of its rivals. While this rule was apparently elegant and applicable to different market contexts, attempts to apply it

65. Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 699 (1975).

only generated further theoretical and practical inquiries about the definition and measurement of costs, as well as about any possible alternative explanations for low pricing. Resolution of such inquiries required admission of factual evidence and therefore left the hands of juries and trial judges largely unrestrained. This undermined both the rule's elegance and its utility in discouraging opportunistic use of antitrust law.

Thus, the only way to impose discipline on this area of law was to foreclose the courts from considering predation cases. In a number of discrete steps, the Supreme Court relied on summary judgment as a procedural tool⁶⁶ and Chicago analysis of recoupment as a substantive argument to achieve that goal. Chicago scholars suggested that courts should sidestep the costs inquiry, which had not proven to be particularly helpful or tractable, and focus instead on the likelihood of recoupment by the defendant firm. In *Brooke Group Ltd. v. Brown & Williamson Tobacco Corporation*,⁶⁷ the Supreme Court held that the presence of some likelihood of recoupment was a threshold condition for a finding of predatory pricing. Justice Kennedy proceeded to arrive at this rule in three discrete steps. First, while accepting the Areeda-Turner view that pricing below some measure of cost was the appropriate definition of predation, the Court did not specify the way to define or measure costs. Second, a plaintiff in a predatory pricing case had to prove that the defendant was likely to recoup any losses from predatory pricing by raising consumer prices after the targeted firms were eliminated. Finally, and perhaps more detrimentally, the Court accepted the then reigning Chicago view that predatory conduct was unlikely either to occur or to succeed. However, this last point was not a fully theorized conclusion, and was based on only a limited number of contested empirical studies.⁶⁸

An unfortunate effect of this formulation of the doctrine was that it precluded further examination or elaboration of any of the three claims that supplied its basis. Implicitly sidestepping the question of costs discouraged any further inquiry into an appropriate definition and measurement of costs for the purposes of identifying below-cost pricing. Further, the Court explicitly discouraged lower courts from examining the meaning and forms of recoupment that may make predation a rational anticompetitive strategy. The claim that a firm was

66. See, e.g., *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986).

67. *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

68. See, e.g., Roland H. Koller II, *The Myth of Predatory Pricing: An Empirical Study*, 4 ANTITRUST L. & ECON. REV., Issue 4, 1971, at 105; Kenneth G. Elzinga, *Predatory Pricing: The Case of the Gunpowder Trust*, 13 J.L. & ECON. 137 (1958).

unlikely to recoup (and therefore engage in predatory pricing), signaled to lower courts that absent extraordinary circumstances, predation cases were to be disposed of at summary judgment. Thus, no successful predation cases have been brought since *Brooke Group*, despite the fact that the economic learning has brought additional arguments and considerations to bear on the question whether predation can be a rational anticompetitive strategy.⁶⁹

Specifically, more recent economic modeling does not embrace the Chicago proposition that predation cannot be a profitable strategy for dominant firms. And to assist the courts in deciding predation cases, Bolton, Brodley and Riordan have collected the emergent economic consensus on predatory strategies,⁷⁰ which accepts that the likelihood of recoupment provides an appropriate framework of analysis, and draws upon theories of strategic dynamic interaction among firms in the presence of imperfect information. Such theories demonstrate how predation could be a rational and profitable strategy for a dominant firm in different market contexts. For example, where an entrant has imperfect information about the cost structure of the incumbent firm, the incumbent may engage in predatory pricing in order to send the wrong cost signal to the potential entrant and deter entry; or a dominant firm selling in numerous markets may engage in predatory pricing against a firm in one market in order to establish a predatory reputation thereby deterring entry or price cutting in other markets in which it operates (recouping in those other markets, rather than the market where it cut prices). Additionally, a dominant firm may engage in predatory pricing in order to reduce the rival's short run profitability so as to induce its creditors (who are imperfectly informed about the entrant's potential) to withdraw their financing.⁷¹

The economic theories used by Bolton, Brodley, and Riordan draw upon dynamic modeling that incorporates more contextual factors and strategic considerations relevant to identifying novel forms of predatory conduct. As with other post-Chicago models, the welfare predictions of

69. The key for a plaintiff to win a case of this nature is to avoid the characterization of predation, irrespective of the similarity of the underlying conduct. *See, e.g.*, *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (product integration and exclusionary practices); *LePage's Inc. v. 3M*, 324 F.3d 141 (3d Cir. 2003) (explaining that loyalty rebates can provide a basis for a monopolization claim though not under predation law).

70. *See generally* Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 *GEO. L.J.* 2239 (2000) (arguing that predatory pricing cases can be resolved by basing legal policy on modern strategic theory).

71. Bolton, Brodley and Riordan go further and claim that predatory conduct occurred even in some of the examples that were used by Chicago scholars to support the claim that courts or juries tend to make false inferences of predation. *Id.* at 2242–45.

those theories can be highly sensitive to the starting assumptions of the model. Because of the lack of robustness in the predictions, according to Elzinga and Mills (and consistent with Lopatka and Page's analysis presented earlier), such models cannot be a useful guide to judicial decision-making because they cannot be translated into *ex ante* rules applicable across different market contexts.⁷²

However, to reject such economic evidence simply because it does not easily translate into *ex ante* rules seems paradoxical. If the welfare implications of particular theoretical models are highly dependent on the starting assumptions of such models, to answer the question of whether a model is helpful in analyzing a case at hand, the court must determine whether the market context of the case maps well onto the assumptions of the model. Therefore, a lack of robustness is not a reason to reject evidence (factual evidence as well as expert assessment) that the market context under consideration is precisely the one in which predation is a rational strategy which is likely to harm consumers. And yet cases such as *Matsushita* and *Brooke Group* have encouraged courts to address the recoupment issue at the summary judgment stage, which necessarily involves a curtailed evidentiary record.⁷³

The recent prosecution of American Airlines for predatory pricing explicitly relied on the work of Brodley, Bolton, and Riordan, and yet was also rebuffed at the summary judgment stage. Interestingly, both the district court⁷⁴ and the Tenth Circuit⁷⁵ accepted that modern economic theory put some doubt on the *Brooke Group* view that predation is unlikely to occur and even less likely to succeed. Nonetheless, the courts concluded that the Department of Transportation had not adduced sufficient evidence that American's strategy involved below-cost pricing to survive a motion for summary judgment, despite the fact that the government complaint relied on four alternative theories of cost to demonstrate that the prices were predatorily low. Specifically, the district court latched onto the

72. See Kenneth G. Elzinga & David E. Mills, *Colloquy: Predatory Pricing and Strategic Theory*, 89 GEO. L.J. 2475 (2001).

73. Courts have regularly invoked summary judgment as "particularly well-suited" to "the usual entanglement of legal and factual issues" in antitrust cases. *Thompson Everett, Inc. v. Nat'l Cable Adver. L.P.*, 57 F.3d 1317, 1322 (4th Cir. 1995); see *Oksanen v. Page Mem'l Hosp.*, 945 F.2d 696, 708 (4th Cir. 1991); *Collins v. Assoc. Pathologists, Ltd.*, 844 F.2d 473, 475 (7th Cir. 1988); *Bayou Bottling, Inc. v. Dr. Pepper Co.*, 725 F.2d 300, 303 (5th Cir. 1984).

74. See *United States v. AMR Corp.*, 140 F. Supp. 2d 1141 (2002) ("AMR I") (granting summary judgment).

75. See *United States v. AMR Corp.*, 335 F.3d 1109 (10th Cir. 2003) (affirming the grant of summary judgment). See Gregory Werden, *The American Airlines Decision: Not a Bang but a Whimper*, ANTITRUST, Fall 2003, at 32.

difficulty in determining whether American had sacrificed profits as part of its alleged predation strategy due to the substantial portion of arbitrarily allocated costs involved, and because of American's coarse cost accounting.⁷⁶

Thus, on either the *Brooke Group* or the *American Airlines* view, the antitrust plaintiff will have substantial difficulty getting past a defendant's motion for summary judgment.⁷⁷ The courts avoid entering the fray of deciding complex predation cases by either (i) invoking the incantation that predation occurs rarely and requiring a strong showing of likely recoupment (*Matsushita* and *Brooke Group*) or (ii) requiring a precise showing that the price was below some undefined measure of cost, which plaintiffs will generally be unable to do (*American Airlines*).⁷⁸ The fact that both of these approaches dispose of cases at the summary judgment stage suggests that courts consciously tie their hands from considering context specific evidence that might muddy the neatness of current rules and open the doors to the jury, thereby presumably encouraging opportunistic plaintiffs.

F. Conclusion

The aim of this section was to situate the Chicago School argument for a minimalist antitrust policy and the subsequent responses from both the academy and the courts. It is often said that the Chicago "New Learning" emerged in particular political context,⁷⁹ reflecting wider social trends, such as the shift away from production-based and towards

76. AMR I, 140 F. Supp. 2d at 1175.

77. For a recent decision rejecting the appropriateness of summary judgment in the context of a predatory pricing case, see *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917, 945 (6th Cir. 2005) ("We conclude that this "intellectual disagreement" among the parties' experts creates material factual disputes on the relevant market and the appropriate measure of costs for the service at issue so as to preclude an award of summary judgment. Although the district court found that [plaintiff's] expert-opinion testimony made no economic sense, we conclude that a reasonable trier of fact could find that the testimony of [plaintiff's] experts is reasonable based upon facts in the record and relevant economic principles.").

78. See Michael Riordan, Presentation to the Conference on the use of Economics in Competition Law, London (Mar. 11–12, 2004) (on file with the editors) (characterizing the approach of the courts in both *Brooke Group* and *American Airlines*, as "legal pragmatism," whereby the courts will find a point of minimal consensus to dispose of a case and avoid entering into issues that raise deeper and more complex contests). Cf. Cass R. Sunstein, *Supreme Court 1995 Term—Foreword: Leaving Things Undecided*, 110 HARV. L. REV. 4, 6 (1996) (commending legal minimalism as a mode of decision-making).

79. E.g., Eleanor M. Fox, *What is Harm to Competition? Exclusionary Practices and Anticompetitive Effect*, 70 ANTITRUST L.J. 371, 377 (2002) ("The 1980s ushered in an era of conservatism, under the leadership of President Ronald Reagan. The Reagan Administration set about to cut back the law that regulated business.").

consumption-based communities of identity,⁸⁰ as well as the growing suspicion about the pernicious effects of the use of governmental or bureaucratic power vis-à-vis business power.⁸¹ However, perhaps more importantly, the dissatisfaction with the Warren Court's antitrust jurisprudence was due to the fact that it was based on the decentralized economic model of individual traders in arms-length relationships of the ante-bellum period, which did not reflect the realities of modern production. The arguments used by Chicago scholars were drawn from organization theory and industry economics,⁸² describing the Chandlerian model of the corporation that had come to dominate U.S. industry since the end of the nineteenth century.⁸³ Firms, according to this model, are large multi-product organizations (structured by divisions) that are closed hierarchies. The task of the top echelons of management in the firm is to generate rules so as to break down the overall goals into manageable tasks and to monitor the compliance of large numbers of subordinates in performing those tasks.⁸⁴ Minimizing transaction costs that stem from shirking, bargaining problems, and other forms of subordinate opportunism is the main driving force towards integration within the Chandlerian firm, enabling it to deliver a standard product to market at the lowest price. These were precisely the types of arguments used by Chicago scholars to criticize the antitrust hostility to vertical restraints, mergers, as well as conduct, such as low pricing, by large or dominant firms.

The legal doctrine gradually became to reflect the minimalist approach to antitrust. After all, courts are not a particularly good venue for either promoting economic efficiency, or trading off efficiency against other policy values. Doctrine does not provide any useful guidance to courts in deciding modern antitrust cases based on the efficiency criterion. The existing categories of judicial analysis (such as the *per se* rule and the rule of reason) are not useful, as courts grapple to adapt the tools of the earlier legal regime to an effects-based (regulatory) policy, which invites at least some degree of competitive assessment in virtually every case.⁸⁵ While the new antitrust is said to

80. Sandel, *supra* note 35, at 2077–79. See also DANIEL J. BOORSTIN, *THE AMERICAN: THE DEMOCRATIC EXPERIENCE* 89 (1973).

81. Dorf, *supra* note 28, at 1254.

82. Sabel, *Real Time Revolution*, *supra* note 11, at 107.

83. The “Chandlerian” firm is named after Alfred Chandler, the business historian who identified and described its features. See ALFRED A. CHANDLER, *THE VISIBLE HAND: THE MANAGERIAL REVOLUTION IN AMERICAN BUSINESS* (1977).

84. ROBERTS, *MODERN FIRM*, *supra* note 11, at 1–2; Sabel, *Real Time Revolution*, *supra* note 11, at 107–08.

85. *Matter of Polygram Holding, Inc. (The Three Tenors)*, (July 24, 2003),

incorporate the benefits of economic learning, this is a very partial claim which masks the extent to which presumptions continue to play a role in antitrust decision-making. The doctrinal incorporation of economic learning is constrained by the institutional limitations of the courts and is generally biased against intervention. While some have endorsed the judicial development of “economic precedent,” this is a dubious kind of precedent that does not necessarily reflect a wider economic consensus, but instead involves a judicial re-characterization of economic learning to adapt it into rules that dispose of cases rather than engage in searching economic inquiry.

III. THE NEW CASES—INNOVATION AS A POLICY GOAL

A. *The Post-Chandlerian Firm*

One point that may not be immediately apparent is that the Chicago re-examination of antitrust law took place long after vertically integrated forms of mass production began to characterize, and dominate, the economy.⁸⁶ But the world that the law regulates is not static either.⁸⁷ Thus, parallel to the efforts to incorporate the goal of static efficiency into antitrust doctrine, the past two decades have also witnessed fundamental shifts in the nature and the organization of the firm, including the methods of production and competition, as well as the purposes and characteristics of interfirm relationships. By contrast to the vertically integrated hierarchical firm described by Chandler, the emerging business organization is described as “federated and open”—relying on collaboration, rather than integration—and “networked” so that information flows not only from the top down, but also upwards and sideways.⁸⁸

The industrial organization literature has begun to identify some of the features of the new model of the business organization (sometimes referred to as the post-Chandlerian firm):

Firms have changed the scope of their activities, typically refocusing on their core businesses and outsourcing many of the activities that

<http://www.ftc.gov/os/adjpro/d9298/030724commopinionandfinalorder.pdf>.

86. Helper, MacDuffie & Sabel, *supra* note 17, at 464 (explaining that the benefits of vertical specialization in delivering standard goods to market were taken for granted as defining the logic of efficiency in the years of the post-World War II expansion).

87. See Oona A. Hathaway, *Path Dependence in the Law: The Course and Pattern of Legal Change in a Common Law System*, 86 IOWA L. REV. 601, 637 (2001) (“[T]he adaptive rate of historical processes may proceed more slowly than changes in the environment, leading to a perpetual lag and, therefore, perpetual disparity between the institution or rule and its environment.”).

88. Sabel, *Real Time Revolution*, *supra* note 11, at 107.

they previously regarded as central. . . . Many have also redefined the nature of their relationships with customers and suppliers, often replacing simple arms length dealings with long-term partnerships. . . . By these measures, coupled with improved information and measurement systems and redesigned performance measurement systems, they have sought to increase the speed of decision-making and to tap the knowledge and energy of their employees in ways that have not been tried before. To facilitate coordination and learning, they have experimented with linking people in different parts of their organizations directly, so that communications are more horizontal and not just up and down the hierarchy.⁸⁹

The shift in the organizational structure of the firm was precipitated by the limits of the hierarchical paradigm in resolving the problems of industrial organization, which became particularly acute as a result of changes in the underlying market environment in which the firm operates. In particular, as the combined result of changes in technology and the intensification of global competition, shifts in market conditions are more rapid and ongoing, which is why the environment in which the modern firm operates is described as more “turbulent”⁹⁰ or “volatile.”⁹¹ As a result, top executives in the firm neither possess exhaustive information about market movements and new technologies, nor can they absorb such information rapidly enough to use that knowledge to formulate strategy top-down.⁹² Instead, the new firm must rely upon deeper forms of collaboration and information exchange with independent units.⁹³ As a corollary, such novel forms of organizing production present new challenges in governing interfirm relationships. Thus, because antitrust is a tool for moderating interfirm relationships, the new forms of production have presented novel and unique antitrust challenges.

B. Innovation

Precisely because the underlying market environment in which the new firm operates is fast-changing and turbulent, a key aspect of firm success in new markets is not planning, but continuous innovation. Ongoing innovation enables the firm to adjust its decisions and be responsive to changes in the market that are very difficult to predict. In

89. ROBERTS, MODERN FIRM, *supra* note 11, at 2.

90. *Id.* at 27.

91. Sabel, *Real Time Revolution*, *supra* note 11, at 108.

92. ROBERTS, MODERN FIRM, *supra* note 11, at 27.

93. Charles F. Sabel & Jonathan Zeitlin, *Neither Modularity nor Relational Contracting: Inter-Firm Collaboration in the New Economy*, 5 ENTERPRISE & SOC'Y 388, 389 (2004).

this environment, the key challenge for the firm is not to minimize the cost of producing and delivering to market an existing product with a stable demand, but instead to ensure that its disciplines for project selection and product design can keep up with the future requirements of the market. The increased importance of innovation as an aspect of firm strategy also opens the door to different kinds of anticompetitive strategies, which have as their principal aim inhibiting a competitor's ability to innovate. It comes as no surprise therefore, that in an increasing number of antitrust cases the effects of market structure and conduct on the ability of firms to innovate (and consequently on the pace of innovation) have assumed center stage. Some commentators have gone so far as to suggest that promoting innovation is the primary goal or the touchstone of the modern competition policy.⁹⁴

At least at the conceptual level, there is no reason for an efficiency-minded competition policy to be focused only on static allocative efficiency and conduct that restricts output and raises short run prices, without being concerned about dynamic efficiency, namely development of novel products and processes of production. In dynamic modern markets, the introduction of new products or processes is the main form of firm rivalry that dissipates supra-economic profits and improves consumer welfare.

Moving from the conceptual to the practical, we have already shown that a key constraint on extending the mandate of antitrust policy has always been the institutional capacity of the antitrust decision-makers to promote various policy goals or to take a broader matrix of facts into account in deciding antitrust cases, in addition to the difficulties associated with formulating and supervising effective remedies.⁹⁵ Both the earlier jurisprudence of the Warren Court and the Chicago approach denied any possibility for judges to trade-off some goals against others.⁹⁶ The old case law often made the point that protecting the competitive process is the "law of the land" and courts had no mandate to trade-off competition for other socially desirable goals.⁹⁷ Similarly,

94. Robert Pitofsky, *Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy*, 16 BERKELEY TECH. L.J. 535, 540 (2001); Timothy Bresnahan, Remarks at the Fair Trade Commission of Japan Inaugural Symposium: Designing the New Competition Policy, "Pro-Innovation Competition Policy: Microsoft and Beyond, Nov. 20, 2003, available at <http://www.jftc.go.jp/cprc/events/2003sympo/agenda19.pdf>.

95. Phillip Areeda, *Antitrust Law as Industrial Policy: Should Judges and Juries Make It?*, in ANTITRUST, INNOVATION AND COMPETITIVENESS 29, 32 (Thomas M. Jorde and David J. Teece eds., 1992).

96. See Minda, *supra* note 21, at 1765–67.

97. See, e.g., *Nat'l Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679 (1978) (stating that courts can not trade-off competition against other policy values, such as public safety, under rule

the Chicago view is deeply suspicious of judicial balancing and therefore its focus on short-run allocative efficiency is seen as the only way to anchor judicial decision-making far from error. On both views, the promotion of innovation and industrial progress—whether they were consistent or in conflict with the reigning antitrust view of competition—could be left to the market or to more targeted policy interventions implemented through the other arms of government.

Others have been more optimistic about the capacity of antitrust doctrine to respond to the challenges of the new production environment. In the aftermath of increased antitrust litigation in high technology industries, Judge Posner observed extrajudicially 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.”⁹⁸ By contrast to his view of antitrust doctrine, Posner singled out the institutional constraints as more significant, referring specifically to the absence of neutral expert assistance to courts, the slow pace of litigation compared to the dynamic and fast-changing nature of the markets, and the fact that this dynamism exacerbates the difficulties in fashioning and supervising effective antitrust remedies.⁹⁹

However, Posner’s description of antitrust doctrine as “supple” simply obscures the fact that in the absence of doctrine, judges have no legal guidance in deciding these cases. As the FTC has recognized, the distinction between the *per se* rule and the rule of reason has become largely blurred, with most cases inviting some degree of competitive effects analysis.¹⁰⁰ Similarly, the distinction between vertical and horizontal interfirm relationships is not as critical in modern markets—the modern firm is vertically disintegrated, and collaborates with many different firms who are at least potentially participants in the same market. Some other staples of antitrust analysis, including defining markets, calculating market shares, and comparing prices to cost, have become strained and of limited assistance in new economy markets.¹⁰¹

of reason analysis).

98. Posner, *supra* note 12, at 935.

99. *Id.* at 939.

100. Matter of Polygram Holding, Inc. (The Three Tenors), at 13–19 (July 24, 2003), <http://www.ftc.gov/os/adjpro/d9298/030724commopinionandfinalorder.pdf>. See also *California Dental Assoc. v. FTC*, 526 U.S. 756 (1999).

101. See *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C. Cir. 1998). The Microsoft case illustrates some of these problems. Market shares may not be a significant guide if firms compete for the market and if a rival can easily dislodge a dominant incumbent with a superior product given the low marginal costs of (re)production of products like software. Similarly, identifying predatory conduct by reference to the price-cost tests becomes more strained in the presence of

The fact that there are no *ex ante* rules to constrain judicial discretion does allow courts to engage in the kind of *ex post*, all-things-considered judging of what is best for economic efficiency that Posner has advocated elsewhere.¹⁰² In a similar vein, those who have even greater faith in the judicial capacity to perform a central role in antitrust decision-making, and the judicial process to cope with the increased complexity of modern production, deny that even the institutional problems identified by Judge Posner are significant or insurmountable.¹⁰³

Yet the institutional limits of the judicial process as a format for resolving antitrust problems in contemporary markets are not limited to the lack of neutral expert assistance in the adversarial litigation model. As we have already shown, access to economic expertise, which is independent from the litigating parties, does not guarantee the proper incorporation of knowledge into antitrust decision-making. Further, given the complexity of modern technologies, analysis of the competitive dynamics in a particular market is inherently multidimensional. The need for expert input goes beyond economic assessment of the facts to evidence from experts in other fields (including engineers, scientists, or computer programmers) on issues of design, feasibility, and robustness of alternative designs, the ways to achieve interconnectivity between different products, and so on. Quite apart from ensuring unbiased expertise, the greater challenge is to facilitate the communication among the different types of experts, and with the decision-maker, so that different conceptual schemes and problem-solving perspectives can be brought to bear not only to identify the underlying problem, but also to formulate and implement workable solutions.

C. *New Rules of Deference*

Faced with the technological and economic complexity of new production relationships (making it difficult to fashion clear *ex ante* rules of liability) and because of their hostility towards admitting context specific factual evidence (to identify *ex post* efficient

increasing returns to scale where variable costs of production approach zero.

102. See, e.g., Richard A. Posner, *Pragmatic Adjudication*, 18 CARDOZO L. REV. 1 (1996).

103. Lawrence A. Sullivan, *Is Competition Law Possible in High Tech Markets?: An Inquiry into Antitrust, Intellectual Property, and Broadband Regulation as Applied to "The New Economy,"* 52 CASE W. RES. L. REV. 41, 42 (2001) ("[T]he 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.").

solutions),¹⁰⁴ antitrust courts have responded to new technology problems by developing new rules of deference to business conduct. Such a response reflects the courts' fear that any other approach would place judges at the center of decisions ordinarily left to the market. Whatever difficulties courts might face in gauging short run effects on output and price, predicting the pace of innovation may require qualitative judgments about which firm's innovative efforts would make a greater contribution to social welfare.

1. Product Development as a Trump

One potentially contentious issue that often arises in modern antitrust cases is the treatment of product development decisions by the firm. Ordinarily, product development decisions are seen as the prerogative of the firm that brings the product to market. Product development succeeds when the firm makes a product which is more attractive for users. However, product development strategies can also have exclusionary effects on rival producers. For example, a producer of two products can integrate them technologically. While this may bring efficiencies to users, it can also foreclose sales for a firm participating in one market only. Or, alternatively a firm may develop a product which is not compatible and does not interoperate with those of its rivals, again with potential exclusionary effects.

Where product development decisions are subjected to antitrust scrutiny, one can envision two possible responses by the courts. One would be to scrutinize the integration under a full rule of reason analysis, balancing the efficiencies reaped by consumers from the integrated product against the exclusionary effects on rivals and the consequential net effects on prices or innovation in the market, some of which may be manifested in the medium to long term.¹⁰⁵ As Salop and Romaine recognize, if courts shied away from performing such a balancing task, they would be dealing themselves out of the antitrust game, because this is precisely the area in which many contentious issues are likely to arise in modern markets.¹⁰⁶

However, courts have generally refused to become embroiled in product development decisions, where such decisions have been subjected to antitrust scrutiny either by competitors or by government

104. *See, e.g.*, *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal. 2004) (denying a Department of Justice request for an injunction of a merger and rejecting evidence from customers of the merging parties that the merger is likely to have anticompetitive effects).

105. Richard Schmalensee, *Agreements Between Competitors*, in *ANTITRUST, INNOVATION AND COMPETITIVENESS* 98, 112 (Thomas M. Jorde and David J. Teece eds., 1992).

106. Salop & Romaine, *supra* note 43, at 671.

enforcement agencies. Courts defer to the product development decisions, even those of a dominant firm, not because they are anti-trust, but because, in the absence of doctrinal guidance, they do not have the tools with which to perform the balancing task effectively or legitimately, in a way which would provide actors with a clear guide to future compliance. For instance, in the first iteration of the government's litigation against Microsoft, the D.C. Circuit panel refused to entertain the Department of Justice's claim that by combining its Internet Explorer browser with the Windows operating system, Microsoft violated the prohibition on product integration in the consent decree that settled the original Department of Justice complaint. Microsoft had argued that the combination was a single product because the code of the browser was technologically inseparable from the operating system. Invoking the complexity of the technological questions involved, the D.C. Circuit adopted a highly deferential standard for product integration cases in high tech markets. Under the court's approach, an antitrust defendant would prevail so long as it could proffer any plausible non-pretextual product improvement explanation for the integration of the two products, irrespective of the significance of the exclusionary effects on rivals.¹⁰⁷ If it followed any other path, the panel thought that it would be engaging in picking winners and that firms would be unable to foresee whether their product design violated the antitrust laws.

While in the government's subsequent prosecution of Microsoft for violating section 2 of the Sherman Act, the D.C. Circuit en banc retreated from the above deferential standard, this was only an apparent retreat.¹⁰⁸ As a matter of doctrine, the Court's method of analysis for the section 2 claim has widely been interpreted as an endorsement of the balancing approach under the rule of reason;¹⁰⁹ ultimately requiring a judicial determination of whether any exclusionary effects asserted by the plaintiff were outweighed by pro-competitive or efficiency justifications asserted by the defendant. However, in deciding the case on the merits the D.C. Circuit avoided having to actually engage in the balancing task by rejecting Microsoft's proffered business or efficiency

107. *United States v. Microsoft Corp.*, 147 F.3d 935, 950 (D.C. Cir. 1998) (while technically the Department of Justice complained of a violation of an earlier consent decree, the Court indicated that its decision was guided by the proper view of the law of tying under section 1).

108. *See United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

109. *See Eleanor M. Fox, What is Harm to Competition? Antitrust, Exclusionary Practices, and the Elusive Notion of Anticompetitive Effect, in THE FUTURE OF TRANSNATIONAL ANTITRUST—FROM COMPARATIVE TO COMMON COMPETITION LAW* 87, 93–104, 110 (Josef Drexel ed., 2003); Sullivan, *supra* note 103, at 51–52.

justifications for most of the impugned practices. In fact, in every instance where the Court accepted the efficiency justifications asserted by Microsoft, such as the development of the incompatible Java virtual machine, the conduct was not condemned.¹¹⁰ Thus, the method espoused in the *en banc* opinion was only facially different from that of the earlier panel, and yet, in its application, it did not differ appreciably from the “any plausible” explanation standard.

2. Intellectual Property as a Trump

Protection of an antitrust defendant’s intellectual property rights is another rule of deference increasingly invoked by courts to justify antitrust non-intervention, even in cases where the plaintiff claims that an antitrust defendant’s conduct impairs innovation. The courts have increasingly come to accept the proposition that protecting intellectual property rights is a trump card defense that an antitrust defendant can invoke against claims of antitrust violations.¹¹¹ The adoption of such a broad proposition would substantially curtail the scope for antitrust intervention in new economy markets, because these markets are characterized by the proliferation of intellectual property protection given the importance of innovation in market success.

The tendency to defer to intellectual property rights is a reversal of an earlier approach when antitrust courts and agencies were very inhospitable to defendant justifications based on intellectual property rights.¹¹² Such hostility was so deeply rooted, that ownership of intellectual property placed an antitrust defendant in a disadvantageous position ever since the Supreme Court held that the ownership of a patent created a presumption that the owner possessed market power,¹¹³ making it more (rather than less) likely that defendants would be subjected to antitrust duties.

Yet judicial deference to intellectual property rights so as to defeat any competing antitrust considerations is based on both instrumental and institutional considerations. The strict approach that favored

110. *Microsoft*, 253 F.3d at 75.

111. Perhaps the strongest statement of this proposition comes from *In re Indep. Serv. Org. Antitrust Litig. v. Xerox Corp.*, 203 F.3d 1322 (Fed. Cir. 2000). See Timothy J. Muris, Chairman, Fed. Trade Comm’n Prepared Remarks Before the ABA Antitrust Section Fall Forum: Competition and Intellectual Property Policy: The Way Ahead (Nov. 15, 2001), available at www.ftc.gov/speeches/muris/intellectual.htm (last visited on Jan. 20, 2007) (commenting on the role of the Federal Circuit in altering the patent-antitrust balance).

112. See, e.g., Bruce B. Wilson, *Address Before the Fourth New England Antitrust Conference: Patent and Know-How License Agreements: Field of Use, Territorial, Price and Quantity Restrictions*, in ANTITRUST PRIMER 11 (1970).

113. *United States v. Loew’s, Inc.*, 371 U.S. 38 (1962).

antitrust duties over intellectual property rights was bound to be re-evaluated as antitrust moved away from its reliance on broad *per se* prohibitions towards a methodology more attuned to market effects. That shift reflected the fact that most rights in intellectual property do not in fact confer market power upon the owner, even if they confer exclusive rights to a claimed invention. Furthermore, if innovation is indeed the key aspect of competitive interaction in modern markets, intellectual property rights, such as patents and copyrights, are legislatively created rights of exclusivity, which have the specific purpose of advancing innovation. Those rights are created under a constitutionally conferred grant of power to Congress to promote the development of the sciences and arts,¹¹⁴ exactly because investment in research and innovation has public good characteristics.

In addition, while courts have faced considerable difficulties with modern quasi-regulatory antitrust analysis, the protection of property rights is often seen as the paradigmatic judicial task, even by those who favor a minimalist judiciary. Property doctrines are well-settled and the methods of analysis, at least in principle, rely upon retrospective characterization of rights and violations of such rights (even in the context of complex inventions and industries), which is seen as an inherently judicial task.¹¹⁵ And within property law doctrines, the right to exclude is exalted as “one of the most essential sticks in the bundle of rights that are commonly recognized as property.”¹¹⁶ As Thomas Merrill has observed “no other right has been singled out for such extravagant endorsement by the [Supreme] Court.”¹¹⁷

Some aspects of the antitrust retreat in the face of intellectual property protection are not particularly controversial. For instance, the Court recently abolished the presumption that an owner of a patent (or other intellectual property right) possesses market power, holding that the level of market power depends on the degree to which the product is effective and popular as well as the availability of substitutes.¹¹⁸ However, the Chicago view goes a step further, being highly suspicious of the ability of firms in a market economy to become entrenched into

114. U.S. CONST. art. I, § 8, cl. 8.

115. Contrast this to an alternative regime for intellectual property, whereby the court would determine the optimal patent length on a case by case basis, by predicting the likely effects of the patent given the actual incentives for the innovator and the competitive structure in the industry.

116. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 433 (1982) (quoting *Kaiser Aetna v. United States*, 444 U.S. 164, 176 (1979)).

117. Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 735 (1998) (arguing that absent that right the owner is viewed as having no property).

118. *Ill. Tool Works, Inc. v. Indep. Ink, Inc.*, 126 S. Ct. 1281 (2006) (observing that the owner of intellectual property does not necessarily possess market power).

positions of market power beyond the short run, absent government regulations restricting entry to the industry.¹¹⁹ Short-run and temporary acquisition of market power is not viewed as a problem, instead it supplies the incentive for firms to innovate or invest in infrastructure, where the advantages such investments confer are not perfectly appropriable by either intellectual property protection or by other barriers to entry in the market.

The latter view, which is highly suspicious of the benefits of diluting intellectual property protection by antitrust duties, now apparently finds support in the Supreme Court. In *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko LLP*, Justice Scalia, writing for the Court, explained that imposition of antitrust duties on an owner of infrastructure is both unappealing and difficult to supervise by the courts:

Firms may acquire monopoly power by establishing an infrastructure that renders them uniquely suited to serve their customers. Compelling such firms to share the source of their advantage is in some tension with the underlying purpose of antitrust law, since it may lessen the incentive . . . to invest in . . . economically beneficial facilities. Enforced sharing also requires antitrust courts to act as central planners . . .¹²⁰

Although *Trinko* did not involve intellectual property, the reasoning is equally apposite to such a case, where a firm invests in R&D leading to a commercializable invention that both confers on the firm an advantage in the form of a patent (or some other intellectual property right), and makes that firm uniquely placed to fulfill a customer need. To the extent that Justice Scalia's dictum commands majority support on the Court, it suggests a highly deferential approach to intellectual property rights and a limited role for antitrust in such cases more generally.

IV. INNOVATION—MARKET STRUCTURE AND COLLABORATION

A. *The Link Between Structure and Innovation*

Positing a direct relationship between the structure of a market and the rate of innovation by firms in the corresponding industry is even more elusive than the link between market structure and output (or price).¹²¹ If at all possible, such an inquiry is beset by numerous

119. In dynamic markets, market power is likely to be less durable. Pitofsky, *supra* note 94, at 541.

120. 540 U.S. 398, 407–08 (2004).

121. Richard T. Rapp, *The Misapplication of the Innovation Market Approach to Merger*

conceptual problems, not the least of which is the measurement of innovation. After all, innovation is a dynamic concept, and reliance on proxies, such as research and development expenditures, as a measure of the level of innovation can be manifestly inadequate.¹²² Moreover, an examination of three important determinants of innovation (incentives to innovate, capacity to invest in innovation, and capacity to acquire knowledge) demonstrates that neither a decentralized market of atomistic firms nor a concentrated market characterized by large firms guarantees rapid learning and innovation.

On the one hand, in a decentralized market of independent firms, multiple innovation sources and competition among firms to bring a new product to market could lead to faster rates of innovation, as well as a less concentrated product market once the product is developed and the technology dissipated. Innovative ideas are more likely to emerge from new and/or small enterprises that do not have an existing and secure stream of profits.¹²³ On the other hand, small firms can only access local knowledge and may not have either the funds or the incentives to invest in commercializing an innovation, particularly if it is difficult to fully appropriate the benefits of such investments.

Nor is a large firm, operating in a concentrated market, guaranteed to generate rapid innovation. Larger firms can take advantage of economies of scale and efficiencies both in research and development, and in the process of production and commercialization of an innovative idea. Bigness and high market concentration can also provide the capacity to invest in R&D, because the firm can more readily finance such expenditures out of existing profits. Furthermore, a firm that controls a large share of the market can appropriate the benefits of innovative investments more easily. Appropriability of such investments is only enhanced by the robust protection of intellectual property rights, where a large firm can credibly enforce such rights in litigation.

However, large incumbent firms are more likely to have an existing stream of profits, which they do not wish to cannibalize, and to face problems in generating innovative ideas. Larger enterprises have quasi-bureaucratic governance and management structures. Decision-makers within such organizations tend to rely on branch knowledge in

Analysis, 64 ANTITRUST L.J. 19, 27 (1995).

122. *Id.* (“Innovation is intangible, uncertain, unmeasurable, and often unobservable, except in retrospect.”).

123. Richard G. Gilbert & Steven C. Sunshine, *Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets*, 63 ANTITRUST L.J. 569, 574–76 (1995).

formulating new decisions and policies.¹²⁴ In particular, as Lindblom has explained, new decisions in such an organization are highly contingent upon the familiar decision-steps that have taken the organization up to the present¹²⁵ and, as a consequence, decision-makers will often be blind to solutions which are well outside tried and tested routines. Scholars of large incumbent firms have noted that such organizations are good at developing innovations which are merely “sustaining,” in the sense that they are based on small and incremental engineering improvements on current practices and only serve existing customers.¹²⁶

To move beyond developing only sustaining innovations, decision-makers need to be able to break with the organizational routine. But as Bendor¹²⁷ demonstrated, two independent persons working on the same problem are more likely to develop a solution working separately than together, even if it is assumed that “success breeds success” (so that if the individuals work together, the conditional likelihood of the second team member successfully solving a second problem given that the first member has already developed one good solution, is higher than if the two individuals worked separately). Somewhat counterintuitively, it follows that “[i]f what is important is that at least one good idea occurs, the pair working separately is unambiguously more likely to meet that criterion of success.”¹²⁸

The lesson from both Lindblom and Bendor’s treatment of the organizational limits on the development of novel solutions is that, even within a large enterprise, management will need to generate some degree of diversity and independence if new, innovative, and commercially successful ideas are to be generated and commercialized.¹²⁹ However, fostering diversity within the firm is no easy task. Determining the optimal level of diversity and delegation, as

124. Charles E. Lindblom, *The Science of “Muddling Through,”* 19 PUB. ADMIN. REV. 79, 80 (1959). The branch method takes as given, and builds out from current practices. *Id.* at 81.

125. *Id.* at 81.

126. Clayton M. Christensen, *The Rules of Innovation*, 105 TECH. REV. 32, 38 (2002); Clayton M. Christensen, Mark W. Johnson & Darrell K. Rigby, *Foundations for Growth: How to Identify and Build Disruptive New Businesses*, 43 MIT SLOAN MGMT. REV. 22, 23–24 (2002); Stuart L. Hart & Clayton M. Christensen, *The Great Leap: Driving Innovation From the Base of the Pyramid*, 44 MIT SLOAN MGMT. REV. 51, 51–56 (2002).

127. JONATHAN B. BENDOR, PARALLEL SYSTEMS: REDUNDANCY IN GOVERNMENT 47 (1985); GARY J. MILLER, MANAGERIAL DILEMMAS 79–80 (1992).

128. MILLER, *supra* note 127, at 80. See also BENDOR, *supra* note 127, at 47 (“[T]wo relatively independent heads are better than two relatively dependent heads.”).

129. John S. Brown & Paul Duguid, *Creativity Versus Structure: A Useful Tension*, 42 MIT SLOAN MGMT. REV. 93, 93–94 (2001).

well as selecting from among different project-ideas generated by different units, may be a near-impossible task given that management has a limited access to knowledge as well.¹³⁰ Diversity and delegation create agency problems in the form of separate power bases within a firm, each potentially having interests distinct from those of the firm, producing the risk of strategic information provision to the center, bargaining failures, as well as the possibility of collusive conduct among different firm divisions to advance purely local interests.

B. Between Market and Hierarchy—Collaboration

One way that the firm can garner the benefits of diversity from decentralized production and the efficiencies that flow from integration is through interfirm collaboration. Collaboration allows the firm to access external sources of knowledge from independent market participants who are attempting to solve similar problems, to pick up promising ideas from such sources, and to jointly develop solutions instead of fostering optimal diversity within the firm.¹³¹ The sources of external knowledge can extend to the firm's suppliers or other vertically related enterprises, the firm's customers,¹³² its current or potential competitors, enterprises operating in very different industries,¹³³ and others.¹³⁴ On at least one view of the new principles of industrial organization, the tendency towards the open, federated, and networked firm is precisely a response to the need for the modern firm to collaborate extensively and deeply, to benefit from the specialization

130. It may require a substantial amount of information and panoptic vision to determine the optimal degree of diversity within the firm, perhaps almost as much as would be necessary to actually develop innovative solutions.

131. See Alice Lam, *Embedded Firms, Embedded Knowledge: Problems of Collaboration and Knowledge Transfer in Global Cooperative Ventures*, 18 *ORG. STUD.* 973, 973 (1997) (“[I]n the high technology industries where a single company rarely has the full range of knowledge or expertise needed for timely and cost-effective product innovation, forging cooperative links with external partners has become a necessary part of firms’ cost and risk reduction, and more importantly for access to knowledge and capabilities unavailable internally.”)

132. See Mohanbir Sawhney, *Don’t Just Relate - Collaborate*, 43 *MIT SLOAN MGMT. REV.* 96, 96 (2002) (stating that collaborative innovation includes firms tapping into user experience and integrating it into the product development process).

133. See Andrew Hargadon & Robert I. Sutton, *Technology Brokering and Innovation in a Product Development Firm*, 42 *ADMIN. SCI. Q.* 716 (1997) (describing a firm operating as a technology broker for clients from 40 different industries, spreading existing technological solutions developed in some industries to solve problems in others).

134. See, e.g., John Markoff, *At Microsoft, Interlopers Sound Off On Security*, *N.Y. TIMES*, Oct. 17, 2005, at C1, C6 (explaining that in an effort to improve security of the system, Microsoft organizes meetings with “white hat” hackers—computer security researchers who expose vulnerabilities and who are generally critical of Microsoft).

and independence of its collaborators and be able to engage in ongoing innovation.¹³⁵

The sociological literature examining innovation practices of firms in new technology markets observes a marked trend towards cooperative, simultaneous and “experiential” innovation that produces successful and (importantly for a dynamic environment) robust forms of problem solving and product development. In a study of different strategies for innovation pursued by firms in the high-paced computer industry, Brown and Eisenhardt observe that firms often do not rely on bursts of radical change emerging from tightly structured design processes with extensive planning and a substantial investment in one version of the future.¹³⁶ Instead, innovative change is continuous and adaptive, and, importantly, it relies on experimental (i.e., provisional) products and strategic alliances. In fact, either the “planned” or the “experiential” innovation strategy may be appropriate for a particular firm, depending on the underlying market environment and structure.¹³⁷ The planned (lock-step) process is appropriate in more “certain” environments where underlying changes occur more incrementally and are therefore more predictable.¹³⁸ By contrast, experiential development strategies emerge in market environments which are unpredictable, intractable, and uncertain, where players must rely on accelerated learning, real time interaction, iteration, and flexibility.¹³⁹

In environments that require flexibility, mid-course corrections and mutual learning, structured planning is an inappropriate design strategy and firms instead have to rely on collaborative simultaneous innovation:

[I]nnovation does not necessarily begin with research; nor is the process serial. . . . [I]t does require rapid feedback, mid-course corrections to design, and redesign. This conceptualization . . . also recognizes the constant feedback between and among activities, and the involvement of a wide variety of economic actors and

135. An often-cited example is the decision of Apple computers to sell off its manufacturing facility at a time when it was facing increased demand, in order to increase the flexibility of its operations and benefit from accessing the knowledge of its new collaborator. See Timothy Sturgeon, *Modular Production Networks: A New American Model of Industrial Organization*, 11 *INDUS. & CORP. CHANGE* 451 (2002).

136. Shona L. Brown & Kathleen M. Eisenhardt, *The Art of Continuous Change: Linking Complexity Theory and Time-Paced Evolution in Relentlessly Shifting Organizations*, 42 *ADMIN. SCI. Q.* 1, 31–32 (1997).

137. See Kathleen M. Eisenhardt & Behnam N. Tabrizi, *Accelerating Adaptive Processes: Product Innovation in the Global Computer Industry*, 40 *ADMIN. SCI. Q.* 84 (1995).

138. *Id.* at 107–08.

139. *Id.* at 107.

organizations that need not have a simple upstream-downstream relationship to each other. . . . R&D personnel must be closely connected to the manufacturing and marketing personnel and to external sources of supply of new components and complementary technologies so that supplier, manufacturer and customer reactions can be fed back into the design process rapidly.¹⁴⁰

The nature of the technology and forms of production in these markets alleviate some traditional antitrust concerns, while creating new ones. For example, the rapid changes in technology-driven markets may make market power less durable because product cycles are short and therefore new and better products can quickly replace existing ones. This observation, coupled with the lack of a strong link between observable industry structure and the rate of innovation, which could be translated into easily administrable *ex ante* liability rules, might suggest a sanguine view about the relevance of a nineteenth-century discipline such as antitrust in these modern contexts.¹⁴¹

However, because antitrust is one of the tools for solving the problems of industrial organization where problems in interfirm relationships are seen to harm the public interest, such a sanguine view may be both too complacent and too skeptical of the ability of legal intervention to improve the competitive operation of markets. If, on the one hand, this view reflects a belief that the new principles of industrial organization have solved all problems of interfirm interaction that might affect industry performance and, ultimately, consumer welfare, they are too complacent because problems in these relationships persist as reflected in a number of modern antitrust cases. On the other hand, the view that the problems are of such complexity that the existing antitrust institutions cannot effectively grapple with them may be too skeptical, because legal interventions in the United States, as elsewhere, are already developing solutions that overcome the standard institutional limits of antitrust.

C. Reinterpreting the Cases

A number of antitrust cases, in which the promotion of innovation provided a central pillar of the theory of the case and the role of

140. Thomas M. Jorde & David J. Teece, *Innovation, Cooperation, and Antitrust*, in ANTITRUST, INNOVATION AND COMPETITIVENESS 47, 49 (Thomas M. Jorde & David J. Teece eds., 1992).

141. Robert Pitofsky, Chairman, Fed. Trade Comm'n, Prepared Remarks at the American Bar Association Section of Antitrust Law's Antitrust Issues in High Tech Industries Workshop, Antitrust Analysis in High Tech Industries: A 19th Century Discipline Addresses 21st Century Problems, (Feb. 25-26, 1999) available at <http://www.ftc.gov/speeches/pitofsky/hitch.htm> (last visited on Jan. 20, 2007).

antitrust duties vis-à-vis intellectual property rights was a key issue, illustrate the importance of collaborative innovation, the need for collaborating firms to establish a common language (such as a platform) in order to work together, as well as the problems that can emerge to inhibit such relationships. Antitrust disputes can result from breakdowns in collaboration and may be manifested by one firm's attempts to appropriate the fruits of the joint collaboration and to prevent its collaborators from continuing to innovate. The re-interpretation of the case law also demonstrates both that standard tools of antitrust analysis may be of limited utility in resolving these problems and, as this article will go on to argue, that an absolute view of the exclusivity afforded by intellectual property rights might be a poor guide for decision-makers as well.

1. Intel

The FTC's complaint against Intel arose from a breakdown in a collaborative relationship between Intel and a number of other firms, resulting from a bargaining failure between parties over dividing the fruits of their collaboration. The case involved a deeply collaborative relationship between Intel, who with over 80 percent of the sales in that market was the dominant producer of microprocessors (the "central processing unit of a computer system"),¹⁴² and three companies producing microprocessor-related technology (Digital, Intergraph, and Compaq) that sought the assistance of the FTC. While Intel had an overwhelming share of the microprocessor market, as the FTC recognized, Intel's development and marketing of the microprocessor was dependent on cooperation with a number of other firms, including the complainants:

Intel promotes and markets its microprocessors by providing customers with technical information about new Intel products in advance of their commercial release. . . . [S]ubject to [disclosure] restrictions . . . Intel makes such information widely available to customers, including manufacturers of personal computers, workstations, and servers. Such relationships have substantial commercial benefits for both parties: Intel's customers benefit because the advance technical information enables them to develop and introduce new computer products incorporating the latest microprocessor technology as early as possible, and Intel benefits because those customers design their new computer systems so as to

142. Complaint at 1, *In re Intel Corp.*, No. 9288 (F.T.C. June 8, 1998) [hereinafter FTC Complaint].

incorporate, and effectively endorse, Intel's newest microprocessor products.¹⁴³

The need to collaborate did not arise merely because Intel and the other firms produced complementary products that had to interoperate.¹⁴⁴ As the FTC complaint pointed out, "Intergraph provided Intel with feedback that was essential for Intel's penetration of the workstation market and otherwise validated the use of Intel's products . . . for what was at the time a new market segment for Intel."¹⁴⁵ Further, the three complaining companies were among Intel's chief customers for its microprocessors.¹⁴⁶

Intel's decision to stop providing advance technical information to the three companies was prompted by their instituting litigation in which they alleged that Intel's products infringed their patents. Any dispute between collaborators over the terms, and particularly the price, of licensing intellectual property is a dispute over the allocation of the joint surplus, irrespective of whether Intel's conduct did indeed infringe its collaborators' patents or whether any alleged infringement on Intel's part was conscious or accidental.¹⁴⁷

As Commissioner Swindle recognized in dissenting from the final order, the FTC's theory of anticompetitive harm was somewhat unorthodox because no chain of causation was specified connecting Intel's conduct to its ability to strengthen its market power. The complainant companies were not Intel's competitors, nor were Intel's actions ultimately directed at any direct competitors or designed to strengthen Intel's monopoly in the microprocessor market.¹⁴⁸ Even focusing on the *ex post* effects of Intel's conduct on innovation, Commissioner Swindle commented that there was no direct evidence

143. *Id.* at 3.

144. Digital produced computer hardware and software systems that incorporated Intel microprocessors, and Intergraph designed computer workstations for sophisticated graphics applications based on Intel microprocessors. Compaq produced computer systems products, such as personal computers, workstations and servers, and was Intel's largest customer for microprocessor products. *Id.* at 4, 8.

145. *Id.* at 6.

146. Digital's Alpha was also competitive with Intel's product and, similarly, Intergraph produced the Clipper microprocessor technology, although Intergraph was no longer focusing on it.

147. *Cf.* Carl Shapiro, *Technology Cross-Licensing Practices: FTC v. Intel (1999)*, in *THE ANTITRUST REVOLUTION: ECONOMICS COMPETITION AND POLICY* 350, 356-57 (John E. Kwoka, Jr. & Lawrence J. White eds., 2004).

148. This argument was dispositive of the antitrust issues for the Federal Circuit in the decision against Intergraph in its litigated case against Intel. *See Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346 (Fed. Cir. 1999) (holding that Intel did not violate antitrust laws in its manufactured microprocessors).

that Intel's actions "threatened to harm the consuming public" or stem the "tide of invention and improvement" in the industry.¹⁴⁹

In response, the FTC majority argued, somewhat unpersuasively, that the consent order was a pre-trial settlement which "necessarily prevents [the FTC] from making any final judgment about the actual evidence of harm to competition from Intel's conduct."¹⁵⁰ Notwithstanding this concession, the main concern for the majority commissioners was to create conditions in which the disputing companies could resume their collaboration.¹⁵¹ Further, the majority was concerned about the effect that Intel's resort to self-help (in withholding crucial information from the other firms) would have on the *ex ante* incentives for interfirm collaboration, where a firm which owns a platform can act as a gatekeeper with a disproportionate power to make such a unilateral threat.¹⁵²

2. Microsoft Before the European Commission¹⁵³

The terms of Microsoft's collaboration with other firms in the industry was at the center of the European Commission's decision that Microsoft violated European competition law.¹⁵⁴ The finding of a violation was based, in part, on Microsoft's refusal to provide interoperability information to other producers of work group servers so that their servers could call up functions on the Microsoft Windows operating system, which runs on the vast majority of individual computers. The Commission emphasized the fact that Microsoft had previously cooperated with server producers by providing full disclosure of such information. However, once Microsoft developed, corrected, and launched its own work group server, it ceased to disclose the full information and "disrupt[ed] previous levels of

149. *In re Intel Corp.*, 1999 FTC LEXIS 145, at 6 (1999) (Commissioner Swindle, dissenting).

150. *Id.* at 2 (Statement of Chairman Robert Pitofsky and Commissioners Sheila F. Anthony and Mozelle W. Thompson).

151. Resumption of collaboration was ultimately in Intel's interest as well, which may be why Intel agreed to the FTC's consent order while at the same time vigorously denying that its conduct constituted a violation of the antitrust laws.

152. Of course, it would have been impossible for the FTC to compel the parties to resume their collaboration. Section V.C(2), *infra*, discusses the mechanics by which the FTC attempted to restore the collaboration, with some criticism of its view that the intellectual property laws were the proper place to find the solution to the underlying problems between the collaborators.

153. The next section will also examine the U.S. government's case against Microsoft to focus more specifically on both the threats to innovation and the remedial efforts in the two cases.

154. Case C-3/37.792, *Microsoft v. Comm'n*, 2004 C.E.C., available at <http://www.fsfeurope.org/projects/ms-vs-eu/CEC-C-2004-900-final.pdf> [hereinafter Microsoft EU].

interoperability.”¹⁵⁵ In its decision, the Commission ordered Microsoft to fully disclose the information necessary to ensure complete interoperability to rivals such as Sun and Novell.

In defending its actions, Microsoft relied on its absolute prerogative as the owner of the intellectual property rights in the operating system, arguing that its conduct was necessary to protect its property rights and furthermore, that it was not inconsistent with vigorous competition with its rivals. To the extent that Microsoft invested in infrastructure (including both the operating system and the work group server that interoperates smoothly with Windows), this gave Microsoft an advantage in serving customers needs (to use the *Trinko* language).¹⁵⁶ If this conduct could not strengthen Microsoft’s power, i.e., if Microsoft could not raise the price of the operating system or the work group server, and the consumers could obtain a server that interoperates seamlessly with the operating system, there did not appear to be consumer harm from Microsoft’s conduct.

Apart from emphasizing that Microsoft’s conduct seriously impeded the other firms’ ability to innovate and compete in the market,¹⁵⁷ the Commission argued that if Microsoft could refuse to continue the prior level of disclosure to its rivals, this would lead to a net reduction in innovation, even if mandating disclosure would reduce the incentives for Microsoft to innovate.¹⁵⁸ As Fox has pointed out, the Commission’s claims about *ex post* effects on innovation can be contested, particularly because at the time of the decision Microsoft’s practices had not had an observable detrimental effect on the ability of Sun or Novell to compete effectively to the point where they could be eliminated from the market.¹⁵⁹ Further, at least at first sight the Commission’s claim of a negative net effect on innovation in work group servers could be viewed as speculative, and not rooted in the evidence. Focusing only on the *ex post* incentives, Microsoft’s refusal to provide full interoperability information might spur companies such as Sun and Novell to innovate more vigorously, to make their work group servers attractive to consumers or overcome any interoperability problem with the Windows operating system. Furthermore, given the efficiencies that can result

155. *Id.* at 150.

156. *See supra* note 120 and accompanying text.

157. *See* Microsoft EU, *supra* note 154, at 155 (puts competitors at strong competitive disadvantage), 186 (prevents competitors from innovating), 295 (interoperability information is indispensable).

158. *Id.* at 207–08.

159. Eleanor M. Fox, Address at the Center for European Law, Refusal to Deal: A Right or a Wrong? (Mar. 18, 2005) (on file with the editors).

from bringing two complementary products under the same roof,¹⁶⁰ Microsoft's integrated product could work much better than Sun or Novell's work group servers.

While the decision of the European Commission was based on its apparent assessment of *ex post* effects on innovation in the market under scrutiny, it is arguably better understood as an attempt to protect the incentives and modalities for collaboration necessary to acquire knowledge that spurs ongoing innovation. Specifically, from the very outset Microsoft reaped benefits from its collaboration with Sun and Novell, as well as with other firms whose products used the Windows system, for at least two reasons. First, given that Microsoft was not producing its own work group server, having work group servers that interoperated with Windows made the Windows platform a more attractive operating system and strengthened the indirect network externality. Such interoperation strengthened the applications barrier to entry, and thereby the dominance of Windows, as well as enhancing the value of Microsoft's intellectual property in the operating system. Second, information sharing between Microsoft and Sun or Novell in order to iron out problems and ensure the interoperability of their work group servers with the operating system generated knowledge that would aid Microsoft in developing its own work group server.

Microsoft's refusal to continue to provide full interoperability information to its rivals may be condemned on fairness grounds, but beyond that, it can also stunt innovation by reducing the incentives for firms such as Sun or Novell, or venture capital investors that support such firms, to participate in similar collaborative relationships. Furthermore, if Microsoft's innovation is responsive or requires external sources of learning, the disincentive for collaboration arising from the power to unilaterally terminate such relationships dries up sources of learning and error-correction information essential for the development of both product improvements and new products even by Microsoft itself. This results not only in a static misallocation of resources, whereby resources are shifted away from the products affected, but also leads to a loss in dynamic efficiency if it retards the rate of introduction of new and improved products or processes on the market.

160. Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 98 (2003).

3. IMS

As a final example of the way in which the operation of the intellectual property regime can stunt innovation by arbitrarily assigning ownership over a joint product resulting from a collaborative effort to a single entity, consider another European case with far less remarkable facts. In *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, the defendant IMS had copyright, under German law, in the “brick structure” that was used for the presentation of regional sales data in the pharmaceutical industry.¹⁶¹ While IMS claimed the copyright, the brick structure was developed through a collaborative work group organized by IMS with its customers in the industry. The customers’ provision of information and feedback to IMS was a key factor in the development of the brick structure, which was relevant to the question of whether IMS’s refusal to license the structure was abusive under European competition law.¹⁶² Importantly, what gave the otherwise unremarkable brick structure its value was the decision by IMS’s customers to adopt it as the industry standard for the presentation of marketing information “to which they adapted their production and distribution systems.”¹⁶³ IMS’s customers therefore had an important contribution and a stake in the development of the product in which IMS claimed intellectual property.

In deciding the case, the court reasoned that if the plaintiff, NDC, could introduce new features to the brick structure that the clients might want or prefer, access to the brick structure should not be foreclosed to NDC by an absolute view of IMS’s property right. To adopt such a view would provide a disincentive for the customers to engage in the collaboration in the first place. The court’s decision was based on the premise that NDC sought access to IMS’s copyrighted structure, which was the industry standard, to build upon it by developing an improved product that served the customers’ needs. Thus, the court noted that access to NDC could be granted only if “it intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand.”¹⁶⁴ Given this last requirement, it is not true to say that European law is unambiguously more interventionist or more concerned with the interests of competitors rather than consumers.¹⁶⁵ The *IMS* decision discourages mere price

161. Case C-418/01, *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, 2003 ECJ CELEX LEXIS 303 (2003).

162. *Id.* at 303.

163. *Id.*

164. *Id.*

165. This is a widely held view about the difference between current European and U.S.

competition with an identical product (in a way which may be permissible under the U.S. essential facilities doctrine,¹⁶⁶ to the extent it survives *Trinko*), and instead encourages competition through innovation to build on a product in which IMS's customers had an important stake.

V. ANTITRUST MECHANISMS FOR GOVERNANCE

If collaboration is essential for ongoing innovation by the modern firm, an antitrust policy that promotes innovation may need to provide mechanisms that overcome obstacles in collaborative innovation relationships. If such mechanisms could be developed through antitrust interventions, they would not only promote the private interests of the parties engaged in the collaborative relationship, but they would also advance the public interest, both in receiving the benefits from the specific innovative collaboration and from strengthening the *ex ante* incentives for parties to engage in such collaborations in the first place. However, antitrust has not traditionally been viewed as a tool that fosters interfirm collaboration. In fact, antitrust law is traditionally deeply suspicious of firms coordinating their decision-making, which may be seen as an indicator of collusive behavior.

The antitrust suspicion to collaboration can be traced back to Adam Smith's observation that "[p]eople of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."¹⁶⁷ Smith did not think that there was anything the law could do to prevent such "meetings," but he also suggested that the law should do nothing to encourage or facilitate them.¹⁶⁸ Such a view reflects Smith's more general disapproval of any form of integrated production (including the corporation) which restricted the freedom of the "workman" or "tradesman" and the discipline that competition imposed on them personally.¹⁶⁹ Needless to say, this position no longer reflects the realities of industrial organization in the modern economy.

As was demonstrated in the previous section, the need for collaboration among loosely linked firms, as a form of innovative

competition law. See, e.g., Fox, *supra* note 42, at 149 (discussing criticisms of the goals of European competition law from the perspective of U.S. antitrust).

166. Robert Pitofsky, Donna Patterson & Jonathan Hooks, *The Essential Facilities Doctrine Under U.S. Antitrust Law*, 70 ANTITRUST L.J. 443, 460 (2002).

167. ADAM SMITH, *THE WEALTH OF NATIONS* 128 (Edwin Cannan ed., Random House 1937) (1776).

168. *Id.*

169. *Id.* at 129.

problem-solving, is a response to the turbulence of the underlying environment in which the new organization operates and the limits that such volatility exposed in the top-down model of the corporation. To respond to this turbulence, the firm uses collaboration as an essential tool to disrupt organizational habit, draw upon sources of knowledge external to the organization, and manage the deep uncertainty about the future market landscape, rather than investing everything in only one version of the future. To understand the role that antitrust can play in advancing such collaborations, we must understand both the problems that may beset such relationships and the weaknesses of alternative instruments for resolving those problems.

A. Problems in Team Production

One of the key benefits of including a number of different individual units in a problem-solving team is that individual team members can specialize in a particular aspect of the production process. Specialization creates both productive efficiencies and governance problems for the team as a whole. On the one hand, specialization is beneficial because it generates positive externalities, increasing the marginal productivity of each member of the team so that the total production of the entire team is more than the sum of the output that would be produced by each member individually.¹⁷⁰

On the other hand, specialization also leads to interdependencies between team members that can lead to governance problems of at least three kinds: hidden action, hidden information, and bargaining problems. First, because a team member's effort is difficult to observe by the others, she can free ride on the efforts of others. While this reduces the total output produced by the team, it can increase the share of output (net of the cost of effort) to the shirking member. Second, an individual team member can strategically misinform other collaborators about a piece of data possessed only by that member, again with the aim of increasing his or her share of the surplus produced in the joint collaboration. Ultimately, the team must also decide how to divide the jointly generated surplus among the different team members, and such bargaining can result in prolonged and costly disagreements.¹⁷¹ If the parties have made relationship-specific investments that cannot be used with other collaborators, indispensable team members can engage in opportunistic hold-up of such negotiations. This can increase the

170. Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 AM. ECON. REV. 779, 779 (1972).

171. *Id.* at 779-81.

transaction costs of bargaining substantially, so that they consume the entire surplus generated by the team, making the collaboration *ex post* inefficient.¹⁷²

In sum, greater specialization among team members produces production efficiencies, but it also leads to an “increased inability to see the other person’s point of view.” Specialization also produces a “decrease in the likelihood that competitive market forces will solve coordination problems by . . . the neutral operation of the price mechanism” because specialized team members are not easily substitutable.¹⁷³ The problems of governing collaborative production described above not only create *ex post* inefficiencies, but they also present *ex ante* disincentives to engage in team production in the first place.

Because of its hierarchical and vertically integrated nature, the Chandlerian firm was seen as the mechanism that resolved the problems of joint production.¹⁷⁴ The need for collective decision-making is eliminated by the imposition of hierarchical authority on team members who are brought under the same roof within the organization, thereby attenuating governance problems: the managers of the firm generate rules for subordinates to follow, monitor their performance, reward effort and punish shirking by apportioning their rewards (eliminating the need for bargaining and the risk of hold-up).¹⁷⁵ In other words, management identifies the goals for the firm and decomposes the goals and complex tasks into simpler component tasks, establishing rules for the subordinates to follow in day-to-day operations, thereby overcoming the limits in knowledge, capacity, and rationality of individual team members.¹⁷⁶

It was this benign view of the productive efficiencies of vertical integration that informed the Chicago New Learning and the effort to incorporate those insights into antitrust doctrine. By contrast, the classic antitrust concerns about firm size and integration reflected earlier ideas about the importance of maintaining the freedom of small traders, with market competition as the only disciplining mechanism of atomistic producers. This is why traditional antitrust doctrine was generally inhospitable to contractual restraints on the freedom of

172. *Id.*

173. MILLER, *supra* note 127, at 33.

174. *See generally* Alchian & Demsetz, *supra* note 170.

175. *Id.* at 782.

176. *Id.*

individual traders,¹⁷⁷ vertical mergers and other forms of interfirm collaboration,¹⁷⁸ as well as the unilateral conduct of large firms.

Through integration and planning, the Chandlerian firm was particularly effective at achieving production efficiencies in stable market environments where changes in the patterns of demand, technology and competitive threats were gradual and largely predictable. However, even within stable environments, the task of the managers in the hierarchy was not a simple one. As Miller documents, managerial problems can arise in a hierarchy due to the inability of managers to observe the level and cost of the efforts of subordinates, making it difficult to ensure task compliance either through rules or through incentive schemes that align the interests of principals and subordinates.¹⁷⁹ Moreover, the Chandlerian firm was also plagued by bargaining problems, manifested, for example, through industrial conflict over the distribution of the surplus.¹⁸⁰

Those internal pressures on the performance of hierarchical organizations were exacerbated by external changes to the environment in which they were operating. One such external pressure was the increased volatility of the market environment due to greater openness of once protected domestic markets to international trade. Others included the related rapid changes in technology and consumer demand patterns. The increased instability of the environment made it even more difficult for managers to monitor subordinates because production outcomes were contingent on many external confounding factors, of which the manager could not be aware in advance. As already pointed out, in a turbulent environment, the firm cannot simply rely on executing plans as the main tool for decision-making and organizing production. This places a premium on the ability of firms to operate flexibly, adjust to changes quickly, and innovate constantly. As a result, to succeed the firm cannot limit its goals to reducing the cost of producing and delivering a given product, but instead the firm must develop a robust process for selecting new projects so as not to be left behind by developments in the market.

The process of innovation, through the selection and execution of new products and processes, is not determined solely by the firm's

177. See *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365 (1967) (finding it unreasonable, without more, for a manufacturer to restrict the ability of a downstream dealer to trade in particular geographic areas or with particular persons), *overruled by Continental T.V. Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977).

178. See *United States v. Topco Assoc., Inc.*, 405 U.S. 596 (1972).

179. MILLER, *supra* note 127, at 144–49.

180. *Id.* at 35.

incentives,¹⁸¹ but also by its capacity to acquire knowledge about the world in order to identify and select possible future designs, as well as test, evaluate, and improve them.¹⁸² Because a “single company rarely has the full range of knowledge or expertise needed for timely and cost-effective product innovation,”¹⁸³ a firm may need to search for others already solving a similar problem, or at least some component of that problem. As the ultimate aim is to solve problems for which the firm does not already have an answer (or that the firm has not even identified), the point of such a search is to divert attention from habits and routines within the firm and to generate information about the advantages and disadvantages of identified possibilities, thereby expanding the available avenues, while also limiting the search process and making it manageable.¹⁸⁴

Three principal disciplines used by firms to select and refine future production goals include benchmarking, error detection and correction, and simultaneous design. Benchmarking identifies a set of current or potential designs by surveying the solutions developed by other firms who are solving the same or similar problems.¹⁸⁵ Error detection, on the other hand, focuses on breakdowns in the chains of activity that lead to current disruptions in production or product design.¹⁸⁶ These two disciplines can aid the firm to define a space of design solutions that are similar, but in some ways also better than, current solutions, while at the same time identifying potential collaborators in delivering the new

181. Economics does not have much to say about the goal-selection process of the firm. The entrepreneur is the most poorly explained link in the process of production and distribution, reflecting the deeply ingrained idea that the entrepreneur is powerfully motivated by the profit incentive to bring forward and execute good ideas. Cf. Bengt Holmström & John Roberts, *The Boundaries of the Firm Revisited*, 14 J. ECON. PERSP. 73, 75, 77 n.4, 90 (1998) (suggesting that theories of the firm should direct greater attention to the role of organizational knowledge).

182. In the standard models examining incentive-compatible mechanisms for the subordinates of the hierarchical organization, the principal is assumed to lack information about the agents' costs of performance for a set project with a given revenue stream. The problem of eliciting this information is a difficult one, and as Holmström and others have shown, this problem cannot be solved through budget-balancing incentive payments to the subordinates. However, selecting one project among many for the firm to pursue is arguably the more difficult problem, and not one that the principal can solve without eliciting information about technological capabilities, production constraints, and consumer preferences from the subordinates. MILLER, *supra* note 127, at 138–39.

183. Lam, *supra* note 130, at 973.

184. Sabel, *Real Time Revolution*, *supra* note 11, at 120–25.

185. *Id.* at 120 (benchmarking can also include the development of a test product to gauge the reaction of buyers).

186. *Id.* at 121. In order to make disruptions in the design or production process immediately visible, parts are supplied to each participant as they are needed (“just in time”), otherwise reliance on inventory can obscure current disruptions and delay the correction process.

design to market. The key advantage of these design-selection techniques is that they are likely to be robust because they may “be expected to produce workable answers in turbulent task environments.”¹⁸⁷ For instance, by benchmarking, the firm surveys the field of possible designs, some of which illuminate unforeseen problems and solutions, and increase the reliability of the ultimate product design adopted.¹⁸⁸ To this we might add that benchmarking and error detection could identify design alternatives that the firm decides not to pursue at present, although such alternatives might become more suitable or attractive in the dramatically different market conditions of tomorrow.

Finally, the design process within one firm proceeds simultaneously with the design of component parts (or even complementary products) by its collaborators, because bringing the product late to market can have devastating consequences. In addition, the discipline of simultaneous design helps to modify the initially provisional projects, by generating further error correction information and questioning assumptions about the existing relationships among component parts.¹⁸⁹ The design process can be refined through iterated modification of the initial specifications and through ongoing consultation and contribution from collaborators, including the firms that supply either component parts or complementary products. The process is iterated because rapid and unpredictable shifts in the market make it imprudent to commit excessively to one design version. Furthermore, the collaborators are involved in this process jointly, because changes in the specifications or requirements that could improve the performance of one aspect of product design will require incorporation and adjustments in the design of other components.¹⁹⁰ And, as Jorde and Teece point out, this process of iterated adjustment continues even after a product is developed, produced, and delivered to market.¹⁹¹

For the disciplines described to provide a workable mechanism for joint exploration and production among collaborating units they must satisfy at least two conditions. First, such disciplines must provide a vehicle for collaborating firms to be able to jointly construct a language or platform for their collaboration.¹⁹² Second, in the absence of top-

187. *Id.* at 128.

188. *Id.* at 130–31.

189. *Id.* at 131.

190. *Id.*

191. See Jorde & Teece, *supra* note 140 and accompanying text (noting that customer reactions are fed back into the design process).

192. Sabel, *Real Time Revolution*, *supra* note 11, at 127.

down hierarchical authority, the standard governance problems outlined earlier that may arise in the context of team production and that are said to make collaboration among independent units impossible or unworkable must be resolved either through the disciplines of joint production, or by some other mechanism.

At least on one view, the solution to some of the standard problems of team governance, such as assessing the ability, as well as the level of effort and the veracity of the information provided by collaborators, is inherent in the disciplines of innovation and product design described above. In particular, the “collaborative processes for disciplined joint inquiry about how common projects can be improved to mutual benefit”¹⁹³ also provide mechanisms that ensure the accountability of other collaborators. Precisely because collaborators rely on rich exchange of information in the process of joint design and mutual error correction, this deep form of information provision attenuates the opportunities for collaborating partners to shirk or to withhold relevant information about their capabilities or their costs. In other words, as Sabel points out, the information collaborators must exchange “for the substance of collaborative problem solving in particular cases can be used for benchmarking the abilities and probity of current and potential partners.”¹⁹⁴

However, while the provision of information necessary for joint development attenuates some of the governance problems of team production, it may exacerbate others. In particular, as was seen in some of the antitrust disputes described earlier in this article, such intimate information sharing makes a firm particularly vulnerable to opportunistic behavior by its collaborators, whereby one firm may be tempted to appropriate the fruits of the joint exploration and innovation. In addition, in case of a breakdown in the relationship, one firm could inhibit the capacity of its collaborators to innovate. Finally, antitrust lawyers have always recognized that information sharing among competitors or potential competitors makes it easier for them to coordinate their decisions to subvert the public interest at the expense of third parties such as consumers or other market participants.

The remainder of this section examines a number of alternative mechanisms that could be used to govern innovative collaborations and attenuate the problems identified above, including contracts, intellectual property, and incentive-compatible mechanisms. For various reasons,

193. Gary Herrigel, *Emerging Strategies and Forms of Governance in High-Wage Component Manufacturing Regions*, 11 *INDUSTRY & INNOVATION* 45, 52 (2004).

194. Sabel, *Real Time Revolution*, *supra* note 11, at 132–133.

these governance mechanisms may not always provide an adequate response to the possibility for collaborative breakdown or opportunistic conduct identified above, leaving open the space for an antitrust mechanism to fulfill that role. However, as will be seen, the antitrust mechanisms that may provide an effective response in these contexts do not rely on the traditional antitrust remedies, such as *ex post* awards of treble damages, or on the imposition of unqualified duties to deal with collaborators. In fact, the prospect of such remedies may only escalate the likelihood of opportunistic hold-up. As the antitrust disputes described in the prior section illustrate, once a collaborative breakdown results in litigation, firms can assert overlapping claims of breaches of contractual and intellectual property obligations, as well as breaches of the antitrust laws. The standard antitrust and intellectual property remedies available in such litigation simply exacerbate the incentives for opportunistic conduct. Reliance on the usual armory of debilitating remedies under the intellectual property and antitrust regimes enhances the credibility of a threat to walk out from the negotiations and impose unilateral solutions. Doing so credibly can enable a party to claim a greater portion of the surplus in any settlement negotiations and therefore can provide an *ex ante* disincentive for collaboration.

B. Contracts, Standards, and Incentive-Compatible Mechanisms

1. Governance Through Contracting

The innovative collaborations described earlier involve a much deeper level of interaction between the firms than is present in arms-length contracting of the traditional kind, which effectively assumes that the price at which a known product is exchanged is the only relevant information that traders need to share. But today's firm does not simply purchase homogeneous widgets to use in its production process. Instead, through the disciplines for innovation described earlier, firms collaborate in order to jointly make sense of the problem presented and with the purpose of designing a solution. Moreover, both because the environment is volatile, and because their innovation is transforming the underlying environment, neither the outcomes of the process of mutual exploration, nor the range of future states of the market, are certain or predictable enough *ex ante* to make the parties' future duties or actions susceptible to specification through contractual rules.¹⁹⁵ As a result, the

195. Given such uncertainty, the future duties of the parties would have to be very broad in scope, and parties would be unwilling (or unable) to commit to such duties (e.g., a platform owner could not credibly commit not to integrate into related markets). Alternatively, the duties would be so imprecisely defined that compliance would be difficult to verify for the enforcing

parties' investments in the collaboration are not contractible. After all, a fully specified contract to govern such a relationship would be nothing but a plan, and as we have already shown, planning does not supply an adequate paradigm for the nature and purpose of these collaborative relationships. The inability to specify rules which govern the future duties (or allocate future rights), combined with the need of extensive information sharing to engage in the joint design process, leaves the parties particularly vulnerable to exploitation by their collaborators.

In this context, it does not help simply to characterize these close collaborations as relational contracts, because this restates the problem rather than providing a solution. Presciently, Robert Scott has observed that “[w]e are all relationalists now.”¹⁹⁶ To characterize a contract as relational simply acknowledges the existence of contractibility problems, making it impossible to specify contractual rules that identify the parties' future duties and obligations. As a consequence, instead of specifying the detail, parties must instead rely on some other mechanism to resolve the contracting problem, though it is not obvious what that mechanism would be. The classic relational contract arose in a very different context where parties were locked into long-standing mutual collaboration due to their geographic proximity, or because their assets and investments were specific to the relationship and had no value outside it. Such a relationship foreclosed outside options for the collaborating firms, making it necessary to rely on other mechanisms to resolve disputes as they arose. The standard approaches to resolving future disputes in such relationships, such as the use of formulae to determine mutual prices or other “split-the-difference” mechanisms, are unlikely to be suitable in environments where key inputs to the production and innovation process are not physical, and where the assumptions about the world that are ordinarily embodied in such formulae are constantly changing. Furthermore, assets in contemporary production are increasingly de-specified, reducing the classic lock-in effects among firms. Instead, firms collaborate to learn and problem-solve mutually, which necessitates extensive sharing of information. This leaves them exposed to the possibility of opportunistic exploitation only heightened by the fact that assets are not specific to the relationship.

court (e.g., an undertaking by a platform owner to continue to provide full interoperability information to downstream collaborators).

196. Robert E. Scott, *The Case for Formalism in Relational Contract*, 94 NW. U. L. REV. 847, 852 (2000).

Some have argued that purely informal, reputation-based mechanisms can also ensure collaboration and control opportunistic conduct where the future gains from continued collaboration are sufficient to act as a control on short-run opportunistic deviations by individual firms. However, purely informal, reputation-based mechanisms can ensure cooperation in small groups with a limited and stable membership, where members interact with each other for extended periods of time. In such settings, mutual bonds of trust within a community create a credible threat of punishment for non-cooperative opportunistic conduct by individual members (for example through exclusion and ostracism within the community) even in the absence of rules.¹⁹⁷ Such is not the case in environments with numerous and diverse potential collaborators, who originate from different parts of the world and operate in industries with high turnover, or where some firms have a disproportionate power to make credible threats compared to others. In such settings, firms cannot even rely on the experience of a lengthy ongoing interaction as a source of reputational capital, precisely because the disciplines of joint innovation may require them to engage in deep forms of information-sharing from the very outset of their relationship.

2. Modular Production

Modular production is an environment in which independent decentralized firms can engage and specialize in the production of mutually compatible products, while at the same time minimizing the amount of intimate information that a firm must supply directly to other firms. Such a production regime essentially aims to mimic market exchange, while enabling firms to produce more complex products. According to Langlois, the post-Chandlerian production landscape is

197. Lisa Bernstein has written about the use of informal (reputational) mechanisms as an alternative to formal contracts to control opportunism and ensure continued cooperation in communities of commodity traders, such as diamond or cotton traders. See Lisa Bernstein, *Private Commercial Law in the Cotton Industry: Creating Cooperation Through Rules, Norms, and Institutions*, 99 MICH. L. REV. 1724 (2001) (describing the development of a private legal order in the cotton industry). See also Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115 (1992) (the diamond industry). While Bernstein has argued that these trader communities opt out of the public contract law system (based on the U.C.C.), she also recognizes that the practices of such communities cannot provide the basis for an affirmative alternative to the U.C.C. What sustains informal mechanisms of cooperation in such communities is the stability of the environment in which the traders operate. For example, in the cotton industry, when traders have to deal with others outside of the close-knit Southern communities (in which social and economic ties largely overlap), and the environment becomes more volatile due to the removal of trade protection or thorough the adoption of new technologies, the purely informal reputation mechanisms may no longer be a viable mechanism for ensuring cooperation.

dominated by modularized production, which approximates arms-length relationships, and where “differentiated exchanges are underpinned by a set of market-supporting institutions, notably standard interfaces or design rules.”¹⁹⁸ Standardization of the design interfaces ensures interfirm coordination, allowing firms to innovate within their own sphere, while at the same time reducing the need for firms to share a great deal of intimate information. Langlois therefore argues that modern firms “arise as islands of nonmodularity in a sea of modularity.”¹⁹⁹ In a purely modular system, individual firms focus on innovating within their own field (or unit), so that individual modules can be produced in high volumes and re-combined in novel ways in order to satisfy consumer demand.

However, modular production relationships also rigidify unit boundaries leading to so-called “modularity traps” whereby the range of possible productive innovations is limited by the overall design framework²⁰⁰ (if we assume the existence of an unchanging optimal partition of tasks). Even Langlois has recognized that with rigid boundaries between units, modular systems cannot adequately exist with dynamic learning and unpredictable novelty.²⁰¹ Therefore, it is not surprising, as Sabel and Zeitlin point out, that in the electronics sector (often seen as the paradigmatic example of modular production), pure modularity is not observed.²⁰² For similar reasons, modular systems generally underperform in industries where they compete with non-modular ones, because firms have to outlay substantial investments to adjust their production to the modular architecture, and thereafter modular producers are locked into an irreversible commitment to a product architecture that may turn out to be unsuccessful.²⁰³

In addition, the “market-supporting institutions” that develop interfaces and design rules for collaboration raise institutional problems of their own. The task of drawing up the interface or design rules is often assigned to trade associations or standard-setting organizations.

198. Sabel & Zeitlin, *supra* note 93, at 388–89 (referring to Richard N. Langlois, *Modularity in Technology and Organization*, 49 J. ECON. BEHAV. & ORG. 19 (2002) and Richard N. Langlois, *Chandler in a Larger Frame: Markets, Transaction Costs, and Organizational Form in History*, 5 ENTERPRISE & SOC’Y 355 (2004)).

199. Richard N. Langlois, *Modularity in Technology and Organization*, 49 J. ECON. BEHAV. & ORG. 19, 34 (2002).

200. Henry Chesbrough, *Towards a Dynamics of Modularity: A Cyclical Model of Technical Advance*, in THE BUSINESS OF SYSTEMS INTEGRATION 174, 181 (Andrea Prencipe, Andrew Davies & Michael Hobday eds., 2004).

201. See Sabel & Zeitlin, *supra* note 93, at 396.

202. *Id.* at 395.

203. *Id.* at 396.

In setting interface standards and design rules, such bodies must obtain information from their members, but they do not necessarily have the mechanisms to align the individual interests of the members either with the interests of the collective or the public interest. The problem of joint opportunism of association members who use the standard-setting process as a mask for collusion at the expense of the ultimate consumer or collusive exclusion of other competitors is well-known to antitrust lawyers.²⁰⁴ Moreover, where the standard is used to block entry of competitors who respond by instituting antitrust litigation, it is usually difficult for a court to resolve those antitrust cases by merely enforcing a set of procedural rules and without delving into the substantive question of which is the more appropriate standard or design architecture.

In a similar vein, individual members of a trade or standard association may also have the incentive to subvert the standard-setting process, through strategic provision or withholding of information, in order to influence the adoption of a (sometimes suboptimal) standard that favors the interests of that member. For example, in a number of recent cases, the antitrust authorities have intervened in order to ensure the fidelity of information about patent ownership that a member provides in the proceedings of a standard-setting body.²⁰⁵ While trade associations are often governed by rules, such associations are not hierarchical and therefore can rarely impose a top-down solution. Exclusion from the standard-setting process is the only sanction they can impose for breaches of the association's rules (assuming such rules were in fact breached), yet the threat of such a sanction may not be credible against certain crucial industry players.

Where the platform is privately owned, and especially if it is also ubiquitous due to strong network externality effects, a rigid modular design architecture presents particular problems from an antitrust perspective. If the platform owner pursues a modular structure, other firms (who are focused on developing their individual modules) will be effective in linking to the incumbent platform, but will "lack the knowledge to envision how best to connect to a new architecture,"²⁰⁶

204. *Cf.* *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988) (standard-setting activity used to exclude competitors).

205. *See, e.g.*, *Dell Computer Corp.*, 121 F.T.C. 616 (1996); Complaint, *Union Oil Co. of Cal.*, FTC File No. 0110214, Docket No. 9305 (Mar. 4, 2003), *available at* <http://www.ftc.gov/os/2003/03/unocalcmp.htm>; Complaint, *Rambus Inc.*, FTC File No. 0110017, Docket No. 9302 (June 18, 2002), *available at* <http://www.ftc.gov/os/2002/06/rambuscmp.htm> (alleging anticompetitive acts and practices to deceive an industry-wide standard-setting organization, resulting in adverse effects on competition and consumers).

206. Chesbrough, *supra* note 200, at 181.

thereby limiting possibilities for system-level learning and disruption of the incumbent's ubiquity.²⁰⁷ In such a scenario, the modularity trap resulting from the rigidity of the architecture may actually protect the platform owner's monopoly profits. Not only do individual module producers lack knowledge to disrupt the existing architecture, but the platform owner acquires knowledge from collaborating with downstream firms and, given the advantage afforded by the ubiquity of the platform, can easily integrate into vertically related products.

3. Incentive-Compatible Solutions: The Platform Owner as a Steward

In a thoughtful analysis of the problem identified above, Farrell and Weiser examine whether the platform owner's private choice to either maintain a modular market structure or to integrate adjacent products into the platform is consistent with the market architecture that best promotes the public interest.²⁰⁸ They argue that neither maintaining modularity nor encouraging vertical integration provides a reliable guide for antitrust policy that can be applied across different markets. Furthermore, the antitrust decision-maker cannot decide *ex ante* that one architecture is unambiguously better than the other in a given market, because in every industry there will be benefits from both integration and independence. However, if the profit-maximizing solution of the platform owner is consistent with the socially optimal market structure, this would also support a non-interventionist antitrust policy.

In Farrell and Weiser's model, the platform owner must choose between maintaining a modular architecture or integrating downstream. They argue that modularity promotes innovation by fostering independence between business firms: "Modular industry structures enable independent firms to introduce innovations into an established environment. An open architecture can facilitate innovation in individual components, spur market entry, and result in lower prices."²⁰⁹ In addition, the platform monopolist also benefits if a modular downstream structure fosters innovation in the applications market, because this increases the attractiveness and the value of the platform. However, if the platform owner integrates downstream products into the platform, this can result in transaction cost efficiencies benefiting both the platform monopolist and the public. These may

207. This was an underappreciated aspect of the "applications barrier to entry" that the district court and the D.C. Circuit identified in the Department of Justice and the states' antitrust prosecution against Microsoft. See *United States v. Microsoft Corp.*, 253 F.3d 34, 55 (D.C. Cir. 2001) (considering the barriers to entry in the relevant market).

208. Farrell & Weiser, *supra* note 160, at 103–04.

209. *Id.* at 95.

include efficiencies such as minimizing the risk of downstream holdup, avoiding double marginalization, resolving coordination problems among collaborators, ensuring better interoperability between products, and enhancing the monopolist's ability to alter platform interfaces in order to evolve the platform.²¹⁰

Invoking a variant of the Chicago School single monopoly profit argument, Farrell and Weiser point out that the monopolist has an incentive to promote an efficient market structure in the downstream market. Not only does the monopolist not increase its profit by leveraging itself into the downstream market (because it could always charge a higher price for the platform), but, in fact, it also gains from an efficient downstream market (including a downstream market that promotes innovation in related products), because this makes the platform more attractive to consumers, enhancing the value of the platform for consumers, and thereby increasing the price the platform owner can receive.

However, they also recognize that the foregoing argument does not necessarily support a non-interventionist antitrust policy towards the owner of a ubiquitous platform. This is because the logic of internalizing complementary efficiencies ("ICE") can break down for a number of reasons, giving the platform monopolist inefficient incentives to integrate into the downstream product. They identify at least eight reasons for breakdown in the logic of ICE, including upstream price regulation so the monopoly profit can be derived from monopolizing the downstream market,²¹¹ bargaining failures (between the incumbent and a downstream market participant), the incumbent's fear that a downstream application could develop into potential competition to the platform, and also, perhaps surprisingly, the incompetence of the incumbent (whereby either the incumbent or at least some of its employees do not appreciate²¹² the logic of ICE).²¹³

By contrast to Farrell and Weiser's model where the platform-owner (or the policy-maker) chooses from two alternatives for the downstream market structure (modularity or integration), the model of innovation

210. *Id.* at 97–99.

211. Even if the monopolist is not currently regulated in the upstream market, it might wish to charge a lower price there and get some of the monopoly profits in downstream markets in order to avoid regulation in the upstream market.

212. We should add that employees of the incumbent might make decisions inconsistent with the logic of ICE, either because they do not appreciate it, or where, due to agency problems, the interests of particular decision-makers are driven towards vertical integration, instead of a proper assessment of the interests of the platform owner.

213. Farrell & Weiser, *supra* note 160, at 105–19.

outlined in this article is more general. The pragmatist disciplines of collaborative innovation described earlier are based on the idea that for joint problem solving to be an effective and robust design technique, the collaborators must be “loosely coupled.”²¹⁴ This allows collaborators to be “intimate enough to learn from nuance,” but at the same time sufficiently detached in order to be able “to break with convention and the habits of the group.”²¹⁵ Thus, firms engaged in collaborative innovation need sufficient proximity to benefit from complementarities and mutual learning, while avoiding integration in ways that come to resemble a hierarchy.

Not only may pure modularity be undesirable as a model of interfirm relationships for the reasons identified earlier,²¹⁶ but such a structure may be impossible in industries where collaborating firms engage in joint co-design, as well as where the platform is owned by a private entity. A purely modular market structure seeks to approximate arms-length relationships, with minimal direct information exchange between the platform supplier and downstream market suppliers. However, in production contexts where there is a need for applications at the two levels to be able to interoperate, for the introduction of new products at both levels to be coordinated sequentially, and for the exchange of error-correction feedback in both directions to improve the robustness of designs (including the interfaces) before products can be delivered to market, it seems difficult to even conceive of purely modular relationships.

Once we recognize that to produce robust product and systems designs, firms must engage in deeper forms of collaboration than those implied by pure modularity, the factors identified by Farrell and Weiser that undermine the so-called “logic of ICE” become even more salient. In particular, the rich sharing of information necessary to engage in collaborative production and innovation elevates the risks of opportunism, and heightens the possibility of inefficient incentives for integration. For example, the platform maker might learn sufficiently from the relationship to enable it to integrate in the downstream market and eliminate the value of the investments of the downstream collaborators, or conversely, perhaps out of concern that the downstream collaborators will be able to create products which are a substitute for the platform of the monopolist. The risks of *ex post*

214. Karl E. Weick, *Educational Organizations as Loosely Coupled Systems*, 21 ADMIN. SCI. Q. 1, 3 (1976).

215. Sabel, *Real Time Revolution*, *supra* note 11, at 116.

216. *See supra* Part V.B.2 (discussing the modular production model).

opportunism might also lead to bargaining failures, where firms may become uncertain about the value of the continuing collaboration.

In that context, Farrell and Weiser's observation about the "incompetence" of the incumbent becomes even more important and is generalizable. An incumbent platform owner (or its management) may in fact appreciate the logic of ICE and the benefits from collaborating with independent firms. However, the incumbent's management might not know precisely what the structure of an efficient downstream market should be, particularly where the underlying environment is dynamic, and furthermore, where the joint exploration changes the environment in which the collaborators are operating, thereby generating further uncertainty about the future. The uncertainties about the future regulatory and competitive environment, together with the possibility that downstream suppliers may commoditize its platform by learning from the collaboration, make it more difficult to assess the benefits from continued collaboration and to predict the future actions of the collaborators, thereby providing additional reasons for inefficient downstream integration. This only strengthens the doubt that the platform owner would necessarily be a good steward of the downstream market through its own unilateral decisions.

C. Property Rights in Innovation

While the courts' growing emphasis on stricter protection of intellectual property rights, including those of incumbent monopolists, is based on the traditional rationale for intellectual property protection as a way of maintaining the incentives to invest in innovative projects, allocation of property rights in innovation could also aid in resolving governance problems in interfirm collaboration. Specifically, if the contributions of individual firms to a common innovative venture or design could be clearly delineated and the residual rights in each firm's component protected by the grant of a property right (such as a patent or copyright²¹⁷), this can have a number of beneficial consequences for governance purposes. First, the delineation of the residual rights in each individual contribution could attenuate the concern that one collaborator

217. Reliance on trade secrets is unlikely to be sufficient protection in the context of innovative collaborations because the process of mutual sense-making (including practices such as benchmarking, error detection and correction, and simultaneous innovation) depend upon sharing substantial information among collaborators, as the Intel case illustrates. Thus, a right of exclusivity, such as a patent, would be necessary to allow the collaborators to share information, while at the same time maintaining a proprietary interests in their contribution. By contrast, trade secrets are akin to contractual tools that prevent the collaborators from sharing confidential information with non-parties to the collaboration.

could appropriate the fruits of the mutual collaboration. Secondly, clear assignment of property rights can lead to efficient outcomes from Coasian bargaining and, if the individual contributions to the joint product are clearly identified, it may also reduce the costs of bargaining. Finally, consonant with the traditional understanding of the rationale for the grant of intellectual property, the right to exclusivity of subsequent appropriation provides incentives for each collaborator to invest in that component of the collaboration over which it has residual control.

1. Practical and Conceptual Problems

However, the reliance on intellectual property as a solution to the problem of opportunistic appropriation is undermined by both the practical limitations of the intellectual property regime and the conceptual difficulties associated with allocating rights in innovative contributions in a dynamic production environment. The practical limitations of the intellectual property regime as a solution to the governance problems in team production stem from the fact that the patent and copyright systems emerged against the background of very different processes of discovery and creation, which were more suited to stable environments, compared to the practices for rapid and ongoing innovation described earlier in this article. One key limitation stems from the fact that both copyrights and patents rely on judicial action for *ex post* enforcement. Furthermore, the process of granting the property right *ex ante* for both copyrights and patents also presents problems. A copyright, for instance, subsists in the final embodiment of the creation, and no attempt is ordinarily made to distinguish the contributions of different collaborators towards the final product at the point when the right is created. By contrast, the grant of a patent depends on hierarchical action—namely, an administrative process before the Patents and Trademarks Office (“PTO”) assessing the innovative contribution of the patent application—a process which presents a set of institutional problems.

The institutional infirmities of the intellectual property regime, and particularly the patenting system, have been the topic of extensive academic and policy scrutiny.²¹⁸ Such criticisms focus on the limits of the patent examination process, including the limited time and resources available to examiners, making it difficult for the PTO to conduct a detailed and careful assessment of the merits of each individual patent application. This has been identified as one of the key reasons for the

218. Shapiro, *supra* note 147, at 354.

dramatic increase in the proliferation of patents in recent years.²¹⁹ An even more important limitation, particularly if intellectual property rights are to provide a solution for the governance problem in interfirm collaborations, is the process by which the patent examiner acquires knowledge in order to evaluate a patent application. Patent applications are submitted by the patent applicant, who claims to be the inventor. The novelty and inventiveness of the applicant's contribution disclosed in the patent application are decided in an administrative conversation between the patent examiner and the applicant, by reference to the prior art.²²⁰ Importantly, other claimants do not take part in this process, and the purpose of patent examination is not to identify and allocate the contributions of different collaborators to the claimed invention.²²¹ Once a patent issues, it is presumed valid²²² and any further disputes about either the validity or infringement of a patent are decided in court, where judges face an even greater information disadvantage.²²³ These features of the process, together with the armament of remedies that exist under the intellectual property laws, allow firms to use patenting defensively and strategically, increasing the cost of bringing novel technology to the market in a world where the number of patent grants has grown exponentially.²²⁴

219. See, e.g., Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 588-91 (1999).

220. While a patent can be issued in the name of a number of inventors who jointly developed the invention, the patenting process does not allocate rights as between those inventors. 35 U.S.C. § 116 (2000). Similarly, where two or more applications are submitted claiming the same invention, the process of resolving patent interferences is designed to identify who has the better claim to exclusivity. Such an all or nothing approach, together with the advantages that could flow to those who file, even questionable, applications earlier, may only further encourage opportunistic use of the patenting regime.

221. If the PTO were to be given the mandate to carefully examine the individual contributions to particular innovations in a way which at least attempts to draw those boundaries more carefully (including by extending rights of participation in the process to third parties), this would slow the already slow process of patent examination substantially, making it irrelevant to firms that operate in highly dynamic markets with short product cycles.

222. 35 U.S.C. § 282 (2000).

223. The possibility of litigating patent disputes only heightens the opportunistic incentives for using the patent regime, because a firm can hope to either persuade a relatively uninformed court to assign the entire property right to itself, or can use the threat of the very potent remedies (such as an injunction to shut down the business of its collaborator, or winning an award of damages which in patent disputes can be very substantial) as a tool to gain a greater share of its collaborator's surplus. Cf. *eBay v. Mercexchange*, 126 S. Ct. 1837 (2006) (holding that the grant of a permanent injunction should not automatically follow a finding of patent infringement).

224. See, e.g., Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119 (Adam B. Jaffe et al. eds., 2001).

Because the property-based solution to the governance problem also has conceptual weaknesses, the practical limitations of the intellectual property regime, as a solution to the collaborative governance problem, are unlikely to be overcome by adjustments in the patenting system. Collaborative relationships aid in overcoming the limits of the innovative capacity of the individual firm by allowing problem-solvers to engage in mutual “sense-making” in a fast-moving world. To the extent that this process involves routine re-combination of existing knowledge to find solutions to novel problems, one issue that arises is whether the outcomes of that process are even patentable under ordinary patenting tests. Moreover, if this process of mutual sense-making is more akin to a conversation or deliberation,²²⁵ it is doubtful whether the outcomes of such a process can be delineated in a way that satisfactorily delineates and allocates the individual contributions of the collaborators. Any attempt to do so *ex ante*, or in the course of product design and development, will slow both the patenting and the innovation process to a halt, which is problematic in a world where timeliness to market is important and where product cycles are short. This may explain why in deeply collaborative production relationships, as Helper, MacDuffie, and Sabel explain in the context of the automotive industry, even the residual control over physical assets is not clearly delineated in a way that would provide an effective protection from opportunistic appropriation.²²⁶

2. The FTC’s “Romantic” View of Patents and Pragmatic View of Remedies

The FTC’s complaint against Intel illustrates both some of the problems identified above and one possible way of mediating the excesses of the standard antitrust and IP remedies.²²⁷ The FTC challenged Intel’s resort to self-help in the patent disputes with its collaborators, and as Carl Shapiro has argued, the FTC’s position that the patent disputes should have been decided in court was based on a somewhat “romantic” view of patents.²²⁸ The argument that litigation

225. See Charles Taylor, *To Follow a Rule*, in *PHILOSOPHICAL ARGUMENTS*, 165, 172–73 (1995).

226. Helper, MacDuffie & Sabel, *supra* note 17, at 481 (“Joint control of the assets in the new collaboration shades into joint residual control, and thus a novel form of ownership.”). While this might be seen as a novel form of ownership, the more important point for present purposes is that delineation of property rights, combined with the right to exclude, is not the tool that is used to protect from opportunistic appropriation.

227. See *supra*, section IV.C.1 (discussing FTC complaint against Intel and three collaborative companies).

228. Shapiro, *supra* note 147, at 353.

was a more appropriate forum for resolution of the patent disputes is particularly difficult to defend given that patent litigation is notoriously long and expensive, and that trial judges are ordinarily reluctant to try patent cases that involve evaluation of copious and complex scientific and technical evidence.²²⁹

Despite the legitimate concerns about referring patent disputes to judicial resolution, the remedy ultimately implemented by the FTC's consent decree with Intel reflects an understanding of the role of collaboration in promoting innovation, the forces that can undermine such collaboration, as well as the ways in which traditional patent and antitrust remedies can heighten the incentives for opportunistic conduct. In what may be characterized as a bargaining dispute within a collaborative relationship,²³⁰ the FTC's consent decree can be viewed as an instrument designed to promote a negotiated solution, which preserved the incentives of the parties to continue their collaboration. It achieved this by eliminating the most debilitating remedies that the parties could rely upon if they litigated the dispute, either from the antitrust or intellectual property armament of remedies.²³¹ For example, under the consent decree, the complaining firms gave up the right to seek treble damages under the antitrust laws.²³² Further, the consent decree provided that the complaining firms would not seek an injunction which would shut down Intel's operations as a remedy in the patent litigation. Intel, on the other hand, gave up its right of self-help against the complaining firms, whereby it had stopped providing advance technical information, which retarded their ability to innovate.

If firms in the position of the complainants fear that the contributions they bring to the relationship and joint innovation could easily be appropriated by Intel's unilateral overreaching, this would be a disincentive for such firms to invest in the collaboration.²³³ Similarly, Intel, as the platform owner, would be reluctant to engage in closer collaboration with other firms if this results in an automatic *ex post* duty to continue to collaborate even in the face of opportunistic conduct by downstream firms. By eliminating the most extreme litigation options

229. The implication is that ultimately nobody is eager to resolve intellectual property disputes, particularly in technologically complex settings.

230. Farrell and Weiser, *supra* note 160, at 112–13 (discussing bargaining problems within collaborative relationships).

231. This approach was important given that the main obstacle to a negotiated solution is the parties' perceptions of their outside options and their (biased) judgments about the probabilities with which such alternatives are likely to eventuate.

232. Only Intergraph proceeded with its ultimately unsuccessful antitrust suit against Intel. *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346 (Fed. Cir. 1999).

233. *Cf.* Pitofsky, *supra* note 94, at 549–50.

that gave the parties reasons for hold-out,²³⁴ the FTC consent decree increased the likelihood that the disputes in the collaborative relationship could be resolved.²³⁵ Therefore, under this solution, rather than being the optimal mode for resolving the disputed issues, the possibility of a long and protracted patent litigation, in which a court would reach a one-sided and perhaps arbitrary decision, can be viewed as the penalty default if the parties did not reach a negotiated resolution of that dispute.²³⁶

3. “Dilution” of IP Rights

This discussion also illustrates some of the problems with the ascendant view that strict protection of intellectual property rights is essential to providing incentives for firms to invest in innovative ventures and that the *ex post* imposition of antitrust duties on the successful innovator only dilutes those incentives. For instance, Elhauge has criticized courts and scholars who have advocated the imposition of antitrust duties on a patent owner based on a case-by-case assessment of the effect of such duties on the innovation incentives in the industry in the following terms:

[B]oth [Scherer’s] theory and evidence are purely *ex post*. They cannot tell us whether, if these firms had realized the law would impose this risk of compulsory patent licensing, they would have had sufficient *ex ante* incentives to create the initial inventions . . .²³⁷

In words that resonate with Justice Scalia’s analysis in *Trinko*, Elhauge argues that “the *prospect* of future monopoly profits is necessary to encourage *ex ante* innovation and investment to create that monopoly power.”²³⁸ He goes further to argue that even in cases where

234. Shapiro correctly recognizes that the underlying breakdown in the *Intel* case was an attempt to engage in opportunistic hold up by a party to a collaborative relationship. His is not inconsistent with the FTC’s view of the underlying problem. The only difference is that the FTC was of the view that Intel could also have been behaving opportunistically, and disapproved of its attempt to foreclose the other firms from making their claims by use of the power arising out of Intel’s ubiquity in the microprocessor market.

235. Intel consented to the FTC decree, even though it consistently contested that it violated the antitrust laws, presumably because of its non-punitive nature. Further, at least Digital and Compaq had apparently already moved towards a negotiated resolution of the dispute with Intel. See Shapiro, *supra* note 218, at 358, 361.

236. Michael C. Dorf, *Legal Indeterminacy and Institutional Design*, 78 N.Y.U. L. REV. 875, 946 (2003) (defining a penalty default as a “state of affairs so unpalatable to all parties that they have no choice but to hammer out some solution that is, from the perspective of the default, a Pareto improvement”). See also Bradley C. Karkkainen, *Information-Forcing Regulation and Environmental Governance*, in *LAW AND NEW GOVERNANCE IN THE E.U. AND THE U.S.* 293 (Grainne de Búrca & Joanne Scott eds., 2006).

237. Elhauge, *supra* note 7, at 301.

238. *Id.* at 298 (original emphasis).

the patent monopoly was created improperly, the imposition of antitrust duties *ex post* would be inappropriate.²³⁹

Forced sharing of the improperly created monopoly does not remedy the past mistakes. Rather, it worsens them by undermining not only the monopolist's incentives to maintain and enhance the value of the property that gives it monopoly power but also rival incentives to duplicate the functional benefits of that property. And it creates enormous administrative difficulties by requiring antitrust judges and juries to set the reasonable price for access, a task rendered only more difficult by the fact that optimal prices will continually vary over time with changing market conditions, but will end up being assessed retrospectively by antitrust tribunals after years of adversary proceedings, with any wrong guess being punished by treble damages.²⁴⁰

The literature documenting the pragmatist disciplines for ongoing innovation by firms in dynamic industries, by relying on simultaneous collaborative problem-solving, also suggests caution about viewing property rights in innovation in absolute terms, as if they have resulted from dedicated unilateral research efforts in a single project by a single enterprise. A firm operating in turbulent market conditions may have neither the capacity nor the incentive to invest in such a research effort. Yet a producer in a dynamic market cannot afford not to innovate because market conditions change constantly and failure to keep pace would be disastrous. The tendency towards simultaneous experiential innovation, based on provisional and iterated solutions, arises precisely because it is risky for the firm to invest too much in a single research project the success of which is contingent upon a particular future state of the world. Further, product or process improvements that result in intellectual property protection can result through learning from other actors involved in the production process. To bring a product to market, a firm depends upon the information supplied by users about problems they have encountered, or feedback from vertically related firms in the process of joint co-design. Thus, each firm learns from its collaborators so as to improve the robustness of the joint solutions.

Dominant firms that have a gate-keeping function, particularly in industries with strong indirect network effects, benefit significantly from their collaboration with other firms. Such collaborations enhance the value of the platform, the barriers to entry that prevent a challenge to the dominant firm, and the value of intellectual property. However,

239. Or one could add, provided by the government or through governmental subsidies or protection.

240. Elhauge, *supra* note 7, at 307–08.

such firms also have a disproportionate power to force a resolution of emerging disputes in their own favor. An untrammelled right to refuse to continue to cooperate (even where any *ex post* effects on consumers in the specific market or products under scrutiny are difficult to demonstrate to establish liability), reduces the *ex ante* incentives for other firms to participate and invest in collaborative efforts or the incentives of venture capitalists to finance such firms who would be subject to significant hold-out costs from a termination of the collaboration. Rather than providing a solution to this problem of collaborative governance, too absolute a view of property rights in innovation may only strengthen those disincentives.

D. Antitrust Governance

The principal argument presented in this article is that the process of innovation in highly dynamic markets relies upon collaborative modes of production among decentralized units in a way that charts a path between purely arms-length or modular relationships (which are either impossible or undesirable given the nature of production) and hierarchical relationships (which allow for integrative efficiencies and aim to control the opportunism of subordinate units, but also stifle inventive learning). Despite the inherited skepticism about the possibility of collaboration among independent units, if such collaborative innovations are proliferating both in new economy, as well as in more traditional industries, it must be that in most situations these relationships are effectively governed. Collaborator opportunism is checked by both the necessity for rich information sharing to engage in innovation, the promise of gains from continued collaboration, together with some formalization of the disciplines of joint co-design.

However, in those contexts where a particular firm has the power to subvert the collaborative effort and unilaterally impose the terms for the resolution of disputes, the governance instruments mentioned above may fail to provide an effective response to control such opportunism. Nor would the classic antitrust remedies provide an effective response to this problem either. The solution to the problem of opportunistic misuse of the collaborative efforts may not be in ordering a firm to pay damages for the violation of an antitrust rule, if a court is unable to formulate a rule of liability that could be applicable across different economic contexts. Indeed, if *ex ante* rules could adequately resolve the governance problem, the parties may have generated those rules themselves. Similarly, the solution does not lie in the imposition of a duty to deal or a prohibition on vertical integration by the platform owner, which would not adequately control for opportunistic conduct by

the other collaborators or take into account possibilities of integrative efficiencies.²⁴¹ Finally, any more nuanced substantive remedy designed and implemented by the court would involve a particularly undesirable form of hierarchical intervention, namely a legal or administrative solution to product selection and design problems.

Perhaps in recognition of both the significance of collaborative relationships for innovation and the limits of the standard antitrust remedies as a response to situation where there is some collaborative breakdown, some more recently implemented antitrust remedial mechanisms reflect a greater sensitivity on the part of authorities to the problems that may arise in innovative collaborations and the need to aid or rebuild cooperation in the industry under scrutiny. Instead of damages or court-supervised duties to deal, such remedies establish a regime for the resolution of concrete problems or disputes among collaborating firms, while also promoting learning about the industry even by the regulator. The remedies evaluated in the remainder of this article stem from different proceedings against Microsoft, including the main U.S. litigation by the Department of Justice together with the Attorneys General of twenty states, and the European Commission's decision that Microsoft violated E.U. competition law. For present purposes, the principal focus is on the features incorporated in the design of these mechanisms to generate knowledge through monitoring interfirm relationships and overcome the limits on the capacity of courts and administrators to effectively oversee the process, but also to ensure accountability of the new bodies which were created to aid the implementation of these remedies.

1. Schumpeterian Competition or Evolution of the Platform

Before examining the design of the remedial mechanisms, it is worth saying something about the theory of the nature of the antitrust problem in the various Microsoft cases, in light of the model of collaborative innovation presented in this article. The U.S. government's prosecution of Microsoft was based on the company's practices directed at so called "middleware" applications such as the Netscape Browser and the Java Virtual Machine. Microsoft implemented a number of strategies, through its relationships with other firms, in order to prevent the growth of these middleware applications. Those strategies were motivated by Microsoft's fear that, because middleware applications expose their own

241. As a corollary, the hierarchically imposed structural remedies involve the judge or administrator identifying the optimum market structure, which cannot be done both because of the complexity of the underlying production relationships and the instability of the environment in which the firms operate.

application programming interfaces (“APIs”) (which means that applications could be written for middleware), they could replace or commoditize the Windows operating system. Microsoft attempted to forestall the growth of middleware applications not only by developing its own alternative products, such as the Internet Explorer browser, but also integrating them into the Windows platform.

Moreover, Microsoft also instituted a set of exclusive contracting practices with downstream suppliers such as computer equipment manufacturers, other platform suppliers (Apple), as well as software applications suppliers, requiring them not to support Netscape’s browser, as a condition for Microsoft’s continued cooperation. Given the overwhelming dominance of Windows in the operating systems market, as well as of Microsoft Office in basic software applications, Microsoft could impose such conditions. Microsoft went further and, by invoking its intellectual property rights, dictated some of the micro details of the way in which the computer equipment manufacturers would configure personal computers, including the appearance of the desktop after the initial start up of the system.²⁴²

Before the D.C. Circuit, the government’s case was formulated primarily as a monopoly maintenance claim under section 2 of the Sherman Act.²⁴³ In particular, the government claimed that through its practices directed at Netscape and Java, Microsoft was aiming to protect its operating system monopoly by extinguishing the threat that the middleware applications could undermine or replace the ubiquitous Windows operating system. To establish such a claim, modern antitrust analysis ordinarily requires the showing of a likelihood of anticompetitive effects before a finding of antitrust liability, which in this case required proof both that the targeted middleware applications could pose an alternative to the operating system *and* that extinguishing those applications strengthened Microsoft’s market power. Yet the court found Microsoft liable even though the record did not demonstrate that either Netscape or Java were anywhere near a point where they could expose sufficient APIs for applications to be written, let alone up to a stage where they could offer a viable alternative to the Windows operating system.²⁴⁴

242. Amanda Cohen, Note, *Surveying the Microsoft Antitrust Universe*, 19 BERKELEY TECH. L.J. 333, 340 (2004).

243. 15 U.S.C. § 2 (2000).

244. The court overcame this hurdle by invoking the principle that a strong showing of causation was not required where the suit is brought by the government as a plaintiff.

Some commentators have explained the court's finding of antitrust liability in the case by arguing that the underlying theory of the U.S. case against Microsoft was based on a theory of Schumpeterian²⁴⁵ competition in the market for platform software, rather than a natural monopoly theory. According to this view, because of the strong network effects and increasing returns to scale in the supply of the operating system, firms compete to capture the field or the entire market.²⁴⁶ The problem with Microsoft's conduct was that it sought to impose a number of contractual restrictions aimed at forestalling innovation that would, in turn, extinguish emergent competitors for the field, thereby impeding the mechanisms of Schumpeterian competition in their nascence.

However, in light of the model of collaborative innovation outlined earlier, it is possible to engage in a degree of revisionism and provide a somewhat different interpretation of the original Microsoft case and its progeny. Microsoft's ability to use its dominance to impose contractual restraints on various firms operating in related markets impeded the possibilities for collaboration among such firms, even though such collaborations would result in successful problem-solving innovations that Microsoft might not have been able to develop itself. Thus, such collaborations could have enhanced the value of Microsoft's platform. Effectively, Microsoft's conduct was an attempt to impose a hierarchical structure on interfirm relationships in the products that were related to the operating system. In that market structure, Microsoft would be primarily responsible for the selection of goals and innovation projects, while other firms would largely be delegated the task of implementing decisions and engaging in limited innovation within those spheres left open by Microsoft.²⁴⁷

Irrespective of the question whether it was Microsoft's effort and acumen that led to the leading position of Windows as an operating system, this quasi-hierarchical market structure would retard innovation because it would impede both independent creativity and disruptive innovation. While those practices might, over time, have reduced the value of Microsoft's platform, thereby making it more vulnerable to a

245. See generally JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM AND DEMOCRACY* (1976) (describing the process of creative destruction, whereby the dominance of a previous supplier is undermined by a creative new solution).

246. Timothy F. Bresnahan, *A Remedy That Falls Short of Restoring Competition*, *ANTITRUST*, Fall 2001, at 67.

247. This form of inter-firm relationships resembles the modular market structure described earlier, except that the hierarchical model does not face the problem of collective action in any effort to evolve the platform.

challenger, such a challenge might occur too far in the future and its emergence would be uncertain, given that, if unchecked, Microsoft had the ability to scuttle (or appease) potential challengers early on. Such actions were not necessarily in the interest of Microsoft either, but instead were precipitated by the profound uncertainty faced by the company about the future competitive landscape. Thus, rather than enabling Schumpeterian competition, the government's case is more appropriately seen as promoting an "evolutionary" form of competition. Preventing Microsoft from imposing the contractual restraints on collaboration would improve the level of innovation within Microsoft's platform, also enabling Microsoft to better realize its own self-interest, rather than relying on the uncertain future threat of a Schumpeterian rival as the key disciplining mechanism.²⁴⁸ Analysis of the structure of the remedial mechanisms in the Microsoft cases, which essentially established an alternative forum for resolving disputes arising between Microsoft and other firms in the industry, provides further support for this view.

2. Remedies for Joint Development

a. Department of Justice Negotiated Decree

Following the decision of the D.C. Circuit, the Department of Justice, under a new administration and with the agreement of nine of the prosecuting states, decided not to litigate the liability questions remanded or to ask the district court to develop its own remedy. Instead, the Department of Justice settled the case through a remedial decree negotiated with Microsoft. There are two principal criticisms that can be directed at the negotiated remedial decree. First, it may be argued that the decree was a result of the unwillingness of the Department of Justice, under a new administration, to prosecute the case to its end. By not seeking a more far ranging remedy (particularly by contrast to the structural break up that had been originally requested by the government and ordered by Judge Jackson). According to this view, the Department of Justice, in effect, gave away its appellate victory.²⁴⁹

248. The fact that such a rival does not appear to have emerged thus far, and the fact that Microsoft has turned many of its antitrust foes into collaborators is further evidence that this is a more appropriate view of the Microsoft litigation. *See, e.g.,* Steve Lohr, *Antitrust Suit Turns Into A Partnership For Microsoft*, N.Y. TIMES, Oct. 12, 2005 at C2 (describing the partnership between Microsoft and RealNetworks, one of the antitrust complainants both in the U.S. and Europe, to develop an open alternative in the digital media market).

249. *See, e.g.,* Fox, *What is Harm to Competition?*, *supra* note 109, at 93–96, 110; *see generally* Bresnahan, *supra* note 246, at 67 (criticizing the settlement as protecting Microsoft's monopoly).

Yet, on this specific point, it is worth pointing out that a decree on fairly similar terms was negotiated between the Department of Justice and Microsoft even before the district court's original findings of antitrust liability.²⁵⁰

Secondly, it can also be argued that the negotiated decree imposed significant implementation costs on both the competition authorities, Microsoft and the court because it was not in the form of a one-off antitrust remedy. Instead, the decree identified a number of forms of conduct that were condemned in the appellate court's decision and imposed restrictions on such conduct, together with a mechanism for ongoing supervision and monitoring of Microsoft's compliance. This form of remedy may be seen as either too timid, or as producing unnecessary costs of ongoing compliance and uncertainty for the regulated entity.

However, the remedy was quasi-regulatory as a consequence of the complexity of the problems presented by the case. Given the dynamic nature of the technology, a one-off injunctive decree (with a list of prohibitions based on previously identified conduct by the company) could not have provided an effective remedy, as much as it would be a recipe on how to effectively evade the letter of the injunction.²⁵¹ Further, even if it were possible to devise an effective behavioral remedy based on simple injunctive rules, such a remedy would not be self-executing and would require some form of supervision and monitoring. Even a structural break-up of the company, which appears to be a one-off surgical remedy, would involve the court—or some other entity—in ongoing resolution of a mire of difficult and often intractable problems. After all, structural separation requires the specification of numerous details about the micro-level operations, including issues such as staffing, the permissible forms of future integration and collaboration among the newly separate entities.

By contrast to the standard court-centered antitrust remedies, the mechanism adopted by the decree was not hierarchical and did not involve the court in daily operations of the company, nor did it place all implementation responsibilities with a single body.²⁵² The process of

250. See Comments of Computer and Communications Industry Association on the Revised Proposed Final Judgment (Jan. 28, 2002) available at http://www.usdoj.gov/atr/cases/ms_tuncom/major/mtc-00030610b.pdf (comparing the final negotiated decree to the draft remedies proposed under Judge Posner's mediation).

251. The experience with the original Microsoft consent decree, alluded to earlier in this article, only confirms this view.

252. This is in stark contrast to the AT&T antitrust decree, where the court was at the center of the implementation and adjustment of the remedy, which ultimately restructured the entire

monitoring Microsoft's conduct and resolving questions and disputes that would emerge in the course of implementation was more diffuse, through four principal channels. These channels are not only mutually supportive, but they also encourage mutual learning in a way that relaxes the constraints on the knowledge and capacity of all actors involved in the implementation process, including Microsoft as the regulated entity.

The first channel, through "peer evaluation," entrusts the primary supervisory responsibility for the implementation of the antitrust remedy with a court appointed technical committee of experts²⁵³ in software design and programming.²⁵⁴ The primary function of the committee is to monitor Microsoft's compliance with the decree, receive complaints, and relay those complaints to an internal compliance unit established within Microsoft (what we might call the "internal self-evaluation" channel).²⁵⁵ Microsoft's internal compliance unit coordinates the company's efforts to comply with the decree and has the additional role of educating Microsoft employees about the requirements of the decree and the antitrust laws more generally.²⁵⁶ Further, the remedial mechanism leaves a large degree of autonomy to Microsoft to devise its compliance strategy and its response to any complaints forwarded through the technical committee.²⁵⁷

The third channel of implementation (the "reporting channel") is based on the process of joint status reporting, which describes the strategies adopted as part of implementing the decree and the outcomes achieved. Microsoft and the Department of Justice regularly produce Joint Status Reports describing and evaluating Microsoft's compliance with the remedy decree. The reports focus on the extent to which the steps and measures undertaken by Microsoft have achieved the goals pursued by the decree, and propose alternative measures where a

telecommunications industry. The original Department of Justice action against AT&T that led to a consent decree settlement was in 1949. *United States v. Western Elec. Co.*, 1956 Trade Cas. (CCH) ¶ 68,246 (D.N.J. Jan. 24, 1956). The main case against AT&T was in 1974, and was also settled with a consent decree after Judge Greene denied summary judgment for AT&T. *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982). That antitrust decree regulated the telecommunications industry until the enactment of the Telecommunications Act in 1996.

253. *United States v. Microsoft Corp.*, CA No. 98-1232(CKK) (D.D.C. Nov. 12, 2002) (final judgment), at IV.B.3(c), available at <http://www.usdoj.gov/atr/cases/f200400/200457.htm> [hereinafter Microsoft Decree]. The Technical Committee is the only group that has access to the Windows source code to aid their monitoring of the company's compliance and the resolution of future disputes. *Id.* at IV.B.8.c.

254. *Id.* at IV.B.2.

255. *Id.* at IV.B.8.

256. *Id.* at IV.C.

257. *Id.* at IV.D.3(c).

particular problem is seen to persist.²⁵⁸ The final implementation channel (the “reserve (or penalty) channel”) is vested in the court by the court’s decision to retain jurisdiction to revisit the decree and make additional orders, should it determine that Microsoft’s compliance is unsatisfactory.²⁵⁹

b. The States’ Special Master

While approving the decree negotiated by the Department of Justice, Judge Kollar-Kotelly refused to implement the alternative remedial mechanisms that were requested by the nine states that disagreed with the Department of Justice’s approach. The non-settling states continued with the litigation and argued that the district court should impose its own remedy based on the D.C. Circuit’s findings of antitrust liability against the company. In rejecting this invitation, the court expressed the view that the imposition of a two track remedy would be too onerous for Microsoft. Further, it specifically rejected all of the alternative remedial proposals by the non-settling states and their independent expert witnesses.

The non-settling states were strongly opposed to the Department of Justice proposal for the technical committee and asked the court to appoint a special master and a special committee of independent directors responsible for antitrust compliance within Microsoft instead. The court did not appoint a special master to oversee the implementation, although it did accede to the states’ request for a special committee of independent directors on Microsoft’s board and an internal compliance officer with a more independent status within Microsoft:

[T]he compliance officer position proposed by [the non-settling states] is appointed by a committee comprised of at least three members of the Microsoft board of directors who are neither present, nor former, Microsoft employees. The compliance officer in Plaintiffs’ proposal is protected against abrupt termination by a provision which permits removal only by the Chief Executive Officer of Microsoft with the concurrence of the committee that appointed the officer. The

258. See, e.g., *United States v. Microsoft Corp.*, CA No. 98-1232(CKK) (D.D.C. Nov. 21, 2006) (Status Report on Microsoft’s compliance with the Final Judgments), available at <http://www.usdoj.gov/atr/cases/f219800/219800.htm>. Other Joint Status Reports are available at http://www.usdoj.gov/atr/cases/ms_index.htm#settlement.

259. Judge Kollar-Kotelly declined to impose any limits on the court’s jurisdiction to intervene in the matter. *United States v. Microsoft Corp.*, 231 F. Supp. 2d 144, 200–02 (D.D.C. 2002). Not only can the parties apply for further orders, but the court can “*sua sponte*” issue orders and directions. *Id.* at 201. See also Cohen, *supra* note 242, at 344.

compliance officer reports to the Chief Executive Officer and to the committee which appointed him or her.²⁶⁰

In a further significant rebuff to the remedy proposal of the non-settling states, the court also refused to allow third parties to have direct access to the remedy implementation mechanism in order to make complaints about Microsoft's conduct and allege violations of the remedial decree.

Although the non-settling states did not persuade the court to impose a different substantive remedy, their intervention served the useful purpose of allowing the court to compare the decree negotiated by the Department of Justice to a specific alternative remedial proposal. This made it necessary for the court to articulate reasons for rejecting the states' alternative proposals. In the ordinary course of approving settlement decrees negotiated by the Department of Justice, a court is presented with an already finalized proposed decree which it must assess pursuant to the Tunney Act.²⁶¹ In the Tunney Act, Congress empowered courts to examine antitrust settlement decrees and to approve the entering of such a decree, only if the court was satisfied that the settlement proposal was in the "public interest."²⁶² While this statute potentially gives courts a very broad mandate, the courts' role is constrained by limits on judicial capacity to perform a searching review, particularly because the judge performing such review is largely dependent on information supplied by the settling parties. Even though the Tunney Act allows third parties to provide comments on the proposed decree, such comments can be either insufficient²⁶³ or overwhelming,²⁶⁴ so that the court must rely on the Department of Justice to process and digest those comments.²⁶⁵ The court is constrained not only by its limited capacity to appreciate the significance of those comments but also by its inability to reformulate

260. *New York v. Microsoft*, 224 F. Supp. 2d 76, 182 (D.D.C. 2002). The internal compliance officer was also to report to the plaintiff states.

261. 15 U.S.C. § 16(b)-(h) (2000).

262. § 16(e).

263. *United States v. Microsoft Corp.*, 159 F.R.D. 318, 325 (D.D.C. 1995) (in evaluating initial Department of Justice consent decree with Microsoft under the Tunney Act, judge received only five largely unilluminating submissions).

264. *See* Response of the United States to Public Comments on the Revised Proposed Final Judgment, 2002 WL 32151978, ¶ 4 ("During that period, the United States received 32,329 public comments. This was by far the most comments ever received on any proposed decree under the Tunney Act. By comparison, the number of comments received on the RPFJ vastly exceeds the number received in the AT&T case—which completely restructured the telecommunications industry—by more than an order of magnitude.").

265. *See id.* at ¶¶ 4-8 (approximately 10,000 submissions favored the decree, over 12,000 opposed, and the rest expressed no direct view either way).

and propose a concrete alternative to the decree under review. As a result, negotiated decrees are reviewed pursuant to the Tunney Act under a fairly loose and deferential standard, whereby the decree is approved if it was negotiated bona fide (in the absence of improper influences) and is within the realm of the public interest.²⁶⁶

c. The European Monitoring Trustee

The goal of European Commission's proceeding against Microsoft was to promote, or rather re-establish, Microsoft's collaboration with rival suppliers in related markets, while at the same time neither preventing Microsoft from integrating downstream products into the platform, nor chilling the innovation incentives for all industry participants.²⁶⁷ In light of the complaints by work-group server producers that were described earlier in the article, the Commission mandated Microsoft's continued cooperation with firms that produced work-group servers in the following terms:

The natural remedy to Microsoft's abusive refusal to supply is an order to supply what has been refused.

....

Microsoft should be ordered to disclose complete and accurate specifications for the protocols used by Windows work group servers in order to provide file, print and group and user administration services to Windows work group networks.²⁶⁸

At least at first blush, the Commission's injunction that Microsoft had to supply the information necessary for the interoperability of Windows with non-Microsoft work group servers appears to be a standard injunctive remedy that mandates a particular conduct to achieve a specific outcome. However, as the Commission recognized in its decision,²⁶⁹ this seemingly simple injunction generated numerous further questions: about the nature and scope of the information that was to be disclosed to server producers, about ways to ensure that such disclosure was timely, and about setting the terms of the disclosure so that they are neither unreasonably burdensome nor discriminatory.²⁷⁰

266. *Microsoft Corp. v. United States*, 56 F.3d 1448, 1460 (D.C. Cir. 1995). See *United States v. Gillette Co.*, 406 F. Supp. 713, 715-16 (D. Mass. 1975) (holding that the Tunney Act is a check on the government's good faith in settling the case, although the court does not determine if the settlement is the best one that could be obtained).

267. See *supra* Section IV.C.2 (discussing the European Commission complaint and its decision that Microsoft violated European competition law).

268. *Microsoft EU*, *supra* note 154, at 276-77.

269. *Id.* at 279.

270. The uncertain scope of the duty imposed on Microsoft is confirmed by more recent events associated with implementing the European decree. The first report from the Microsoft

The Commission's decision provided no detailed exhaustive rules to govern those questions, identifying instead, in fairly broad terms, the objectives of the remedy.²⁷¹ In addition, similar to the approach adopted in the U.S. decree, the Commission delegated the implementation detail to a monitoring mechanism established by the decree, in order to supervise Microsoft's compliance conduct.²⁷²

The effective monitoring of Microsoft's compliance with this Decision will therefore have to be ensured by establishing a suitable monitoring regime including a monitoring trustee. Microsoft will have to submit a proposal to that effect. Guiding principles for Microsoft in this respect are outlined in the following.

The primary responsibility of the Monitoring Trustee should be to issue opinions, upon application by a third party or by the Commission or *sua sponte*, on whether Microsoft has, in a specific instance, failed to comply with this Decision, or on any issue that may be of interest with respect to the effective enforcement of this Decision.²⁷³

The monitoring trustee was selected by the Commission from a list of experts provided by Microsoft.²⁷⁴ The remedy mandated that, for the purpose of performing its functions, the trustee be given wide access to

Monitoring Trustee found initial disclosures by Microsoft to be so inadequate, that a programmer or team would be "wholly and completely unable to proceed on the basis of the documentation." While Microsoft's initial response was to argue that the Commission was requiring more than was set out in its original order, the company subsequently offered to "go beyond the 2004 Decision and offer a license to the source code" of the Windows system, a proposal which met with mixed reactions from both within the Commission and Microsoft's competitors. *Microsoft Offers to Open Windows Code, But European Commission, Critics Doubtful*, 71 Antitrust & Trade Reg. Rep. (BNA) No. 1755, at 358 (Feb. 3, 2006).

271. Microsoft EU, *supra* note 154, at 279 ("The objective of this Decision is to ensure that Microsoft's competitors can develop products that interoperate with the Windows domain architecture natively supported in the dominant Windows client PC operating system and hence viably compete with Microsoft's work group server operating system."), 280 (to promote "the objective of *ensuring that competition in the common market is not distorted*") (quotations omitted).

272. *Id.* at 289–91. Note that the notion of "compliance" in this context is quite peculiar, in the sense that the Commission's decision did not specify what level of cooperation Microsoft needed to maintain with its rivals in this sector (there are no rules specifying the protocols or elements of code that Microsoft must make available). Instead, the obligation on Microsoft is to supply adequate levels of interoperability information and the definition of what level of cooperation is adequate was not specified *ex ante*, and was left to be determined as part of the implementation process.

273. Microsoft EU, *supra* note 154, at 289.

274. News Release, European Union, Delegation of the European Commission to the USA, Microsoft Antitrust Case: EU Commission Appoints Trustee to Advise on Compliance with 2004 Decision (Oct. 05, 2005), *available at* <http://www.eurunion.org/News/press/2005/2005083.htm> (last visited on Mar. 24, 2007) (announcing the appointment of Professor Neil Barrett, a computer scientist, as the monitoring trustee).

Microsoft employees, premises, and the source code. The European decree also permits the trustee to occasionally call upon other experts but only to assist the trustee with discrete and precisely defined tasks.²⁷⁵

3. Evaluating Remedial Architectures

Three principal controversies about the institutional architecture of antitrust remedial mechanisms emerge from the foregoing review of Judge Kollar-Kotelly's decision rejecting the non-settling states' proposal, as well as a comparison of the remedial proposals by the Department of Justice, the non-settling states, and the European Commission. First, while all of the remedial decrees removed the direct responsibility for ongoing supervision, and also removed decision-making from the courts and agencies, the proposed monitoring arrangements differed in some important respects. The Department of Justice decree opted for a more diffuse implementation mechanism, including the technical committee, the internal unit within Microsoft, and the joint Department of Justice-Microsoft reporting. In contrast, both the non-settling states' proposal and the European Commission opted for a single monitor (the special master and the monitoring trustee respectively) who was given wide-ranging powers and responsibilities. The states also relied on an intra-corporate mechanism nestled within Microsoft's corporate governance structure: an independent internal monitor responsible to a special committee of independent directors. The second key divergence related to the rights of direct access to the remedial mechanism by third parties—namely, entities apart from the government agencies responsible for the antitrust intervention. The non-settling states and the European Commission opted to give third parties the right of access in addition to the monitor's right to initiate their own investigations, while the Department of Justice decree limited the right of direct access to the remedial mechanism to the litigating parties only.²⁷⁶ Finally, a key substantive point of divergence of the remedial duties imposed on Microsoft was the extent to which the different decrees included forward-looking provisions, to cover products or technologies that were not central to the findings of antitrust violation. This last issue was particularly important because of the fast

275. Microsoft EU, *supra* note 154, at 290–91.

276. According to the district court opinion, the plaintiff state agencies were themselves responsible for receiving complaints from third parties, assessing those complaints and ultimately deciding whether they merit being brought to the mechanism put in place by the decree. *New York v. Microsoft*, 224 F. Supp. 2d at 181. Furthermore, the court directed the states to form a committee which would coordinate their enforcement efforts, so as to eliminate duplication of enforcement activities and ease the burden on both Microsoft and the court. *Id.* at 182.

changing production environment in which different technologies and products can become superseded in very short periods of time.

The aim of this section of the article is to provide normative principles that address the foregoing questions of institutional or remedial design. In order to do so, it is necessary to examine the role that each of the above mechanisms provided in the different decrees plays in promoting either the efficacy of that remedy (to achieve the objectives of the antitrust intervention) or the accountability of the implementing bodies (to ensure that those bodies advance the public, rather than their own, interest). To illuminate the purpose of the different components the remedies described above, we start off by describing the standard hierarchical governance mechanism as a benchmark.

In a standard hierarchical mechanism, both efficacy and accountability are ensured through the generation of top-down rules that break down the overarching goal of the regulator into specific compliance tasks for the regulated entity. If such rules can be specified, monitoring the company's compliance ensures not only the achievement of the desired policy goal, but also the accountability of those responsible for implementation. Therefore, in the hierarchical paradigm, the remedial decree can be conceptualized as a governance solution of the principal-agent variety. The principal (the antitrust authority or court) provides a binding contract to the agent (the regulated entity), which the entity must comply with. If the principal is sufficiently well-informed about the world and about the operations and capabilities of the agent, she both knows the goals she is trying to pursue through the contract, and she can translate those goals into specific rules of conduct for the regulated entity. Further, because the all-knowing principal can observe the actions taken by the agent, the remedial process in this context becomes a relatively easy task. The principal can both specify rules of conduct and observe the regulated entity's actions in order to determine the degree of compliance. Under this scenario, the monitoring process serves the relatively limited function of checking compliance vis-à-vis clearly specified rules.

Note however, that in the context of the antitrust remedial decrees described, as in many other regulatory settings, the decision-maker (the antitrust court, but also the antitrust agency) satisfies virtually none of the conditions to be an all-knowing principal. The decision-makers may have a fairly general idea of the goals they wish to pursue, such as advancing the public interest, restoring competition, eliminating distortions to competition, advancing innovation, or preventing the exploitation of consumers, to name just a few possible formulations, but

translating those goals into specific rules of conduct is a substantially more difficult task. The principal is also less well informed about the detail of the operations and capabilities of the agent, and yet such familiarity is necessary to engage in both rule-generation and compliance-checking. For example, the regulator is at a substantial information disadvantage in answering questions such as whether separating the code so as to provide the Windows operating system separately from a browser (or other functionality) is feasible, whether the release of interoperability information to competitors risks undermining the security of the operating system source code, and so on. Furthermore, the regulator cannot observe all the actions of the agent, presenting a further challenge to both writing the rules and monitoring compliance. The problem is compounded by the fact that both the principal and the regulated entity are to some degree imperfectly informed about the state of the world and have far from perfect foresight (or ability to make predictions) about ways in which conditions in the market will change in the future (although the regulator is likely to be at an informational disadvantage on this front as well).

Because of the difficulties associated with the standard compliance model, it should come as no surprise that all the remedial decrees described earlier relied on some type of a monitoring system to aid the antitrust authority. Even if the principal is fully informed about the goals she is trying to pursue, she would still need to know what actions by the agent are feasible in pursuit of those goals and to call upon a body with greater local expertise²⁷⁷ to evaluate claims of feasibility or to determine the level of implementation. The monitoring agent aids the principal precisely by providing greater access to local expertise about the activities of the entity which is under antitrust scrutiny.

However, the injection of the monitoring agent, as an additional chain in the remedial mechanism, creates yet another potential source of agency problems. Ideally, the monitoring agent should advance the goals of the principal (who, in turn, should be concerned with the public interest), but the objectives of the principal and the monitoring agent are not necessarily aligned. Therefore, the design of the remedial institutions must also ensure that the monitoring agent is held accountable and its actions are consistent with the goals of the principal. Furthermore, while the monitoring agent should have a greater degree of local expertise than the principal, to be able to better evaluate and

277. In this context, local expertise refers to knowledge which is relevant to or stems from the everyday operations of the regulated entity.

respond to claims and conduct by the regulated entity and other industry participants, the monitor still does not have perfect knowledge. For instance, the monitor would still suffer from the bounds of its own rationality and the problems of hidden action and information vis-à-vis the regulated entity. The design of the monitoring mechanism design should aim to relax these constraints as well, so that the monitor can also access the local knowledge available only to market participants. One way to achieve that objective is for the mechanism to create incentives for the regulated entity to volunteer information relevant to the regulatory effort. This would not only help in monitoring compliance with the current set of rules, but it also assists the principal in learning about the market, adjusting the rules, as well as the goals of the intervention.

a. Who Should Monitor?

With the foregoing discussion as background, we return to the three controversies about the design of the monitoring and compliance mechanisms identified earlier. Once the regulator decides to call upon the assistance of a monitoring body, it must make decisions about the composition and role of that body. One issue is whether a single monitor is appointed, or a committee. Further, the regulator must also decide the responsibilities to be assigned to the monitoring body, including whether the monitor can initiate investigations, conduct those investigations, obtain external assistance, or mediate or arbitrate the issues that come before it. Another key aspect of remedial design is the nature of the relationship established between the monitoring body and the regulated entity, including whether the monitoring body can make binding orders about the resolution of disputes or impose punitive measures on the regulated entity.

On the issue of the composition of the monitoring body, unlike the Department of Justice decree, the non-settling states' proposal (and the European remedy) would entrust extensive implementation responsibilities to a single special master. According to the proposal, the master was to be given a general obligation to take all actions necessary or proper for "the efficient performance of the special master's duties."²⁷⁸ Not only was the special master obliged to receive third party complaints in the first instance, she also had to evaluate those complaints, carry out an investigation if she thought one was warranted, hear argument based on documentation submitted and propose factual findings and an order to the court. Even before the

278. *New York v. Microsoft*, 224 F. Supp. 2d 76, 180 (D.D.C. 2002).

issue came to the court's attention, the special master had to act as a mediator in resolving the complaint.²⁷⁹ In addition, all these obligations were to be performed by the special master within "stringent time schedule[s]."²⁸⁰

Rejecting all aspects of the states' proposed special master, the district court described it as a scheme that "would [not] prove to be workable in practice," because it placed the special master in the role of detective, prosecutor and judge (as well as mediator).²⁸¹ While this language reveals the extent to which judges are steeped in the law enforcement paradigm of antitrust, there is clearly a tension in placing both hierarchical/punitive and problem-solving functions in the same person, which affects the nature of the relationship between the monitoring body and the regulated entity and may constrain the extent to which the two will be able to engage in free exchange of relevant information.²⁸² At an even more basic level, the court criticized the proposal for an all-powerful special master as a "panacea" given the limits of human cognition and capacity.²⁸³ No matter how capable and knowledgeable the person in that position, there would be limits to the special master's capacity to process all relevant information, to

279. *Id.* at 180–81.

280. *Id.* at 180.

281. *Id.* at 181.

282. Microsoft's level of cooperation with the technical committee established by the Department of Justice decree as compared with the E.U. monitoring regime may be explained by the different functions of the two bodies and their relationship vis-à-vis Microsoft. The E.U. Monitoring Trustee evaluates Microsoft's actions to comply with the Commission's order, and in response to findings of insufficient compliance by the monitor the Commission has threatened the company with additional fines. In addition, in implementing the European remedy, both the European Commission and Microsoft are mindful of the fact that the Commission's decision and remedy are currently subject to appeal before the courts, providing further disincentives for Microsoft to cooperate with the mechanism in any way which may suggest that the Commission's findings of antitrust liability was correct. In contrast, in the Department of Justice remedy, the technical committee submits technical documentation issues directly to Microsoft, and the timeliness of Microsoft's responses are measured by jointly established Service Level Guidelines. *Microsoft: The case that won't quit—Deadlines Slip, "mistakes" are made*, FTC:WATCH, No. 668, Jan. 30, 2006, at 11–12. Until late 2005, the joint status reports were showing that Microsoft was meeting the guidelines nearly 100% of the time. *Id.* Since November 2005, both Microsoft and the Plaintiffs have acknowledged that Microsoft had started to fall significantly behind, and proposed to the court that Microsoft file monthly reports on its cooperation with prototype projects run by the technical committee. *Id.* Even in areas where problems have arisen, Microsoft employees have worked with the technical committee to develop improvised solutions that would ensure that data collection and testing is not delayed. In their filing on Jan. 23, 2006, the Plaintiff authorities commented that "[b]y the time of the next Joint Status Report, we should have a clearer picture of whether the improvised solution has worked." *Id.*

283. *New York v. Microsoft*, 224 F. Supp. 2d at 181.

appreciate the significance of different complaints from industry, to devise proposed solutions, and to do so in a timely manner.²⁸⁴

Quite apart from the court's doubts about the efficacy of the special master (or trustee) mechanism in pursuing the goals of the intervention, placing all monitoring and implementation responsibilities in the hands of an all-powerful master or trustee also raises significant accountability concerns. As we already pointed out, once the monitoring arrangement is in place, the interests of the principal decision-maker—court or authority—that grants the mandate and those of the monitoring agent are not necessarily aligned. Moreover, the starting assumption was that, while both the principal and the monitor have imperfect knowledge about the regulated entity and the industry in which it operates, the regulator has relatively less knowledge. This is why the regulator has to rely on the monitoring agent to assist in implementing the decree. But since, in both the non-settling states' proposal and in the European remedy, the monitor is given a broad mandate and is not specifically hemmed in by a set of rules, it is not clear how the all powerful trustee is held accountable and by which body. There is no mechanism in these proposals to ensure that the monitor would not be subject to capture, or would not be self-aggrandizing or that she would not pursue her more narrowly defined (professional), rather than the public, interest.

The only proposal made by the non-settling states that was accepted by the district court was to appoint an internal compliance officer within Microsoft by a committee of independent directors. The internal compliance officer was to be given considerable autonomy in monitoring the corporation's activities.²⁸⁵ The presumed rationale for such a mechanism would be to inject considerations relevant to antitrust compliance into the highest levels of corporate thinking and strategic thinking decision-making.²⁸⁶ However, due to the growing recognition of the weaknesses inherent in standard forms of internal corporate oversight (themselves of the principal-agent variety), there are reasons to doubt that the corporate governance route provides an effective response to the monitoring problem. After all, because directors rely

284. *See id.* (discussing the inadequacy of the special master proposal).

285. *Id.* at 182–83.

286. *Id.* Such a rationale seems particularly apposite, given Farrell and Weiser's argument that in some instances the platform monopolist may act in ways that are not necessarily consistent with its own medium to long term self-interest. Injecting the antitrust perspective (including the benefit from continued collaborative relationships and from promoting a downstream market structure that is conducive to innovation) at the strategic level may provide an occasion to disrupt and reflect upon a proposed course of action, revealing effects or possibilities previously not considered. Farrell & Weiser, *supra* note 160, at 97–104.

almost entirely on information from the agents whom they are supposed to govern and monitor, they can fall victim to the selective and opportunistic presentation of information. This would also be the case for a semi-autonomous compliance inspector answerable only to independent directors and existing ostensibly outside the structure of the company's regular operations.

By exposing some of the difficulties inherent in the special master or trustee proposals, this discussion also points to some of the advantages that stem from the reliance on a number of separate channels for monitoring and implementation in the Department of Justice's negotiated decree. Within that scheme, the peer-evaluation channel, through the technical committee, can assist in tapping into on-the-ground expertise that can help assess the significance of disputes involving the regulated entity, other firms in the market, and can help in crafting concrete solutions to those problems. The joint reporting channel (by Microsoft and the Department of Justice) provides for *public* evaluation of measures implemented under the decree, and promotes learning by all who are involved in the process (including the Department of Justice and other firms in the industry). The joint reporting channel also enables the parties to adjust regulatory and business strategy. For example, as part of joint status reports, Microsoft and the Department of Justice have proposed adjustments in some of the specific strategies that had been adopted, where those strategies were found wanting in achieving the goals of the decree.²⁸⁷ The learning by the Department of Justice about the industry, through its direct engagement with Microsoft in drawing up the joint reports and with other firms in the process of receiving complaints, is in itself an accountability check on the technical committee. Further, if the remedy persistently fails to promote the desired goals, such engagement gives the Department of Justice a better appreciation for the need of further action and the kinds of actions that might be feasible. Finally, the potential for the court's jurisdiction to be re-engaged, although likely with measures which are viewed as more blunt and draconian, provides not only a final instrument in the armory, but an important background threat that acts as an incentive for the regulated entity to cooperate in developing solutions within the remedial decree mechanism.²⁸⁸

287. An opportunity to be part of the process of generating alternative courses of action, with the need to justify those alternatives, improves the quality of the information supplied by Microsoft to the implementation process.

288. Dorf, *Legal Indeterminacy*, *supra* note 236, at 946 (commenting that courts have a "disentrenching capacity" allowing them to declare conduct unlawful and force others to address the problem).

b. The Role of Third Parties in the Remedial Process

Both the efficacy and the accountability of the remedial mechanism can be improved, if direct access to participate in the process was provided not only to the government agencies, but also to third parties that must engage with the regulated entity on a day-to-day basis. All the antitrust remedies discussed in this article arose from government prosecution efforts. As such, at least formally, the direct parties to those disputes were only Microsoft and the government enforcement agencies. However, the government prosecution efforts arose due to and were informed by complaints from firms who were either subject to the restrictive practices employed by Microsoft, or the targets of such practices. Furthermore, in the United States, the government litigation ran parallel with a number of private suits against Microsoft by its rivals, such as Netscape, Sun Microsystems and others.

Not only is there no reason in principle not to allow third parties to directly participate in what was essentially an alternative dispute resolution and information exchange regime, but in fact such third party participation has a number of benefits. Providing third parties a direct “voice in this process”²⁸⁹ enables the monitoring mechanism to tap into the local knowledge of industry participants, to access their concerns, and to learn about the technological feasibility of proposed solutions by benchmarking them against solutions developed by other firms. This would enhance the monitoring body’s ability to assess the actions, and capabilities of Microsoft. As Judge Kollar-Kotelly acknowledged, “very often such third parties will be most immediately aware of Microsoft’s conduct”²⁹⁰ as well, since it is third party firms that are most immediately affected by that conduct. Consistent pressure from third party submissions to the monitoring and remedial bodies (whether from software developers, equipment manufacturers, final consumers, or academics) also enhances the accountability of the monitors. To the extent that the monitoring body is primarily reactive to third party complaints, direct participation can prevent them from shirking or becoming captured, or from engaging in self-aggrandizing conduct.

Given these potential benefits of broader input, the court’s refusal²⁹¹ to allow third parties to directly participate in the implementation mechanism is puzzling. Moreover, the court’s preferred alternative, whereby the plaintiff-state agencies should “[a]ssess the assertions of such third parties for merit” and bring such complaints to the remedial

289. *New York v. Microsoft*, 224 F. Supp. 2d at 181.

290. *Id.*

291. *Id.*

mechanism for resolution, is not particularly satisfactory.²⁹² After all, the government authorities call upon the services of a separate monitoring body, and rely on third party complaints, in an admission of their limited ability to steer the implementation process themselves. This could be due to recognition of their own inability to assess the merits of certain complaints or out of concern that they may be subject to capture or the selective presentation of information, including by third parties who may attempt to abuse the remedial process. As a result of the court's insistence that the antitrust authorities should act as an additional filter to third party complaints, the limitations on the authorities' capacity to perform such a filtering function could constrain the efficacy of the remedial mechanism as a whole.

c. Forward-Looking Mechanisms

The non-settling states' principal argument against the negotiated decree was that its terms did not go far enough to guarantee the restoration of competitive conditions in the market. The states' numerous attacks on the provisions of the decree disclose three types of concerns relevant to this question. First, they claimed that the decree narrowly defined the middleware applications to which it was principally addressed, and did not cover a sufficient range of applications that could pose a threat to the Windows operating system monopoly, particularly in light of the dynamism of the market and the changes that had already taken place since the litigation was instituted.²⁹³ For example, even during the course of the litigation, Microsoft had stopped engaging in many of the restrictive practices impugned by the original Department of Justice complaint.²⁹⁴ Similarly, by the time the remedy was implemented, applications such as the Netscape browser were no longer seen as viable competitors. Secondly, the states argued that the Department of Justice decree did not require Microsoft to provide sufficient levels of disclosure of the information necessary for developers to write applications that would communicate with the Windows system and effectively compete with Microsoft's own applications (a similar concern was the basis of the

292. *Id.*

293. *Id.* at 103-05.

294. See William E. Kovacic, *Designing Antitrust Remedies for Dominant Firm Misconduct*, 31 CONN. L. REV. 1285, 1291 (1999) ("Since the government plaintiffs filed their complaints in May 1998, Microsoft has abandoned or relaxed enforcement of contractual terms that bound computer manufacturers to deal exclusively in Microsoft products as a condition for obtaining the Windows 98 operating system.").

European case).²⁹⁵ Finally, the non-settling states also argued²⁹⁶ that limiting the term of the decree to only five years was an insufficient time-frame for monitoring Microsoft's conduct.²⁹⁷

The district court rejected all of the states' suggestions aimed at expanding the scope of the decree to encompass a broader range of technologies and make it forward looking. However, the court's opinion did not analyze the substantive reasons offered by the plaintiffs for broadening the scope of the remedy. Instead, the court emphasized that the remedial mechanism was primarily a compliance mechanism, which meant that its provisions had to be limited by the practices identified in the original complaint and found to be illegal by the courts. While recognizing that it had the power to implement a remedy with much broader scope, the court viewed an extension of either the time or the scope of the decree as an illegitimate form of intervention.²⁹⁸ "This suit, however remarkable, is not the vehicle through which Plaintiffs can resolve all existing allegations of anticompetitive conduct which have not been proven or for which liability has not been ascribed."²⁹⁹ Explaining the scope of the terms of the decree, Judge Kollar-Kotelly observed that "[t]he Court has taken great care to provide the parties with a decree which is unambiguous in its terms so as to ensure that Microsoft's compliance is readily achieved."³⁰⁰

The court's very limited characterization of the remedial mechanism is problematic for at least three reasons. First, given the scope and the breadth of the Microsoft litigation (with a number of iterations through government prosecutions in the United States, Europe and elsewhere, many private suits, and unsuccessful attempts to formulate an acceptable and effective remedy), it is very unlikely that an effective

295. *New York v. Microsoft*, 224 F. Supp. 2d at 173–74.

296. *Id.* at 239–40.

297. Apparently, both the plaintiff government authorities and Microsoft have now concluded that at least some terms of the decree should have a term longer than that originally proposed. *Consent Decree Modifications, Microsoft*, CCH TRADE REG. REP. NO. 959, p. 3 ("Microsoft Corporation and the federal and state governments that filed an antitrust action against the computer software company have agreed to extend . . . the communications protocol licensing program required by Section III.E of the final judgment in order to ensure that this portion of the final judgment is given full opportunity to succeed.").

298. *New York v. Microsoft*, 224 F. Supp. 2d at 192–93, 240. Massachusetts was the sole state that appealed this judgment to the D.C. Circuit, which unanimously affirmed the district court's decision. *Massachusetts v. Microsoft*, 373 F.3d 1199, 1204 (D.C. Cir. 2004).

299. *New York v. Microsoft*, 224 F. Supp. 2d at 192.

300. *Id.* at 181. In this context, Judge Kollar-Kotelly cited from the transcript of testimony by Microsoft Chairman Bill Gates that the decree provides "clarity of [Microsoft's] obligations that allows [the company] to direct [its] employees . . . to steer absolutely clear of ever violating one of these things." *Id.* at 181–82.

final remedy could be in the form of a decree entirely free from ambiguity in its terms. The key reason for the complexity of the litigation was the profusion of ambiguity—about the nature of the competitive interactions in the market, the technological boundaries and the ultimate effects of the impugned conduct, as well as the outcomes of any remedial efforts implemented. Given this background, the final decree could only be entirely “unambiguous in its terms” either because Microsoft had already stopped engaging in the practices targeted by the decree, or because the decree covered such a narrow field of technologies and products, that market developments had made it irrelevant. Furthermore, in contrast to the court’s characterization, it is clear that the Department of Justice and Microsoft did not view the decree as being unambiguous and water-tight, since the joint reporting mechanism provides scope for implementing different strategies where existing ones have not succeeded in advancing the goals of the decree.

Secondly, as a matter of legal principle, there was no reason why the terms and the goals of the final remedy should be so tightly constrained by the judicial findings of violative conduct.³⁰¹ After all, no criminal sanctions or fines were imposed either on Microsoft or any of its officers in the U.S. litigation. The court did not award damages, nor was the most drastic of measures, the break-up of the company, ultimately considered or adopted. Had those standard antitrust remedies been sought or imposed, the case for limiting the remedy to the findings of liability would have been stronger—either because of concerns about fairness, or because of the need to tailor and quantify monetary or structural remedies in some principled way. Instead, the main advantage of the diffuse remedial architecture established in the decree, with opportunities for the parties to learn and adjust strategy in the course of implementation, was precisely to avoid difficult *ex ante* line-drawing in circumstances where future market conditions are difficult to predict. If future conduct by Microsoft reflected similar underlying problems about mediating cooperation and competition, there is no apparent reason not to resolve those problems through the mechanism that resulted from the original litigation. Such a course seems preferable from the perspective of every party involved, by comparison to the alternative of re-engaging the cumbersome, lengthy, and expensive apparatus of another antitrust litigation.

301. It is worth noting that the initial negotiation for a settlement decree was instigated by the original trial judge, Judge Jackson, after he delivered his findings of fact, but before he issued any findings of liability.

Thirdly, as the district court recognized, the remedial mechanism established by the decree was, to a large extent, an alternative forum for dispute resolution between Microsoft and firms that develop products related to the platform operating system.³⁰² This view is uncontroversial in light of the inherently collaborative nature of interfirm relationships in this industry and the negative effects of collaborative breakdown not only on the parties involved, but also on the public interest in advancing innovation.³⁰³ However, if the remedial mechanism is to provide a forum for the resolution of emerging disputes, it is difficult to characterize it as a classic compliance regime—particularly because in these industries, product cycles are short and the past is unlikely to repeat itself.

To make the same points in a different way, Microsoft's aggressive practices directed at Netscape or Java, or even the other market participants identified in the European complaint, created disincentives for firms to cooperate with Microsoft and innovate within its network, because Microsoft, as the owner of the platform standard, could determine the dynamics of competition and innovation in the sector. The decree provided a framework for the re-building of collaborative relationships in the industry, in a way that would advance innovation. In this context, collaboration does not have to be limited to industry participants engaging with each other, which is essential for related products and services to interoperate in any event, but also engaging in deeper forms of information-sharing necessary to produce novel and robust solutions through the disciplines identified earlier, such as joint co-design and mutual error correction and detection.³⁰⁴ The decree mechanism could give smaller innovators a venue in which they can air grievances if that they believe that Microsoft has appropriated the value of their joint collaborative investigation, or that its actions are likely to harm the public interest in some other way. Such complaints are not guaranteed to have merit, nor will they necessarily be heard. However, this process provides opportunities for a more deliberate evaluation, of their conduct and even their own interests, by Microsoft and other firms in the industry. And, unlike ordinary antitrust litigation, it is important

302. See *New York v. Microsoft*, 224 F. Supp. 2d at 181 (the court faulted the plaintiff states for not having included dispute resolution provisions in their proposed decree).

303. See Microsoft Decree, *supra* note 253, at 14–15 (creating voluntary dispute resolution mechanism).

304. The dispute resolution mechanism utilizing the technical committee and the internal compliance unit is particularly important in this context. See *also id.* at 9–15 (delineating the different elements of the technical committee, the internal compliance unit, and the dispute resolution mechanism).

that the decree does not create opportunistic incentives for disgruntled competitors to sue for treble damages in hoping to exploit the sentiments of an uninformed jury or judge or, alternatively, to use such a threat simply as a tool to achieve a favorable settlement. The non-punitive nature of the decree also makes it more likely for Microsoft to cooperate and provide the necessary information in a non-strategic way.

Therefore, the antitrust decree can be seen as a forward looking governance mechanism that would form the basis for an alternative regime of self-regulation of interfirm relationships in the industry, which aims to resolve concrete problems in such relationships and to have a prophylactic effect, preventing the emergence of such problems in the first place. Interestingly, the decrees can perform this function by mimicking some of the mechanisms that firms use in order to engage in joint production and information exchange bilaterally. Not only is the availability of such a process beneficial to all participants in the industry—including, we should emphasize, Microsoft as the network owner—but the technical committee and the joint reporting process also generate information and knowledge about the technology and interfirm relationships that can be used in either adjusting the decree³⁰⁵ or in a subsequent regulatory effort if this proves necessary.

E. Why Antitrust?

It should come as no surprise that as the nature of firms, interfirm relationships, and the underlying environments in which these exist, change, so will the role of antitrust law. The observed de-integration of firm activities and reliance on networked forms of production among collaborating firms to jointly innovate is the organizational response to the more dynamic and unpredictable environment in which the firm operates. In turn, this transformation of the firm has also shifted the antitrust concern away from the static efficiency goal towards the governance problems that may be presented by innovative

305. In a joint status report in January 2005, Microsoft and the Department of Justice noted that the licensing arrangements that were put in place to ensure interconnectivity of servers with the Windows operating system were not attractive to potential licensees and did not spur the growth of alternatives. See Joint Status Report on Microsoft's Compliance With the Final Judgment at 5, *United States v. Microsoft Corp.*, No. 98-1232 (D.C. Cir. Jan. 16, 2004) (observing that the majority of licensees appear to be developing a relatively narrow set of procedures and the "[p]laintiffs are concerned that the development efforts of the current licensees are not likely to spur the emergence in the marketplace of broad competitors to the Windows desktop"). Note that this was one of the issue that concerned the European Commission, although unlike in Europe, in the U.S. this part of the remedy was justified by findings of affirmative predatory acts by Microsoft, rather than mere interruption of cooperation. See *Massachusetts v. Microsoft*, 373 F.3d 1199, 1216, 1222–25 (D.C. Cir. 2004) (Ginsburg, C.J.).

collaborations. It is worth emphasizing that this article does not argue that antitrust mechanisms are a necessary aid to interfirm collaboration more broadly. Such a claim would be both conceptually unappealing and practically unattainable in a market economy. Moreover, in the majority of cases, antitrust intervention is not likely to be necessary. Interfirm collaborative problem-solving is already prevalent as a mode of production and innovation, and in most cases firms find ways to manage their cooperation effectively. Those are cases where the mutual provision of intimate information about designs and capabilities, the profound uncertainty about the future environment, and the potential gains from the mutual exploration are a sufficient check on opportunistic conduct.³⁰⁶

Moreover, even in the new production environment competition plays a key moderating and disciplining function as part of the pragmatist disciplines of joint production—acting as a spur for innovation and as a disentanglement mechanism, as well as providing an incentive to find good collaborators and a check on collaborator opportunism. For instance, firms rely on benchmarking to identify the space of design possibilities as well as to verify claims made by the firm's collaborators, and this discipline depends, at least to some extent, on the availability of alternative solutions developed by other firms—not only those who are immediate competitors, but also those facing similar design or production problems in other markets. The tendency towards flexible modes of production leads to an increased de-specification of assets, which also reduces, to some degree, the possibilities for hold-up by collaborators:

[T]he master resource in the new system is the ability to re-deploy resources fluidly. . . . [T]he novel search routines and problem solving disciplines help develop this flexibility by breaking apart static procedures. Equally important is the capacity to re-use a high . . . percentage of capital equipment committed to one project in subsequent ones . . . The greater a work team's command of the search routines, the problem solving disciplines and the re-configuring of flexible equipment, the more accomplished it becomes at the re-deployment of any resource. The effect is that product-specific resources are 'de-specified', coming increasingly to resemble general

306. See, e.g., Josh Whitford & Jonathan Zeitlin, *Governing Decentralized Production: Institutions, Public Policy, and the Prospects for Inter-Firm Collaboration in the US*, 11 *INDUSTRY & INNOVATION* 11 (2004) (describing alternative institutional forms for managing collaboration, including consortia in which producers help sub-contractors to develop capacities for problem-solving collaboration).

purpose assets, and thus no longer the instruments or object of hold-ups.³⁰⁷

Despite the fact that certain mechanisms for controlling opportunism are inherent in the disciplines used for joint production, as this article demonstrates, there remain situations in which cooperation break down (particularly in distributing the fruits of the joint collaboration) can occur, and where the possibility of such breakdown can act as an *ex ante* disincentive to cooperate. Furthermore, at least in some contexts none of the usual *ex ante* mechanisms, such as contracts or property rights, may provide an effective instrument for resolving or attenuating these collaborative governance problems. Once disputes arise, the parties do invoke the antitrust laws as an instrument for resolving those dispute. A possible response of the antitrust authorities is to treat such a problem as being outside the antitrust purview even though it affects the competitive dynamics in the market, the rate of innovation, and consequently consumer welfare. Alternatively, if the antitrust institutions decide to intervene, any intervention—even a seemingly simple duty to provide sufficient interoperability information—requires a mechanism to oversee the implementation and, even more importantly, to determine the content of the duty (i.e., to determine what constitutes sufficient interoperability information). The threat of damages is a clumsy deterrence mechanism, because both sides can have legitimate (or non-opportunistic) reasons for ending the collaboration. Therefore, the danger of an award of damages *ex post* may only deter, rather than promote, collaboration.

Many of the antitrust cases discussed in this article arise in contexts where, for a given reason, such as strong network effects, increasing returns to scale, or a quasi-regulated setting, a firm has an overwhelming share of the market in a product which becomes a platform to which other firms must adjust their own products. For that reason alone, some degree of cooperation becomes inevitable in those settings. The control over the platform gives the firm the power to act opportunistically in negotiations with its collaborators, including a disproportionate ability to appropriate the results of the joint exploration (either directly or through integrating vertically) and to inhibit the innovation efforts of its rivals. Somewhat surprisingly, the dominant firm may do so even in situations where integration may not serve its own interest, and such appropriation is often motivated by the profound uncertainty about the future landscape, which is itself being transformed by the collaborative relationship. Therefore, the availability of *ex post*

307. Helper, MacDuffie & Sabel, *supra* note 17, at 471.

antitrust governance mechanisms provides a credible instrument to “[t]he king’s hands”³⁰⁸—enabling the platform owning firm, for example, to garner the diversity of collaborators in problem-solving innovation in a way that helps it advance its own self-interest as well.

The remedial solutions discussed in this article are more closely tailored to the problems that beset collaborative relationships and as a result are preferable to the many alternative proposals for new administrative or legislative tools to cope with the antitrust challenges presented by the transformation in the nature of productive relationships in the new economy. In accordance with the modern principles of organizational success, the antitrust governance mechanisms are not hierarchical—they aim to generate knowledge and encourage ongoing cooperation by preventing unthinking and opportunistic reliance on unilateral overreaching.³⁰⁹ In addition, these remedies formalize and mimic some of the disciplines that firms use to engage in the process of joint exploration where they govern their own relationships in the absence of any antitrust intervention.

As a contrast to these novel approaches to antitrust remedies, we may consider the enactment of the National Cooperative Research Act (“NCRA”), which was the first legislative measure enacted to deal with the disjuncture between the classic concerns and remedies of antitrust law and the tendency towards collaborative relationships between firms to engage in innovation in a dynamic environment.³¹⁰ The key reform introduced by this Act was to declare (or confirm) that collaborative research (as opposed to production and marketing) ventures were not *per se* illegal under the antitrust laws, and instead were subject to rule of reason analysis.³¹¹ However, in a number of contributions, Jorde and Teece criticized the steps taken through the NCRA as insufficient for at least two reasons.³¹² First, in their view the uncertainty of the content

308. MILLER, *supra* note 127, at 155–56 (borrowing the phrase from Hilton L. Root, *Tying the king’s hands: Royal fiscal policy during the Old Regime*, 1 RATIONALITY & SOC’Y 240 (1989)).

309. *Cf.* Sabel, *Real Time Revolution*, *supra* note 11, at 108–09 (“Network organizations manifestly outperform hierarchies in volatile environments.”).

310. 15 U.S.C.A. §§ 4301–4306 (West 1998 & Supp. 2006). The NCRA was amended in 1993 and renamed as the National Cooperative Research and Production Act.

311. § 4302.

312. *See generally* Thomas M. Jorde & David J. Teece, *Appendix: National Cooperative Research and Commercialization Act: Legislative Proposal by Professors Thomas M. Jorde and David J. Teece*, in ANTITRUST, INNOVATION, AND COMPETITIVENESS 71–81 (Thomas M. Jorde & David J. Teece eds., 1992) (proposing legislation to amend the National Cooperation Research Act); Thomas M. Jorde & David J. Teece, *Innovation, Cooperation, and Antitrust*, 4 HIGH TECH. L.J. 1, 62–80 (1989) (The NCRA failed to take additional steps that would provide greater incentives for cooperative innovation and collaboration).

and the application of the rule of reason was a continuing disincentive for collaborative innovation. Secondly, they argued that the NCRA was drafted on the erroneous premise that innovation was a serial process which began with research and ended with production, instead of the ongoing iterative and recursive process described earlier in this article. Jorde and Teece proposed that the safe harbors in the NCRA be extended not only to joint research, but to all collaborations involving innovative joint production, commercialization, and distribution. Further, Jorde and Teece proposed transferring responsibility for antitrust review from the courts to the agencies in order to ensure that such joint arrangements were not used as a cover for collusive behavior. According to this proposal, the parties to a planned collaborative venture could notify the antitrust agencies of the venture, and the agencies would vet the proposal and provide antitrust clearance for those ventures that do not raise anticompetitive concerns.³¹³

While the above proposals have been partially implemented,³¹⁴ they are insufficiently sensitive to the limitations inherent in a system of notification and clearance generally, which become especially salient in highly dynamic contexts. The clearance regime places an enormous administrative burden on the agency to make *ex ante* judgments about the likely competitive effects of planned collaborative ventures, which must be done on the basis of a voluminous record of documents, even before the venture has commenced its activities. The Jorde and Teece proposal did not provide any mechanisms through which the agencies would overcome the limits in their own capacity to gain knowledge about the relevant market and assess the likely competitive impact of the venture.³¹⁵

313. Jorde & Teece, *Appendix, supra* note 312, at 77–78.

314. In particular, section 4301(a)(6) extended the application of the Act beyond research and development activities to ventures engaged in the production of the product, process or service (although not commercialization, marketing and distribution as Jorde and Teece had suggested). 15 U.S.C.A. § 4301(a)(6) (West 1998 & Supp. 2006). Also, section 4305 permits the joint venture to be notified to either the Department of Justice or the FTC. § 4305. While the agencies do not provide any *ex ante* clearance for the venture, the notified activities of the venture cannot be the basis for a treble damages suit under the federal or state antitrust laws. § 4303.

315. Jorde and Teece offered the European Union as an example of a competition law regime that adopts the notification and clearance system, as a way of promoting collaboration and innovation that could result from closer forms of cooperation. Jorde & Teece, *Innovation, supra* note 312, at 76–77. However, since 2004 the European Union has abandoned the system of notifying inter-firm arrangements to the European Commission for clearance, precisely because of the administrative burden that this placed on the Competition Directorate, diverting it from other activities, and the fact that this regime provided only a limited opportunity for a meaningful review of the notified arrangements. *See generally* Council Regulation 1/2003, 2003 O.J. (L1) 1.

In a world in which collaborative interfirm relationships are widespread, a regime for administrative notification and clearance would be either perfunctory or entirely meaningless. The purpose of the new collaborations is not to implement a particular joint plan, but instead to jointly learn about the world, which changes in rapid and unpredictable ways. In light of that purpose, the antitrust agencies would simply be incapable of making *ex ante* predictions about the competitive significance of an arrangement without actually monitoring its implementation. Apart from the fact that such a regime does not effectively guard against possible collusive arrangements, the clearance procedure only protects the collaborating parties from opportunistic use of the antitrust laws by competitors (or consumer plaintiffs) outside the venture. However, as described earlier in this article, the disputes leading to innovation bottlenecks can arise due to opportunistic conduct within collaborative relationships and out of attempts to exploit other collaborators, but also harm the public interest. This is a problem for which the clearance regime offers no solution. Finally, as some have observed, the new and complex technologies of the modern economy also create novel opportunities for collusive arrangements, while at the same time making it increasingly difficult for the antitrust authorities to appreciate and detect them³¹⁶ unless they have ways of monitoring and learning about those new technologies and market relationships.

New legislation targeted to regulate particular technologies or specific platform—owners is also unlikely to address some of the potential governance problems identified in this article adequately and timely. For example, some have argued that in preference to *ad hoc* dilution of intellectual property rights through the imposition of antitrust duties by the courts, legislatures are better situated to implement detailed statutory access regimes that regulate the conduct of the owner of a bottleneck in production and innovation, should they deem that the public interest is sufficiently engaged in a particular case.³¹⁷ However, for a statutory regime to be implemented, the particular problem must be sufficiently salient to attract legislative attention. The legislative machinery operates slowly and the point at which legislative

316. See, e.g., Avery W. Katz, *Is Electronic Contracting Different? Contract Law in the Information Age* 17, http://www.law.columbia.edu/null/Katz?exclusive=filemgr.download&file_id=94232&showthumb=0 (last visited Apr. 1, 2007), translated and revised version of Avery W. Katz, *Vertragsrecht im Zeitalter des Internets: Eine Ökonomische Perspektive* [Contract Law in the Age of the Internet: An Economic Analysis], in *ÖKONOMISCHE ANALYSE DES SOZIALSCHUTZPRINZIPS IM ZIVILRECHT* [Economic Analysis of the Social Protection Principle in Civil Law] (Hans-Bernd Schäfer & Claus Ott. Tübingen eds., 2004).

317. Elhauge, *supra* note 7, at 303.

intervention is needed is not always apparent. Even for problems which are sufficiently salient,³¹⁸ legislative solutions are by definition *ex cathedra* and difficult to alter. In a dynamic market environment, detailed and specific statutory schemes would tend to be too rigid and would become obsolete relatively quickly. Yet enacting a broadly worded statute, the legislature would still have to rely on the courts or some other mechanism for interpretation and implementation.

The shortcomings of the alternative proposals for comprehensive legislative solutions to regulate the process of innovation are an additional reason to rely on novel antitrust remedies instead. A flexible remedy implemented through an antitrust intervention leaves a high degree of autonomy with the regulated entities and provides mechanisms for ongoing adaptation similar to, and based upon, the disciplines successfully used by firms to manage collaborations in the absence of any overreaching conduct. Such a remedy can also be a first step towards identifying both the extent of the regulatory problem and the range of possible and appropriate responses. If developments in the industry or technology circumvent the bottleneck problem, the antitrust remedy can be easily terminated. Further, if the problem persists, the antitrust remedy is a mechanism that can be used for resolving concrete disputes while also generating information and building capacity to develop a more fully fledged regulatory response, should that become necessary.

VI. CONCLUSION

In a recent article comparing the evolution of U.S. and European antitrust law, John Vickers has argued that antitrust can develop into either a form-based or an economics-based law. He proceeds to endorse the latter as a sounder basis for the evolution and elaboration of European competition law.³¹⁹ In his view, form-based antitrust law aims to develop rules that describe the kinds of conduct that business firms should avoid.³²⁰ By contrast, economics-based evolution would allow the law to distill underlying principles with reference to actual or potential economic effects.³²¹ According to Vickers, economics-based evolution is preferred because this approach aligns competition law with

318. Presumably, the Microsoft problem would be such a case, given the widespread use of the relevant products. However, moving beyond a product such as the operating system, the determination of what kind of products are deserving of specific legislative attention becomes far more uncertain.

319. John Vickers, *Abuse of Market Power*, 115 *ECON. J.* F244, F259–F260 (2005).

320. *Id.* at F260.

321. *Id.*

its economic purposes and contributes towards making the law internally consistent.³²²

Yet Vickers' distinction between form- and economics-based law may not be as simple nor withstand further scrutiny, unless it is linked to a further claim about institutional responsibilities for decision-making and mechanisms for knowledge acquisition. If economic analysis could supply *ex ante* efficiency-based rules to isolate conduct likely to be harmful, then this would be nothing but a description of the types of conduct that firms must avoid, eliminating the distinction between form and economics-based evolution.³²³ If his distinction is to hold, therefore, Vickers must be envisaging largely *ex post* analysis of the actual or potential effects of impugned business conduct, presumably through extensive involvement of economic experts.

However, in the United States at least, the courts have not wholeheartedly embraced such a project. The focus on efficiency since Chicago reflected the Chandlerian production landscape. However, the courts were not institutionally well-suited either to promote efficiency or to arbitrate expert disputes. Instead, they have invoked formalist legal screens to limit *ex post* admission of factual and expert evidence in antitrust disputes, even if the doctrinally supplied rule of reason allowed (or encouraged) it.³²⁴ On the one hand, the generation of economic knowledge occurs in one space, often in a conflicting and evolutionary manner. On the other hand, this knowledge was translated into economic precedents that satisfy the requirements and limitations of the judiciary. Such precedent, once encrusted, discourages the questioning of even erroneous principles or presumptions that arise merely out of ideological habits.

More importantly, as firms and markets have changed, the static allocative efficiency paradigm has become less relevant to novel antitrust problems. Post-Chandlerian market relationships are characterized by vertically de-integrated, federated and networked firms. Underlying market conditions change rapidly, so innovation is an essential aspect of success and often takes the form of routine problem-solving and re-application of existing knowledge to novel contexts. Collaboration is endemic as a way of disrupting

322. *Id.*

323. This is unless, of course, "form based law" also incorporates values apart from economic efficiency, but that is a very different argument.

324. The fear of the courts was, in part, due to the fact that *ex post* adoption of knowledge which is highly context dependent would not lead to a coherent set of doctrinal rules. Lopatka & Page, *supra* note 50, at 695; Cf. Harry First, *Is Antitrust 'Law'?*, ANTITRUST, Fall 1995, at 9, 9 (distinguishing between "bureaucratic" and "legalistic" regulatory cultures).

organizational routine, managing the profound uncertainty about the future landscape and garnering otherwise inaccessible information necessary to formulate, evaluate, and adjust novel designs. In this environment, collaboration with customers, vertically related firms, and even current or former competitors is not merely an aspiration, but an empirical fact. Such changes in the nature of the firm lead to novel problems stemming from the need to manage joint co-development and the possibility for different types of strategic interactions in a dynamic world.

Contemporary antitrust interventions focus on regulating the forms of interfirm cooperation indispensable to innovation, a problem which antitrust law traditionally disclaimed³²⁵ and yet one that cannot always be resolved through alternative governance mechanisms such as contract or property. Because it cannot rely on the traditional deterrence model, the new antitrust policy is more ambitious, and must overcome the limits of the standard decision-making mechanisms. Thus, this article considers a third alternative, an institutions-based elaboration of antitrust law,³²⁶ which Vickers' apparently exhaustive covering of the field does not contemplate. The new competition policy is based on designing remedies that resolve concrete problems in interfirm relationships, in which each of the antitrust institutions (new and old) plays its own function. Such an antitrust policy is more attuned to the nature of relationships and interaction among firms—it is neither inherently suspicious of firm action and interfirm collaboration, nor rooted in the belief that the market is presumptively efficient and self-correcting. As a result, in its new phase antitrust is less abstemious and self-abnegating compared to its recent past, yet it is not the activist enforcer of democratic values of an earlier era. The inspiration for these proposals, as is often the case, comes from actual practice—the emergence of non-hierarchical remedial decrees that generate knowledge in order to adjust to a dynamic environment, in which the courts merely support an emergent regulatory regime. This article identifies criteria for evaluating those mechanisms in order to understand when and how they may be useful and to stimulate further thinking about improving their design.

325. *Verizon Commc'ns Inc., v. Trinko*, 540 U.S. 398, 401–16 (2004), *Olympia Equip. Leasing Co. v. W. Union Tel. Co.*, 797 F.2d 370, 375–80 (7th Cir. 1986). *But see Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985).

326. *Cf. Dorf, Legal Indeterminacy*, *supra* note 236, at 875–76 (describing a model of experimentalist courts and agencies that are characterized as problem-solving and that are always in transition).