Is Innovation King at the Antitrust Agencies?: The Intellectual Property Guidelines Five Years Later

Richard J. Gilbert* and Willard K. Tom**

April 2001

I. INTRODUCTION

The Microsoft antitrust case focused public attention on the role of antitrust enforcement in preserving the forces of innovation in high-technology markets. A May 15, 2000 *Business Week* article reported that "Innovation is King [at the antitrust Agencies]. Traditionally, regulators focused on whether on whether companies artificially hiked prices or reduced output. Now, they're increasingly likely to look first at whether corporate behavior aids or impedes innovation."

In this article, we examine whether innovation has displaced short-term price effects as the focus of antitrust enforcement by the Department of Justice and the Federal Trade Commission and, to the extent that it has, whether enforcement actions are any different as a result. We also ask whether enforcement actions in the area of intellectual property and innovation have been consistent with the 1995 DOJ/FTC *Antitrust Guidelines for the Licensing of Intellectual Property* [IP Guidelines][1]. Finally, we consider whether recent enforcement actions identify key areas in which additional guidance from the Agencies would be desirable. We address these questions first in merger cases and then in non-merger cases.

Our investigation shows that in recent years the antitrust enforcement agencies have increasingly expressed concerns over the effects of particular mergers and firm conduct on innovation. The agencies identified innovation effects as a reason to challenge a merger in 47 cases over the period spanning the second half of the 1990s. In the first half of that decade, the

* Department of Economics, University of California at Berkeley. Gilbert was Deputy Assistant Attorney General for Economics at the Antitrust Division and led a group that developed the Antitrust Guidelines for the Licensing of Intellectual Property.

** Member of the District of Columbia Bar. Tom was Counselor to the Assistant Attorney General at the Antitrust Division and participated in the drafting of the IP Guidelines. The authors are grateful to Bilal Sayyed for expert research assistance and to Joseph Farrell, Michael Katz, Mark Lemley, Rob Merges, Howard Morse, Daniel Rubinfeld, Carl Shapiro, and Debra Valentine for helpful discussions.

agencies identified innovation as a cause to challenge a merger in only four cases. The DOJ and the FTC also initiated several non-merger antitrust enforcement actions in the later half of the 1990s that alleged significant impacts on innovation.

Although a large number of merger and non-merger enforcement actions brought by the agencies identified innovation effects, it is another question whether these actions actually turned on innovation issues. In the merger area, our investigation shows that innovation concerns were decisive in only a few cases. Most of the merger cases that alleged effects on innovation likely could have been challenged based on adverse impacts on competition in markets for existing goods and services. We do not mean to imply that innovation impacts were unimportant in these cases. Instead, we make the more limited point that the decisions to oppose these mergers likely would not have been different if innovation had been excluded from the analysis. In a few additional cases, innovation concerns led to challenges in more markets, and therefore resulted in a broader remedy, than if innovation issues had not been considered.

Several recent non-merger enforcement actions, in addition to *Microsoft*, have turned on innovation issues or on conduct involving intellectual property. To a considerable extent these non-merger cases reflect competition issues raised by business arrangements that combine intellectual property rights or that settle disputes arising from interfering intellectual property rights. Antitrust issues have been raised when a combination of intellectual property rights or a collective decision to support a particular industry standard creates or enhances market power, and when a settlement of an intellectual property dispute extends the life of a weak patent. Cases such as *Microsoft* and *Visa-MasterCard* have addressed the effects of industry structures and business arrangements on the pace of innovation.

We conclude that innovation is not quite "King" at the antitrust agencies, although its role has become increasingly important and has been decisive in several merger and non-merger enforcement actions that have potentially very significant impacts for consumer welfare. We also find that the approaches followed by the antitrust Agencies in these cases are generally consistent with the principles and policies described in the IP Guidelines, although we note several areas where additional guidance would be desirable.

---

[1] U.S. Department of Justice and Federal Trade Commission Antitrust Guidelines for the Licensing of Intellectual Property (1995), reprinted in 4 Trade Reg. Rep. (CCH) ¶13,132 (hereinafter IP Guidelines).

In making these assessments, we emphasize that our investigation is guided by the facts as represented to us in public documents released by the antitrust Agencies. Moreover, we add the disclaimer that, as individuals involved in the drafting of the IP Guidelines (as well as in some of the enforcement actions described in this paper), we are not entirely objective evaluators of the Guidelines' role in antitrust policy. Nonetheless, we feel qualified to comment on the use of the IP Guidelines in antitrust enforcement and the value of additional guidance for antitrust policy related to innovation and intellectual property licensing.

II. KEY PRINCIPLES IN THE DOJ AND FTC GUIDELINES

Before turning to whether a focus on innovation has made any difference to antitrust enforcement, we first pause to consider whether it should, and in what ways it might. There is little doubt that technological innovation is a key driver of economic progress[2] and that an increase in the rate of technological change can offset the adverse impact on consumer welfare from supra-competitive prices.[3] Consequently, it is especially important that antitrust policy be formulated in a way that fosters rather than impedes such innovation. That does not mean that antitrust policy need necessarily be different as a result. However, high-technology markets do in fact differ from other markets in significant respects. In particular, high-technology markets are characterized by rapid rates of technological change, high fixed costs of research and development relative to the variable costs of production, knowledge spillovers, and (sometimes) strong "network effects."

Rapid rates of technological change imply that the competitive significance of firms can change suddenly and drastically, with once dominant firms becoming marginalized by new technical developments in their fields. The Department of Justice antitrust case against IBM

[2] Robert Solow first observed that traditional measures of capital and labor explained only a fraction of economic growth and concluded that technological progress was responsible for the remainder. *See* Robert M. Solow, *Technical Change and the Aggregate Production Function,* 39 REV. OF ECON. & STAT. 312 (1957). Denison concluded that advances in knowledge accounted for 28 percent of total U.S. economic growth over the period 1929-82 and more than half of the growth of national income per worker over that period. *See* Edward F. Denison, TRENDS IN AMERICAN ECONOMIC GROWTH 1929-1982 (1985). More recent estimates are consistent with these findings. *See*, *e.g.*, Charles I. Jones, INTRODUCTION TO ECONOMIC GROWTH (1998).

[3] For example, an increase in the rate of technological progress from two percent to three percent per year would offset a five percent reduction in economic welfare after 5.5 years, and would generate additional benefits after that time.

became largely moot as developments in small and personal computers undermined the economic significance of IBM's leadership in mainframe computing.[4]

The high fixed costs of R&D relative to marginal production costs also has potentially important ramifications for antitrust policy. The model of perfect competition, which is the benchmark for traditional antitrust analysis, simply does not apply to many high-technology markets. If product prices equal marginal production costs, many high-tech firms could not cover the costs necessary to invent and develop the products in the first place. Put another way, market power, which is the ability to set price above marginal cost, is *necessary* to the survival of many high-technology industries.

Knowledge spillovers also can be important for the structure and performance of high-technology markets. Firms that invest in research and development often create knowledge that benefits others, including their competitors. Even strong intellectual property rights may be insufficient to capture a large share of the knowledge benefits from R&D. Other ways to appropriate the benefits of knowledge are to have a large share of the production that the knowledge affects or to form alliances to share information. If so, concentrated market structures and cooperation among competitors, traditionally antitrust evils to be avoided if possible, may benefit consumers.

Yet another reason why high-technology markets may gravitate to concentrated market structures is the presence of strong "network effects," which imply that the value of a product increases with the number of consumers that purchase the product (and with the number of firms that supply products and services that complement the product).[5] These network effects, like other economies of scale, potentially benefit consumers. However, the presence of network effects, combined with the costs of switching between incompatible networks, can raise high barriers to the entry of competing networks.[6]

For these reasons, high market concentration may be a natural state in high-technology markets. In the extreme, the "Schumpeterian hypothesis" that large and dominant firms promote vigorous technological progress (named after Joseph Schumpeter, who championed

[4] United States v. IBM Corp., Civil Action. No. 69 (S.D.N.Y. filed Jan.17, 1969).
[5] Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93 (1994).
[6] *See, e.g.*, Carl Shapiro, *Exclusivity in Network Industries*, 7 GEO. MASON L. REV 1 (1999).

this view in 1942)[7] suggests a much more circumspect role for antitrust policy, which is traditionally premised on the benefits of competition. Conversely, the special characteristics of high-technology markets and a concern about innovation could argue for *increased* antitrust vigilance, on the theory that the potential for high rates of technological change and network effects magnify the harm from conduct that slows down such change or distorts the competition to become the dominant standard.

The agencies have not formally articulated their view on how, if at all, a concern about innovation alters their approach to antitrust enforcement. They have, however, considered the analogous question of how to take into account the differences between intellectual property and other forms of property. Despite substantial differences between these forms of property,[8] they have declared their confidence that for the purpose of *antitrust* analysis, intellectual property is essentially comparable to any other form of property.[9] One might expect the agencies to take a similar approach to whether antitrust should be different in high-technology markets: to treat competitive markets as generally conducive to innovation and to deal with factors such as technological change, high fixed costs, knowledge spillovers, and network effects on a case-by-case basis, rather than through the broad generalizations either of the Schumpeterian hypothesis or of the arguments for stricter scrutiny. As we show below, this is indeed how the agencies have approached actual antitrust enforcement actions since 1995. The authors also agree with this general approach. There is little evidence that more concentrated markets are necessarily beneficial for research and development (although certain combinations, such as research joint ventures, have produced positive results). Furthermore, there is at least anecdotal evidence that innovation can thrive in competitive market structures.[10]

---

[7] JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 81-106 (1942).

[8] Among other things: (1) intellectual property is easier to misappropriate than other forms of property; (2) a patent grants the owner a power of exclusion that, in some respects, exceeds the powers that attach to tangible property; (3) the fixed costs are typically higher and the marginal costs lower than other forms of property; (4) to commercialize a product and earn a return, a larger number of complementary inputs with some degree of market power often must be brought together, and (5) the boundaries of intellectual property defy accurate survey to a much greater extent than do those of tangible property. Some implications of the last characteristic are discussed in Willard K. Tom, *The 1975* Xerox *Consent Decree: Ancient Artifacts and Current Tensions*, 68 ANTITRUST L.J. 967, 987-89 (2001).

[9] As stated by the IP Guidelines: "Intellectual property has important characteristics, such as ease of misappropriation, that distinguish it from many other forms of property. These characteristics can be taken into account by standard antitrust analysis, however, and do not require the application of fundamentally different principles." IP Guidelines § 2.0, 2.1.).

[10] *See*, *e.g.*, MICHAEL PORTER, THE COMPETITIVE ADVANTAGE OF NATIONS (1990).

III. INNOVATION CONCERNS IN DOJ AND FTC MERGER ENFORCEMENT SINCE THE IP GUIDELINES: OFTEN CITED, RARELY DECISIVE

A. The Rise of Innovation Concerns in The 1990s

The publication of the IP Guidelines in April 1995 coincided with heightened concerns expressed by the antitrust agencies about the adverse effects of mergers and acquisitions on innovation. From the start of Fiscal Year 1995 through the end of Fiscal Year 1999,[11] the Department of Justice and the Federal Trade Commission challenged a total of 269 mergers and acquisitions (excluding bank transactions). Most of these challenges were settled with consent decrees. The agencies cited concerns about the transaction's likely impact on innovation as a reason for the challenge in 47 of these 269 cases, or in 17.5 percent of all challenges over this time period. Table 1 shows the breakdown for mergers and acquisitions challenged by the DOJ and the FTC. The DOJ challenged 121 mergers in the time period from FY 1995 through FY 1999 and mentioned innovation as a reason for the challenge in eleven of them (9.1 percent). The FTC challenged 148 mergers during this period and mentioned innovation as a reason for the challenge in 36 of the cases (24 percent of the merger challenges).[12]

Table 1

Challenges to Mergers and Acquisitions: FY 1995 – FY 1999

	DOJ	FTC	TOTAL
Merger Challenges	121	148	269
Challenges alleging innovation effects	11	36	47
Percentage of challenges	9.1%	24%	17.5%

[11] FY 1995 through FY 1999 covers the period October 1, 1994 through September 30, 1999.

[12] The higher percentage of merger challenges at the FTC that include innovation as a reason for the challenge does not necessarily mean that the FTC has a more activist approach to the antitrust evaluation of innovation than does the DOJ. The Agencies tend to specialize in industries that differ in the competitive effects of industry structures on innovation.

For comparison, Table 2 shows the number of DOJ and FTC challenges to mergers and acquisitions in the time period from the start of FY 1990 through the end of FY 1994. The agencies challenged a total of 135 mergers and acquisitions over this period (excluding bank transactions). This is about one-half of the number challenged from FY 1995 through FY 1999 and is generally consistent with the increase in the number of mergers and acquisitions that occurred in the latter half of the 1990s. More importantly for our purposes, the agencies noted that innovation was a factor in the challenges in only four cases, two by the DOJ and two by the FTC. The agencies identified innovation as a reason to challenge a merger or acquisition in only three percent of the challenges over this period. This is far below the 17.5 percent of the cases that included innovation as a reason for the challenge in the second half of the 1990s.

Table 2

Challenges to Mergers and Acquisitions: FY 1990 – FY 1994

	DOJ	FTC	TOTAL
Merger Challenges	64	71	135
Challenges alleging innovation effects	2	2	4
Percentage of challenges	3%	3%	3%

B. Has Innovation Been Central to Merger Enforcement by the Agencies?

The statistics in Tables 1 and 2 show that innovation has loomed large in the latter half of the 1990s as a stated reason for the agencies' merger enforcement policies. Yet these data are not sufficient to show that innovation concerns have been pivotal in the agencies' enforcement decisions. Whether innovation has emerged as a foundation for merger policy is not an easy question to answer because we are not privy to the agencies' hierarchy of competitive concerns, other than what they express in their public announcements. We can, however, ask a different question: based on the information in the public record, is there reason to believe that antitrust enforcement actions would have been different if the agencies did not pursue innovation as a policy concern?

With respect to innovation, mergers challenged by the FTC and by the DOJ can be divided into three categories.

- Mergers that would reduce competition in an existing goods market.
- Mergers that would reduce potential competition in an existing goods market.
- Mergers that would reduce competition only in an innovation or technology market or in a goods market that does not yet exist but is predicted to exist in the future.

All antitrust impacts ultimately follow from effects on price, quality, and availability of goods and services. Nonetheless, innovation market analysis can be a useful tool where a merger or practice affects goods and services that do not yet exist, or affects the quality-adjusted price of goods and services in markets where firms are not actual or potential competitors.[13] Thus, innovation market concerns have a direct impact on the antitrust enforcement approach and outcome for mergers that fall in the last of the three categories described above. Goods markets are sufficient to analyze transactions that primarily affect competition in markets for existing goods and services. Innovation analysis may inform concerns about mergers that fall in this first category,[14] but it is not necessary to reach an enforcement decision. An innovation market approach could be useful as an analytical tool for mergers that fall in the second category,[15] but in principle these transactions can be analyzed by applying potential competition doctrine.[16]

A closer look at the mergers challenged by the agencies in which there was a claim that the merger would harm innovation shows that, in a large majority of cases, the merger's impact on prices in markets for existing goods and services likely would have been sufficient to challenge the transaction. Take, for example, the FTC press release announcing settlement of

[13] An example of the latter impact is United States v.General Motors, Civ. No. 93-530 (D.D.C. 1993) (innovation effects in markets where the parties are not actual or potential competitors).

[14] According to the IP Guidelines, "[i]f a licensing arrangement may adversely affect competition to develop new or improved goods or processes, the Agencies will analyze such an impact either as a separate competitive effect in relevant goods or technology markets, or as a competitive effect in a separate innovation market." IP Guidelines §3.2.3. In the former case, although innovation concerns may have been significant, pre-Guidelines analysis would often have condemned the merger in any event, based on the usual concentration, competitive effect, entry, and efficiency analysis in the relevant goods markets.

[15] *See* Richard J. Gilbert & Steven C. Sunshine, *Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets*, 63 ANTITRUST L.J. 569 (1995).

the challenge to the acquisition of Cordis Corporation by Johnson and Johnson.[17] In addition to innovation concerns, the FTC noted that the acquisition, if it proceeded without the required divestiture, would give just two firms control of 85 percent of the market for neurological shunts used in the treatment of hydrocephalus, and that entry by a new firm in a timely manner would be unlikely because of difficulties in developing competitive neurological shunt designs, establishing manufacturing facilities, organizing a sales and service network and obtaining Food and Drug Administration approval.[18] These are likely sufficient grounds to challenge the merger without regard to its effects on innovation (assuming that competitive effects in the market for neurological shunts reflect the high market shares and there are no substantial offsetting efficiencies).

Publicly available information suggests that most of the forty-seven merger challenges from FY 1995 through FY 1999 in which innovation was mentioned as a competitive effect would have been challenged, and the same relief obtained, based solely on their likely price effects in markets for existing goods and services. In these cases, the mergers combined actual competitors in highly concentrated markets with high barriers to entry. In our evaluation, another five of these forty seven cases could have been challenged based on a theory of potential competition following enforcement principles described in the 1984 Merger Guidelines (still in effect for non-horizontal mergers).[19] In each of these five cases, one of the merging parties was an established producer in a concentrated market and the other party was identified as a likely potential entrant.[20] Of the forty-seven cases in which innovation was

---

[16] *See* Robert J. Hoerner, *Innovation Markets: New Wine in Old Bottles*, 64 ANTITRUST L.J. 49 (1995) and Richard T. Rapp, *The Misapplication of the Innovation Market Approach to Merger Analysis*, 64 ANTITRUST L.J. 19 (1995).

[17] December 20, 1995, available at http://www.ftc.gov/opa/1995/9512/jj.htm.

[18] *Id.*

[19] U.S. Dep't of Justice, Merger Guidelines, 49 Fed. Reg. 26,823 (1984), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,103.

[20] These cases are (i) Boston Scientific Corporation, 119 F.T.C. 549 (1995); (ii) Hoechst AG, 120 F.T.C. 1010 (1995); (iii) ABB/Elsag Bailey Process Automation N.V., Dkt. No. C-3867 (complaint and settlement issued January 11, 1999) (complaint available at http://www.ftc.gov/os/1999/9901/9910040cmp.htm); (iv) Zeneca Group plc/Astra AB, FTC File No. 991 0089 (complaint and settlement issued Mar. 25, 1999) (complaint available at http://www.ftc.gov/os/1999/9903/zenecacmp.htm); (v) Hoechst AG/Rhone-Poulenc, C-3919 (complaint and settlement issued Dec. 7, 1999) (complaint available at http://www.ftc.gov/os/1999/9912/hoechstcmp.htm).

mentioned as a competitive effect, we have identified about eight cases for which innovation effects probably[21] were central and *necessary* to the enforcement decision, in whole or in part.[22]

These eight cases represent only three percent of the mergers challenged by the agencies in the period from FY 1995 through FY 1999. We do not mean to imply that innovation concerns were unimportant to the enforcement decisions in the other cases. But, in our opinion, these cases could have been successfully litigated based on price effects in markets for existing goods and services or based on a theory of potential competition in markets for existing goods and services. Furthermore, we have seen no public indication that the agencies have relied on innovation effects to allow a merger that would otherwise be blocked because of its impacts on existing goods and services. The bottom line for merger enforcement policy at the agencies is that, in most cases, innovation has not changed the enforcement decision, either as a reason to block a merger or as a reason to allow an otherwise troublesome transaction to occur. We describe the handful of cases in which innovation was central to the enforcement decision in more detail below.

C. Innovation effects where firms do not compete in goods markets

Sensormatic and Knogo were competitors in the manufacture of electronic article surveillance (EAS) systems and components. Sensormatic proposed to acquire all of Knogo assets outside of North America, plus intellectual property assets in North America for manufacturer-installed disposable anti-shoplifting labels, a next-generation product that did not yet exist but as to which both Sensormatic and Knogo had active R&D programs. It is difficult to tell from the public record materials,[23] but we infer from them that Knogo did not use its non-North American assets to produce and sell current-generation products into the United States. Therefore, the proposed acquisition did not eliminate any competition within U.S. jurisdiction

[21] In some cases, it is difficult to make a confident judgment because the publicly available information is so sparse. In Monsanto/DeKalb, for example, we have only a press release on which to base a judgment because the Justice Department generally does not seek a consent decree when the relief it would seek has been fully implemented prior to the time a challenge would occur. Press Release, U.S. Department of Justice, Justice Department Approves Monsanto's Acquisition of DeKalb Genetics Corporation (Nov. 30, 1998), (available at http://www.usdoj.gov/atr/public/press_releases/1998/2103.htm.)

[22] We say "in part," because in at least three of these cases, it appears that the merger would have elicited a challenge based on traditional goods market analysis with respect to at least some products, but the innovation analysis resulted in relief in markets that may otherwise have gone unchallenged.

[23] *See* Sensormatic Electronics Corp., 119 F.T.C. 520 (1995); *see also* Analysis to Aid Public Comment, 60 Fed. Reg. 5428 (Jan. 27, 1995).

in current generation EAS products. The FTC challenged the acquisition in two relevant markets: "the research and development of disposable labels developed and used for source labelling," and "the research and development of processes to manufacture disposable labels."[24] In those markets, the FTC alleged that the acquisition would adversely affect both Knogo's incentives to conduct R&D and the number of research tracks that would be devoted to developing the next generation product.[25]

Thus, for geographic reasons, goods market competition was absent, but the merger nonetheless had great significance for R&D competition, which would affect the quality-adjusted price of products sold in the future by Sensormatic in the United States. In these respects, the case strongly resembles GM-Allison / ZF Friedrichshafen,[26] a case brought by the Justice Department early in the development of the IP Guidelines.

D. Pharmaceutical Cases with Two Pipeline Products

The FTC has had a number of pharmaceutical cases in which no drug of a particular therapeutic type yet exists, but the merging parties were well ahead of any other firms in developing such a drug, getting FDA approval, and commercializing it. These cases would not be susceptible to the traditional potential competition doctrine because, as articulated by the 1984 Merger Guidelines, the doctrine only applies to "the non-horizontal merger *of a firm already in a market* with a potential entrant to that market."[27] The innovation market concept has clearly been useful to the agencies in dealing with such situations, although it must be noted that, despite the potential difficulties, the FTC brought such a case in 1990 as a potential competition case.[28]

In *Glaxo/Wellcome,* the FTC alleged that, without modification, Glaxo plc's planned $14.3 billion acquisition of Wellcome plc would have substantially lessened competition in the U.S. market for the research and development of a class of drugs in oral form used to combat

---

[24] *Sensormatic,* 119 F.T.C. at 522.
[25] *Id.* at 523.
[26] United States v. General Motors, Civil Action No. 93-530 (D.D.C. 1993). See Gilbert & Sunshine, *supra* note 15, at 587 for a discussion of the enforcement issues in this case.
[27] § 4.11 (emphasis added).
[28] Roche Holding Ltd., 113 F.T.C. 1086 (1990) (market in which firms were far along in R&D, but no existing product). The case has been described as a "double potential competition" case. M. Howard Morse, *The Limits of Innovation Markets*, ANTITRUST & INTELL. PROP. (ABA. Intell. Prop. Comm. Newsl., Chicago, IL), Spring 2001, at 22, 23.

migraine attacks, known as 5HT1D agonists.[29] At the time the merger was proposed, migraine drugs were available only in injectable form, and the FTC did not consider them sufficiently close substitutes for oral drugs to be included in the relevant product market.[30] Glaxo and Wellcome were the two firms that were farthest along in developing an oral drug for migraine attacks, and the acquisition would have eliminated research and development competition between them[31] According to William Baer, Director of the FTC Bureau of Competition, Glaxo would have an incentive to reduce R&D effort because the merged firm would not face competition to introduce an oral drug until some third firm could complete the FDA approval process many years hence.[32]

The FTC permitted the merger to go forward under the condition that Wellcome divest its worldwide research and development assets for non-injectable drugs. Baer noted that the divestiture succeeded in maintaining vigorous competition in the development of oral drugs for migraines and allowed Zeneca to receive FDA approval for an oral migraine drug in only 15 months. He attributed this to the obligations imposed on Glaxo to provide information, technical assistance, and advice to the acquirer about the R&D efforts, and the requirements to provide consultation with and training by Glaxo employees knowledgeable about the project.[33]

The FTC took a similar approach in *Upjohn/Pharmacia*[34] and in some of the markets in *Baxter/Immuno*[35] and *American Home Products/American Cyanamid*.[36] In *Upjohn/Pharmacia*, the relevant market was defined as "the research, development, manufacture and sale of topoisomerase I Inhibitors for the treatment of colorectal cancer."[37] The FTC noted that "no topoisomerase I Inhibitor has yet been approved for sale in the United States," but that "Upjohn and Pharmacia are two of only a very small number of firms currently in the advanced stages of

[29] Glaxo plc, 119 F.T.C. 815, 816-17 (1995).
[30] William J. Baer, Antitrust Enforcement and High-technology Markets, Address before the ABA Sections of Business Law, Litigation, and Tort and Insurance Practice, (Nov. 12, 1998) (available at http://www.ftc.gov/speeches/other/ipat6.htm) [hereinafter Baer, Antitrust Enforcement].
[31] Press Release, Federal Trade Commission, Glaxo to Settle FTC Charges Will Divest Wellcome Assets to Consummate Merger (March 16, 1995) (available at http://www.ftc.gov/opa/predawn/F95/glaxo-wellcome.htm).
[32] Baer, Antitrust Enforcement, *supra* note 30.
[33] *Id.*
[34] 121 F.T.C. 44 (1996).
[35] 123 F.T.C. 905 (1997).
[36] 119 F.T.C. 217 (1995).
[37] 121 F.T.C. 44, 45.

developing topoisomerase I inhibitors for the treatment of colorectal cancer in the United States."[38]

In *Baxter/Immuno* there were two types of products, Factor VIII Inhibitor treatments and Fibrin Sealant. The former was an existing goods market, and Baxter and Immuno were the only two suppliers in the United States. No one had yet received FDA approval for Fibrin Sealant, however. Baxter and Immuno were two of only a small number of companies seeking FDA approval for such a product. Thus, an innovation market approach was essential for dealing with the problem in one market, but largely irrelevant to the other.

AHP/American Cyanamid was of the same pattern. In three markets, AHP and American Cyanamid were actual competitors in a goods market. In one market (cytokines for white blood cell and platelet restoration), Cyanamid was an existing seller and AHP was a potential competitor. And in yet another market (rotavirus vaccine), neither company had a product, but they were strong R&D competitors.[39]

E. Innovation Competition and Aggregation of Patent Portfolios

The FTC alleged that the proposed merger of Ciba-Geigy Ltd and Sandoz Ltd. would adversely affect competition for the development and commercialization of gene therapy treatments.[40] Gene therapy is a new means of treating diseases or medical conditions by modifying genes in patients' cells. Ciba-Geigy (through its 46.5 percent stock ownership interest in Chiron), and Sandoz had several gene therapy products in development at the time of the proposed merger, although no products were yet approved by the FDA. In addition, both parties had fundamental patents and other specialized assets important in researching, developing, and commercializing whatever gene therapy products might be discovered.

The FTC's complaint alleged that the merger would:

(a) combine alternative technologies and reduce innovation competition among researchers and developers of gene therapy products, including reduction in, delay of or redirection of research and development tracks;

(b) increase the merged firm's ability to exercise market power, either unilaterally or through coordinated interaction with Chiron, in the gene therapy markets;

[38] *Id.* at 46.
[39] 119 F.T.C. 217, 219-20.

(c) heighten barriers to entry by combining portfolios of patents and patent applications of uncertain breadth and validity, requiring potential entrants to invent around or declare invalid a greater array of patents; and

(d) create a disincentive in the merged firm to license intellectual property rights to or collaborate with other companies as compared to premerger incentives.

We discuss these four effects in a somewhat different order, starting with those most susceptible to traditional analysis.

Effect (b) addresses price effects in goods markets, with the important twist that the markets do not yet exist in commercial form and may never exist if clinical trials go badly. As noted above, this kind of effect can be characterized as potential competition if one is willing to treat the doctrine as including competition in the future between products that do not yet exist.[41]

Effect (a) addresses the same markets at issue as in effect (b), which one could characterize as goods markets that do not presently exist, but may exist in the future. Rather than addressing price effects in these markets, this element of the complaint addresses innovation effects. That is, it asks whether innovation itself will be reduced. Of course, the same question can be asked of a market in which there are already existing products, which is why the IP Guidelines note that in many cases, rather than define an innovation market, the agencies will evaluate innovation effects in a goods market.[42]

Effect (d) deals with horizontal competitive effects in an existing technology market. According to the FTC, the merger would combine existing intellectual property rights held separately by Ciba-Geigy and Sandoz. These rights were alleged to be substitutes for each other but essential complements to the R&D efforts of other firms attempting to develop gene therapy products.[43] By combining their substitute technology rights, the merger would make it

---

[40] *Ciba-Geigy*, 123 F.T.C. 842, 843-45 (1997).
[41] *See supra* note 28.
[42] IP Guidelines § 3.2.3.
[43] *See* Analysis to Aid Public Comment, In the Matter of Ciba-Geigy, at 6 (premerger, Ciba and Chiron "had the incentive and did act as rival centers from which others could obtain needed intellectual property rights"), available at http://www.ftc.gov/os/1996/9612/ciba.pdf; Sheila F. Anthony, *Antitrust And Intellectual Property Law: From Adversaries To Partners*, 28 AIPLA Q.J. 1 (Winter 2000), available at http://www.ftc.gov/speeches/other/aipla.htm ("What the competitors lacked were the patent rights to complementary technologies that they previously were able to obtain either through Ciba or Sandoz, but which, absent the Commission's order, would have been monopolized post-merger."); Willard K. Tom, Licensing and

easier for the merged company to foreclose competition by unilaterally refusing to license potential competitors or to extract rents from gene therapy products by raising the price of their essential technology.[44]

Effect (c) deals with vertical effects in a technology market. According to the FTC, the combination of the parties' patent portfolios could have adverse consequences for competition even if the patents are complements rather than substitutes (meaning that having licenses from both companies would be helpful to engage in gene therapy research and development). Without the merger, each firm could compete by licensing, inventing around, or proving invalid, the other firm's patents, and a third-party firm could compete by licensing from one firm and inventing around or invalidating the patents of the other. With the merger, a rival firm would have to license, invent around, or prove invalid, both firms' patents, which could be a much more formidable task. This is a variant of the two-level entry problem discussed in § 4.21 of the 1984 Merger Guidelines.[45]

With respect to each of these alleged effects, the FTC identified ways in which Ciba-Geigy and Sandoz would offer competition to each other in the absence of a merger or license. The FTC's evaluation of the competition issues raised by combining the Ciba-Geigy and Sandoz patent portfolios is consistent with a fundamental principle in the Intellectual Property Guidelines, namely, that a transaction may raise antitrust concerns if it eliminates competition that would have occurred in its absence.[46] The FTC alleged that the proposed merger would

---

Antitrust: Common Goals and Uncommon Problems, Address before the Before the American Conference Institute 9th National Conference on Licensing Intellectual Property (Oct.12, 1998), available at http://www.ftc.gov/speeches/other/aciippub.htm ("As long as they can play one off against the other, the potential rewards are so great that it pays the firms to continue their research. Post-merger, however, the combined entity becomes a single bottleneck. Since the research firms can no longer play one off against the other, the terms on which they can partner with the combined entity change markedly for the worse.").

[44] Another case during the relevant period, Monsanto/DeKalb, appears to address similar concerns. While we have only a press release to go on, because the parties implemented the remedy immediately and obviated the need for a consent decree, that release indicates that the Justice Department was concerned about two types of competing intellectual property: (1) patents on competing methods of corn transformation, and (2) patents on competing types of corn germplasm. In each case, the concern was that "[b]iotechnology developers wanting to introduce improvements in corn require[d] access" to such patents. Press Release, U.S. Department of Justice Justice Department Approves Monsanto's Acquisition of Dekalb Genetics Corporation, (Nov. 30, 1998), available at http://www.usdoj.gov/atr/public/press_releases/1998/2103.htm.

[45] Willard K. Tom & Joshua A. Newberg, *Antitrust and Intellectual Property: From Separate Spheres to Unified Field*, 66 ANTITRUST L.J. 167, 218-19 (1997).

[46] IP Guidelines §3.1 ("[A]ntitrust concerns may arise when a licensing arrangement harms competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the license (entities in a "horizontal relationship") (footnote omitted).

have eliminated such competition. However, to the extent that Ciba-Geigy and Sandoz each owned intellectual property that might block attempts by the other party to compete in the manufacture or sale of gene therapy products, combining blocking intellectual property rights might have procompetitive benefits, such as eliminating double-marginalization and making licensing easier by combining essential patents.[47] The agencies would do a public service by elaborating on the circumstances in which the competitive concerns from eliminating potential competition are likely to be more compelling than the efficiency benefits from integrating blocking or complementary intellectual property rights.

The FTC resolved its concerns about competition in research and development of gene therapies by imposing a number of licensing conditions on the merged company. These included a requirement to grant non-exclusive licenses to one firm for patents on certain gene therapy technologies, a requirement to license several basic patents to all comers non-exclusively at low royalties, and an order that would bar Ciba, Chiron, and Sandoz from acquiring exclusive licenses for technology related to the use of specified genes for chemoresistance gene therapy products.[48]

F. *Innovation Effects in Price-Regulated Markets*

The DOJ filed suit on March 23, 1998, to prevent the proposed acquisition of Northrop Grumman by Lockheed Martin.[49] Northrop and Lockheed compete to develop, manufacture, and sell a range of electronics systems and military aircraft to the U.S. military. These include airborne early warning radar, directed infrared and on-board radio frequency countermeasures systems, the SQQ-89 antisubmarine warfare combat system, electro-optical missile warning systems, remote mine hunting systems, stealth technology, fiber-optic towed decoys, and high performance fixed-wing military aircraft. In addition, Lockheed and Northrop are also prime and sub-contractors for several military systems. The DOJ contended that the merger would make it easier for the merged company to favor its own capabilities for subsystems at the

---

[47] Willard K. Tom, *The 1975 Xerox Consent Decree: Ancient Artifacts and Current Tensions*, 68 ANTITRUST L.J. 967, 987-88 (2001).

[48] Press Release, Federal Trade Commission, FTC Accord in Ciba Geigy/Sandoz Merger to Prevent Slowdown in Gene Therapy Development & Preserve Competition in Corn Herbicides, Flea-Control Markets (December 17, 1996) available at http://www.ftc.gov/opa/1996/9612/ciba.htm.

[49] United States v. Lockheed Martin and Northrop Grumman, (D.D.C. Mar. 23, 1998) (Complaint), available at http://www.usdoj.gov/atr/cases/f1600/1609.htm.

expense of rival suppliers and to collect competitively sensitive information about its rivals, causing harm to competition in markets for these subsystems.[50]

Many of the markets in which Lockheed and Northrop compete are highly concentrated and have very high barriers to entry. Thus, the challenge to the merger could have been based solely on a traditional analysis of competition in existing goods markets. However, according to Rubinfeld and Hoven, "the cornerstone of the challenge was concern that the acquisition would substantially lessen *innovation* in various products and services for defense applications."[51] The DOJ did not specifically allege harm to competition in a market for innovation in the Lockheed-Northrop case. However, as a line of commerce, the complaint identified the *development* as well as production and sale of the products at issue.[52]

The preservation of R&D paths was an important factor in the DOJ's decision to challenge the proposed merger of Lockheed and Northrop. Successful innovation is equal parts inspiration and perspiration, and a dose of good luck. Sometimes a firm succeeds in introducing new products and services because its business focus requires specialized R&D assets that prove particularly valuable for new applications. Other times, a firm succeeds because it has the courage and foresight to strike off in new directions. DeSanti and Yao note the importance of diversity in R&D paths for successful industrial innovation.[53] According to this theory, it is not necessary that firms' research and development programs compete directly with each other. Instead, the value for innovation stems from preserving multiple R&D paths, any one of which may be successful.

---

[50] The Department of Defense also opposed the merger. Complaint ¶ 7 (quoting Letter from William S. Cohen, Secretary of Defense to Janet Reno, United States Attorney General (Mar. 23, 1998)).

[51] Daniel L. Rubinfeld & John Hoven, Innovation and Antitrust Enforcement (Jan. 19, 1999) (unpublished manuscript to be published in edited volume by Cambridge University Press) (on file with the authors) (emphasis added). Rubinfeld was Chief Economist and Hoven was staff economist at the DOJ during the investigation of the proposed Lockheed-Northrop merger.

[52] *Lockheed/Northrop* had pronounced effects on the structure of existing goods markets and therefore may not belong on the list of mergers for which innovation concerns were central to the enforcement decision. We err on the side of over-inclusion because technology plays a particularly important role in weapons systems and Department of Defense procurement policies may constrain the price effects from mergers. If *Lockheed/Northrop* does belong on the list of innovation cases, so may other defense-related mergers in the relevant time period. These include *Lockheed/Loral*, *Lehman Brothers/L-3 Communications*, and *Raytheon/Hughes*. *See* Lockheed Martin Corporation, 122 F.T.C. 161 (1996); United States v. Lehman Brothers, Civil Action No.: 1:98CV00796 (D.D.C. filed Mar. 27, 1998); (Complaint) United States v. Raytheon, Civ. No.: 1:97CV02397, (D.D.C. filed Oct. 16, 1997) (Complaint). (available at http://www.usdoj.gov/atr/cases/f7100/7132.htm). However, the agencies alleged substantial price effects in all of these mergers, as well as in *Lockheed/Northrop*.

[53] Susan S. DeSanti & Dennis A. Yao, *Innovation Issues Under the 1992 Merger Guidelines*, 61 ANTITRUST L.J. 505 (1993).

Focusing on the market for high-performance fixed-wing aircraft, Rubinfeld and Hoven note that

> "the issue was not whether a consolidation from three airframe manufacturers to two would reduce the intensity of innovative effort. The published literature does not yield a clear conclusion on that, especially since a large share of R&D spending is funded by the Department of Defense. Rather, the issue was that the number of independent innovators will be reduced by one . . . ."[54]

The DOJ Director of Operations and Merger Enforcement echoed the importance of innovation in the DOJ's decision to challenge the *Lockheed/Northrop* merger and emphasized the need to maintain diversity in the core capabilities to develop and produce advanced military systems.[55]

The Lockheed-Northrop case features prominently in the DOJ's evolving approach to the analysis of innovation issues. The case demonstrates that the DOJ will act to preserve the diversity of R&D efforts even if there is no clear evidence that these efforts are competitive substitutes in the design and development of new goods and services.

IV. DOJ AND FTC NON-MERGER CASES THAT INVOLVE INNOVATION

The antitrust agencies have identified innovation concerns as significant factors in several recent non-merger investigations. We discuss some of the more important examples in this section.

[54] Rubinfeld & Hoven, supra note 51, at 31.
[55] Constance K. Robinson, Leap-Frog And Other Forms Of Innovation: Protecting the Future for High-Tech and Emerging Industries Through Merger Enforcement, Address before the American Bar Association (June 10, 1999), available at http://www.usdoj.gov/atr/public/speeches/2482.htm.

A. United States v. Microsoft[56]

For many, the Microsoft case is the banner advertisement for the new focus of antitrust enforcement on innovation. The DOJ and seventeen states alleged that Microsoft monopolized the market for PC operating systems and the market for Internet browsers.[57] The alleged anticompetitive conduct included:

- tying the browser to the operating system, both by conditioning the license for the Windows operating system on the obligation to license Microsoft's Internet Explorer browser and by selling a bundled product consisting of the operating system and the browser;
- various licensing practices that made it more difficult for Microsoft's rivals to distribute competing browsers;
- a pattern of predatory conduct that included requiring computer manufacturers to install Microsoft's browser and undermining the Java language standard to discourage its widespread adoption.

The IP Guidelines note that "The agencies would be likely to challenge a tying arrangement if: (1) the seller has market power in the tying product, (2) the arrangement has an adverse effect on competition in the relevant market for the tied product, and (3) efficiency justifications for the arrangement do not outweigh the anticompetitive effects."[58] In *Microsoft* , the DOJ alleged, among other things, anticompetitive impacts in the market for the *tying* product. The government alleged that Microsoft tied the operating system and the browser to quash the entry threat posed by the popularity of Netscape and the platform-independent Java programming language. A lesson from the Microsoft case is that future guidelines should address a broader set of possible adverse competitive impacts from tying.

The allegation that Microsoft engaged in various licensing practices that impeded Microsoft's rivals' ability to distribute competing browsers is consistent with the IP Guidelines' discussion of exclusive dealing arrangements. According to the IP Guidelines:

---

[56] One of the authors (Gilbert) consulted for the Department of Justice in the Microsoft case.
[57] United States v. Microsoft, Civil Action No. 98-1232 (D.D.C. filed May 18, 1998) (Complaint) (available at http://www.usdoj.gov/atr/cases/f1700/1763.htm). See RICHARD J. GILBERT and MICHAEL L. KATZ , AN ECONOMIST'S GUIDE TO *UNITED STATES* V. *MICROSOFT*, Univ. of California, Working Paper (2000) for a more detailed discussion of the economic consequences of the alleged anticompetitive conduct in the Microsoft case.
[58] IP Guidelines § 5.3 (footnotes omitted).

> exclusive dealing occurs when a license prevents the licensee from licensing, selling, distributing, or using competing technologies. . . . In determining whether an exclusive dealing arrangement is likely to reduce competition in a relevant market, the agencies will take into account the extent to which the arrangement (1) promotes the exploitation and development of the licensor's technology and (2) anticompetitively forecloses the exploitation and development of, or otherwise constrains competition among, competing technologies.[59]

The government claimed that Microsoft's licensing practices constrained competition among competing technologies, even if it did not entirely foreclose Netscape, and that Microsoft offered few, if any, efficiency justifications.

The IP Guidelines are conceptually consistent with the allegations of exclusive and preferential dealing arrangements in the Microsoft case. However, it should be noted that conduct which increases a rival's costs can have anticompetitive effects even if the conduct does not completely foreclose distribution channels. As discussed below, this is particularly likely in the presence of network effects.

Much of the Microsoft case centered on the predatory nature of Microsoft's practices, including Microsoft's bundling strategy (which obligated computer manufacturers to license and install Microsoft's browser)[60] and interference with the Java language standard. As is typically the case with predatory conduct, consumers may benefit in the short run, but the practice can have adverse impacts in the long term that more than offset the near-term benefits. The key allegation in the Microsoft case was that Microsoft's conduct threatened to eliminate the combination of Netscape and the Java language that could enable other platforms to emerge as viable competitors to the Windows operating system. This is a concern about innovation and, in particular, innovation in markets with strong network effects. The IP Guidelines address concerns about innovation impacts, although not with enough specificity to conclude that disadvantaging a competitor such as Netscape would harm competition. Such an inquiry is

[59] IP Guidelines at § 5.4.

[60] In markets for intellectual property, where the marginal cost is close to zero, there is some ambiguity about whether giving a product away for free constitutes pricing below cost. Consequently, the DOJ focused on other aspects of Microsoft's bundling strategy, including prohibiting computer manufacturers from uninstalling

necessarily fact specific, and it is unlikely that guidance for antitrust policy could productively be crafted in sufficient detail to predict policy conclusions in complex cases such as the Microsoft case. What can be done is to include more discussion of competitive impacts in markets with strong network effects.

Network effects raise the possibility that conduct can "tip" consumer choices to produce outcomes that have persistent adverse effects. In network markets, successful predation does not require the destruction of a competitor. It can be sufficient to damage the competitor enough so that network forces lead to the emergence of a different market leader. Even in markets that have a "winner take all" property, maintaining a level competitive playing field is important for ensuring that the best firm is the winner. At the same time, one must recognize that achieving network effects, like other economies of scale, confer a consumer benefit. The Justice Department seemed to take this fact into account in seeking a remedy that did not attempt to create additional operating system companies.

In addition to these network issues, the Java allegation in the Microsoft case (and other enforcement actions, such as the Dell case at the FTC[61]) focused attention on the importance of conduct that interferes with the establishment of industry standards. Such conduct can be an anticompetitive abuse of market power and warrants attention in any future guidelines in the area of innovation and intellectual property.

Much of the conduct challenged in the Microsoft case could be held unlawful without regard to effects on innovation. The tying allegation, the contracts that allegedly excluded competition from rival browsers, and the allegation of monopoly maintenance through predatory conduct are all examples of conduct that could be evaluated from the perspective of price impacts in existing markets for goods and services (in this case, operating systems software and browsers). Such a perspective would be highly incomplete, however. First, a traditional static view might fail to give proper credit to Microsoft's defense that its setting of a zero price for Internet Explorer could allow consumers to benefit from the competition to secure a natural monopoly. In a market without innovation and network effects, pricing below cost might have no purpose other than to secure a monopoly through predatory means, so as to

---

Microsoft's browser and engaging in other conduct that increased the cost to consumers of obtaining the Netscape browser.

[61] Dell Computer Co., 121 F.T.C. 616 (1996), discussed at note 68 *infra* and accompanying text.

raise prices later. In a market inwhich network effects are strong enough to result in natural monopoly, offering low prices and better products in order to secure the monopoly position may confer consumer benefits. Second, a static view might fail to recognize the considerable harm that Microsoft's other alleged conduct – principally tying and exclusive dealing – could do by allowing Microsoft to win the standards race without competing solely on the merits of its products.[62] Failure to account for innovation effects, therefore, could result in either underenforcement or overenforcement in a market with strong network effects.

B. United States v. Visa and MasterCard[63]

On October 7, 1998, the DOJ filed suit against Visa and MasterCard, the two largest general purpose credit card networks in theUnited States.[64] The lawsuit alleged that Visa and MasterCard violated Section 1 of the Sherman Act by restraining competition in the market for general purpose card network products and services.

Visa and MasterCard are joint ventures (called "associations") of member banks. Most of the large banks are members of both joint ventures and are extensively involved in the governance of both organizations. Several large banks simultaneously serve on the board of directors of one association and on important committees of the other. The DOJ's complaint alleged that this dual governance structure diminished incentives for innovation by both organizations. Specifically, the complaint alleged that the overlap of competitive interests in both organizations and the sharing of competitively sensitive information have caused each defendant to reduce or delay its investments in new general purpose card technologies, products, and services. These include Internet technology, smart cards, and commercial cards.

The complaint alleged other anticompetitive conduct and effects, such as refraining from competitive advertising about the relative values of the Visa and MasterCard brands. Additionally, the complaint alleged that the defendants and their governing banks have harmed

---

[62] Recognizing that the issue was one of ensuring that consumers reaped the benefits of competition *for* the monopoly, rather than one of avoiding monopoly altogether, the Department explicitly conceded that charging a zero price for Internet Explorer was not anticompetitive in and of itself. *See, e.g.*, Brief for Appellees United States and the State Plaintiffs at 63-64, *United States v. Microsoft*, Nos. 00-5212, 00-5213 (D.C. Cir. filed Jan 12, 2001) ("Had Microsoft stopped there, it would not have violated the antitrust laws.").

[63] Mr. Tom's law firm represented Visa International in this litigation, although Mr. Tom was not personally involved. Because the matter remains in litigation as of this writing, Mr. Tom played no role in the drafting of this section.

[64] United States v. Visa USA, Inc., Civ. No. 98-civ.7076, (S.D.N.Y. Oct. 7, 1998).

competition by adopting rules and policies that prohibit their member banks from issuing cards on the American Express or Discover general purpose card networks.

For our purposes, the most interesting aspect of the Visa-MasterCard case is its allegation that the dual governance of these card networks has discouraged investment in new general purpose credit card technologies. This element of the DOJ's complaint deals directly with alleged harm to innovation resulting from the structure of a joint venture. The complaint does not allege that Visa and MasterCard have conspired to elevate prices for credit card services (which the complaint calls the "card-issuing" market). Several thousand financial institutions issue Visa and MasterCard charge cards and compete on the terms at which credit card services are offered. The complaint also does not allege that Visa and MasterCard have acted to impede competition for the services that enable merchants to accept general purpose credit cards (which the complaint calls the "card-acceptance" market). Instead, the DOJ's concern is that competition at the level of the network systems (including new card features and services) has been diminished by the structure of the Visa and MasterCard joint ventures.[65]

The DOJ's case rests on the theory that the structure of the Visa and MasterCard joint ventures reduces incentives for each party to invest in new products, services, and promotional activities that would "steal" business from the other party. The diminished incentives arise for two reasons. First, because major banks share in the ownership and governance of both associations, the overlapping financial interests reduce the ability of the controlling banks to benefit from innovations that move market share from one association to the other. The governing bodies would either discount the benefits of an innovation because it may harm the other association, or they may require an innovation to be shared by both associations, thereby reducing its value to the innovator. Second, because owners share competitively sensitive information, each association has the ability to learn of and react to competitive initiatives by the other association, thereby reducing the benefits of these initiatives to the moving party.

In general, whether firms have an incentive to invest in the economically efficient level of R&D depends on the extent to which they can appropriate the social benefits of their innovations. Empirical evidence strongly suggests that innovators capture only a fraction of the

[65] By impeding innovation at the system level, which provides inputs to the card-issuing and card-acceptance markets, the DOJ also alleged that the actions (and inactions) of the joint ventures raised quality-adjusted prices to consumers.

social value that their innovations create.[66] If this is also true for credit card associations, then the elimination of dual governance could promote economic efficiency by enhancing innovation incentives, and benefit consumers.

C. FTC v. Dell Computer

Standard-setting is an important instrument of competition in the high-technology economy. Standards play a key role in defining the gateways for competition. An open standard can lower barriers to entry by making it easier for products to work with each other. At the same time, an open standard can raise barriers to entry for products that do not conform to the standard and can create market power for firms that control key technology that is necessary to implement the standard.[67]

Standard-setting committees, such as the American National Standards Institute, often have internal rules to assure that the standard-setting process does not unduly create or enhance market power. One of these rules is a requirement that participants in the standard-setting process inform others of any proprietary intellectual property rights owned by the participants that may be necessary to implement the standard. If such rights exist, the owner must agree to license others at terms that are "fair and non-discriminatory."

In 1992, the Video Electronics Standards Association established a standard for the VL-bus, a mechanism to transfer instructions between a computer's microprocessor and its peripheral devices. Dell Computer was a participant in the standard-setting process, but did not disclose that it owned intellectual property that was necessary to implement the standard. After computer manufacturers sold more than 1.4 million personal computers incorporating the VL-bus, Dell announced its intent to collect royalties. The FTC intervened and accused Dell of engaging in unfair methods of competition by abusing the standard-setting process.[68] According to the FTC, Dell's actions hindered industry acceptance of the VL-bus standard pending resolution of the patent issue, deterred companies from using the VL-bus, created uncertainties that increased the costs of using the VL-bus and chilled the willingness of

---

[66] *See* Zvi Griliches, *The Search for R&D Spillovers*, 94 Scandinavian J. Econ. 29 (1992); Charles Jones & John Williams, *Measuring the Social Return to R&D*, 113 Q. J. Econ. 1119 (1998).
[67] *See* James J. Anton & Dennis A. Yao , *Standard-Setting Consortia, Antitrust, and High-Technology Industries*, 64 Antitrust L.J. 247 (1995).
[68] Dell Computer Co., 121 F.T.C. 616, 617-18 (1996).

companies to participate in standard-setting efforts. Dell settled the FTC's charges by agreeing not to enforce its patent against computer manufacturers incorporating the VL-bus design.

By requiring disclosure of intellectual property rights, the FTC avoided a possible "hold-up" in which a firm exploits market power created by its ownership of intellectual property that is necessary to implement a standard. David Balto of the FTC notes that the FTC consent order in the Dell case did not impose a general obligation for firms to disclose intellectual property rights in connection with standard-setting activities, but that since the issuance of the Dell order, many standard-setting entities have considered adopting strong disclosure requirements.[69]

D. FTC v. Intel[70]

On June 8, 1998, the FTC filed a complaint against the Intel Corporation accusing Intel of monopolizing the market for general purpose microprocessors.[71] The FTC's complaint charged that in separate incidents involving Digital Equipment Corporation, Intergraph Corporation, and Compaq Computer Corporation, Intel used its monopoly position to prevent those companies from enforcing their patent rights. In particular, the complaint alleged that in response to patent infringement litigation and/or refusals to license patents to Intel on the terms it sought, Intel ceased to provide advance technical information and pre-release products needed by those companies to produce personal computers and workstations built with Intel microprocessors.[72]

In the FTC's view, Intel's refusal to provide such information constituted the use of monopoly power in a tangible product in order to expropriate the intellectual property of others.[73] According to the FTC, the refusal tended to maintain Intel's monopoly power in microprocessors, because technological access is critical in a high-technology network industry where a potential rival is trying to dislodge the entrenched firm by introducing a technology superior enough to overcome the network effects or is offering an incremental improvement to

---

[69] David A. Balto, Standard Setting in a Network Economy, Address Before Cutting Edge Antitrust, Law Seminars International, (Feb. 17, 2000) (available at http://www.ftc.gov/speeches/other/standardsetting.htm).
[70] Gilbert was an expert witness for Intel in this litigation and Tom was deputy director of the FTC's Bureau of Competition. This discussion avoids any judgment as to the underlying facts of the case, and concentrates only on the theoretical frameworks used by each side.
[71] Intel Corp., FTC Docket No. 9288, (F.T.C. June 8, 1998) (Complaint).
[72] *Id*. ¶¶ 13, 19, 29, 35.

the incumbent standard.[74] If a competitor such as Digital was unable to use the patent system to prevent Intel from copying those advantages, so the argument went, it would lose its incentive to innovate, and Intel would lose the incentive to compete against such innovations. Moreover, another way to compete against Intel was to be sponsored by a powerful seller of complementary products. If manufacturers of personal computers and workstations, such as Compaq and Intergraph, were unable to pursue patented innovations that could not be copied by other manufacturers of Intel-based products, they would not be in a position to sponsor competition in the market for microprocessors. Thus, the FTC saw itself as the defender of patent rights, in keeping with the recognition in the IP Guidelines that intellectual property rights provided an important incentive for innovation.

Intel expressed a very different view. Intel disagreed with the FTC's conclusion that it possessed a monopoly in the market for general purpose microprocessors. Intel argued that it could not exclude microprocessor competition, its market share was the result of successful innovation, other microprocessor competitors could take advantage of the large installed base of Intel-compatible computer software, and that other firms would rapidly displace Intel if it failed to continue to innovate.[75] In response to the argument that Intel's conduct adversely affected innovation, Intel argued that Intergraph and Compaq were not currently competitors in the design, manufacture, or sale of microprocessors,[76] and that Intel's conduct could have no significant impact on R&D competition because Intel had broad cross-licensing arrangements with nearly all of its microprocessor competitors.[77] These included Advanced Micro Devices, IBM, Motorola, Sun, and Hewlett-Packard.

According to Intel, the number of R&D competitors was sufficient to earn the safe harbor treatment provided in the IP Guidelines.[78] Specifically, the Guidelines state:

> Absent extraordinary circumstances, the agencies will not challenge a restraint in an intellectual property licensing arrangement that may affect competition in an innovation market if (1) the restraint is not facially anticompetitive and (2) four or more independently controlled entities in

---

[73] *Id.* ¶ 39.
[74] *Id.*
[75] Intel Corporation's Trial Brief at 20-25, *Intel Corp.*, Dkt. 9288 (Feb. 25, 1999).
[76] *Id*. at 26.
[77] *Id*. at 28-29.

addition to the parties to the licensing arrangement possess the required specialized assets or characteristics and the incentive to engage in research and development that is a close substitute of the research and development activities of the parties to the licensing agreement.[79]

In the FTC's view, however, this argument missed the point, for two reasons: (1) any innovation by a firm that had given a cross-license to Intel could be copied by Intel, and (2) a cross-license would not immunize such a firm from a cut-off of essential trade secrets or a threatened cut-off of physical product.

In response to the FTC's claim that Intel's conduct denied the manufacturers of IBM-compatible computers, such as Digital and Compaq, the ability to benefit from innovations that differentiated their products, Intel argued that it had no cause to object to innovations that increased the values of computers that used its microprocessors, that it often supported such innovations, and that its conduct had no effect on such innovation in any case.[80] In the FTC's view, however, Intel did indeed have an incentive to ensure that no single personal computer manufacturer had proprietary control over important features of such computers, because such control would enable the computer manufacturer to appropriate a larger share of the joint product of the two firms (i.e., the microprocessor plus everything else).[81]

Finally, Intel argued that the conduct at issue occurred in the course of negotiations over arrangements to cross-license intellectual property that is necessary to manufacture and sell microprocessors. Hundreds, if not thousands, of patents read on the design and fabrication of modern microprocessors. The ownership of these patents is distributed widely. It would be impossible to make and sell a microprocessor legally without obtaining intellectual property rights from many different sources. The typical way that firms navigate this patent thicket is to build their own patent portfolios and enter into cross-licensing arrangements with other firms.[82]

Firms that are in the business of making and selling microprocessors, or making and selling systems that incorporate proprietary microprocessor technology, typically have

---

[78] *Id.* at 29.
[79] IP Guidelines § 4.3.
[80] Intel Corporation's Trial Brief at 32-34.
[81] While disagreeing that its conduct interfered with the ability of computer manufacturers to differentiate their products, Intel noted that such differentiation could result in higher prices to consumers and lower economic welfare.

incentives to pursue cross-licensing arrangements, including arrangements with competitors who own significant intellectual property rights. The alternative is to purchase individual licensing rights. Because so many different rights are necessary to make a single microprocessor, the negotiation of rights on a case-by-case basis likely would result in the payment of very high fees, as each royalty payment pancakes onto the others. If a firm needs hundreds of licenses to make a microprocessor, even a "modest" royalty of two-tenths of one percent of revenues would add crushing and inefficient costs to the total cost of a microprocessor. Cross-licensing arrangements -- in which firms agree to license portfolios of intellectual property and net out many of the payments that would be required with individual licensing negotiations -- are an efficient alternative to case-by-case licensing.

Cross-licensing negotiations are often contentious because each party has incentives to put high values on its own intellectual property. Balancing these incentives to disagree is an overpowering incentive to reach an agreement when a cross-license is essential for each party's competitive survival. However, the need to reach an agreement can be absent if one of the parties is not a serious microprocessor supplier. In this case, the party's main objective is to obtain value for its intellectual property, not to obtain intellectual property rights to compete as a manufacturer or consumer of microprocessors.

Arguably, this was the case with Intergraph. Intergraph had manufactured workstations using its Clipper microprocessor, which embodied certain patented design features. At the time of its negotiations with Intel, Intergraph was no longer using its Clipper technology, but instead had transitioned to use Intel microprocessors in its workstations. Thus Intergraph was no longer in the business of trading IP for IP, but instead was in the business of obtaining maximum value for its existing IP.

This was not the case with Digital. Digital, although a customer of Intel chips for its personal computer business, produced its own Alpha microprocessor in competition with Intel for use in servers and workstations. Nonetheless, a weaker version of the same argument

[82] Intel Corporation's Trial Brief at 41-42.

applied, because Intel's microprocessor business was so much larger in absolute terms than was Digital's Alpha business.[83]

The Compaq story was somewhat different, because Compaq did not contend that Intel's microprocessors infringed its bus patents. Instead, Compaq contended that the buses used by some of Intel's other customers infringed its patents. The FTC alleged that Intel used its market power in microprocessors to prevent Compaq from gaining an advantage over other personal computer manufacturers. In this way, it could prevent Compaq from appropriating a larger share of the revenues jointly produced by a microprocessor and bus.

Intel and the FTC settled their differences with a consent decree that prevented Intel from denying customers access to trade secrets and advanced products *unless* the customers pursued an injunction against Intel that would prevent Intel from selling its products.

The case of *FTC v. Intel* raises many important questions at the intersection of antitrust and intellectual property. Was the FTC's prosecution of the case consistent with the IP Guidelines? Did the settlement reached in the case properly balance the interests of consumers and IP rights-holders? Does the case suggest changes in Agency guidelines with respect to IP licensing that would be desirable?

The IP Guidelines state:

> Intellectual property law bestows on the owners of intellectual property certain rights to exclude others. These rights help the owners to profit from the use of their property. An intellectual property owner's rights to exclude are similar to the rights enjoyed by owners of other forms of private property. As with other forms of private property, certain types of conduct with respect to intellectual property may have anticompetitive effects against which the antitrust laws can and do protect. Intellectual property is thus neither particularly free from scrutiny under the antitrust laws, nor particularly suspect under them.[84]

The FTC case did not challenge Intel's right to refuse to license its intellectual property. Rather, the case challenged Intel's collateral conduct in response to actual and threatened infringement litigation brought by Intergraph, Digital, and Compaq.

---

[83] Intel and Digital settled their patent dispute. Intel paid Digital a total of $1.6 billion in cash and product discounts. *See* Tom Davey, *Digital Equipment Settles Patent Dispute With Intel*, INFORMATION WEEK, (Oct. 27, 1997), available at http://www.techweb.com/wire/news/1997/10/1022dispute.html.

The IP Guidelines also state that "antitrust concerns may arise when a licensing arrangement harms competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the license . . . ."[85] Intel has the right to deny licenses to its intellectual property and to refuse access to its trade secrets. If a unilateral refusal to license (or allow access to trade secrets) is competitively harmful, the effects should be found in markets where competition would have occurred in the absence of a license.

The FTC's complaint did not allege that Intel was obligated to supply its trade secrets and other competitively sensitive materials to all who would demand them to compete in the design and manufacture of microprocessors. Instead, the FTC's concern was that Intel withheld from its customers information and products that were valuable to those customers in a downstream business (personal computers or workstations), with the intent to cause those customers to forgo a fair return on their own microprocessor innovations. According to the FTC, Intel's conduct harmed competition in microprocessor innovation that would have occurred in the absence of a license from Intel, because those innovations did not themselves depend on the withheld trade secrets. Intel disagreed with this characterization of its conduct. Intel claimed that it had a right to withhold competitively sensitive information, that its conduct was appropriate in the context of cross-licensing negotiations, and that its conduct had no discernable effect on competition in any market, specifically including the market for microprocessor innovation.

Did the settlement properly balance the interests of consumers and IP rights-holders? Both sides presented themselves as champions of intellectual property. In the FTC's view, if Digital were right that Intel infringed its patents and Digital did not infringe Intel's patents, it ought to be afforded the opportunity to prove that position in court. It should not be forced by Intel's monopoly position to forgo that right. Indeed, in the FTC's view, it may often be the case that the patent system is the strongest line of defense for a small, innovative company dealing with a larger, dominant rival.

Intel, by contrast, argued that its conduct should not have been challenged, and that IP rights holders should be able to respond vigorously, even by extrajudicial means, to defend themselves against patent litigation. In particular, Intel argued that it had no obligation to

---

[84] IP Guidelines § 2.1.
[85] IP Guidelines § 3.1 (footnote omitted)

supply sensitive trade secrets to a firm that was attempting to extract huge royalties and was seeking an injunction to shut down Intel's production. Furthermore, Intel argued that, by tying its hands in patent disputes, the settlement conditions would make it *more* difficult to reach pro-competitive cross-licensing agreements. Most licensing disputes in the semiconductor industry end in cross-licensing agreements because failure to obtain access to patent portfolios is unacceptable for any party that intends to compete in the industry. By limiting the "damage" that a party can threaten during the course of a licensing dispute, the FTC's terms can encourage parties to hold out for better licensing terms, and thereby delay the conclusion of a cross-license.

Licensing of intellectual property that is complementary to or blocks other intellectual property is driven by topsy-turvy incentives. Costs incurred during disputes encourage the quick resolution of those disputes, and the "weak" can be more powerful than the "strong." Consider two parties, each of which owns a patent that is essential to make a product. Party A needs both patents to sell its products. With both patents, it has profits of $2 billion per year, which are offset by sunk expenditures of $1 billion per year (non-sunk costs are included in its profits). Without both products, its profit stream is a negative $1 billion per year. Party B has no product, so its profits with or without the patents are the same, and we normalize them to zero. Suppose the parties bargain over licensing arrangements and evenly split the gains from sharing their intellectual property.[86] The gains from trade in this example are $2 billion, so the licensing arrangement would benefit each party by $1 billion. Thus, party B would wind up with $1 billion and party A would wind up with zero, because its $1 billion share of the gains from trade would merely offset its $1 billion of sunk costs.

This simple example illustrates several important points about licensing complementary patents. The surplus to be divided between the IP rights-holders is the gross surplus excluding sunk costs. The firms are symmetrically situated with respect to claims on this gross surplus, even if one of them has no ability to make or sell the products that embody the patents. In the absence of sunk costs, both parties have the same reservation value (zero) if they fail to reach an agreement, so both parties would be equally well off when they conclude the bargain. If one of the parties has incurred significant sunk costs to produce a product, these sunk costs

[86] This assumed sharing of the gains from trade is consistent with the theory of bargaining developed by John Nash. John Nash, *The Bargaining Problem,* 18 ECONOMETRICA 155 (1950).

disadvantage the party in the patent bargain. This is the sense in which the "weak" (party B, which has no product) can be more powerful than the "strong" (party A, which has valuable products) in patent bargaining.

As noted above, many firms own patents that read on microprocessors. Suppose that ten parties each own a patent that is necessary to make and sell a microprocessor. Assume the same numbers as above; i.e., one firm can earn profits of $2 billion with $1 billion in sunk costs if it has rights to all the patents, and the other nine firms earn nothing with their patents. The same reasoning as above suggests that each of the nine firms that only own patents can claim licensing fees of 1/10 x ($2 billion) = $200 million. The firm with the sunk costs would be left with 1/10 x ($2 billion) - $1 billion, for a net *loss* of $800 million.

These examples assume that all sunk costs result from investments necessary to produce the product and that no sunk costs result from investments to produce the patented innovation. The point remains, however, that in bargaining over the returns from a product that depends upon patented inventions held in a large number of different hands, there can be no assurance that the distribution of returns will be anywhere near optimal. In particular, after royalty payments to IP rights holders, a firm might have little profit incentive to invest in the facilities required to manufacture and sell its product.

Cross-licensing is an efficient alternative to unilateral royalty obligations. However, in the microprocessor industry, incentives to engage in cross-licensing arrangements are driven by the desire to sell products, not by the desire to sell intellectual property.

The *FTC v. Intel* settlement was a compromise between the view that cross-licensing arrangements are procompetitive and should be encouraged and the view that Intel's market position requires restraint in responding to challenges of patent infringement lest other patentees be deprived of all rewards. The settlement explicitly gave Intel the right to withhold technical information and pre-release products from any party that sought to enjoin Intel's sales of its microprocessors. The settlement prohibited such tactics only in response to a suit for damages. Thus the settlement acknowledged that the rewards for other innovators, even if they did not produce a product, should not be zero. It also recognized Intel's position that the threat of an injunction against an infringer was likely to do more harm than good in this context. This compromise, however, involves a leap of faith that the damages awarded by a patent court will not be excessive in light of the potential harm from large, multiple "pancaked" royalties.

What does all this imply about the appropriateness of the current IP Guidelines for situations such as encountered in the Intel case? Most significantly, it may say something about the limits of the analogy between intellectual property and other forms of property. As noted above,[87] intellectual property differs from other forms of property in several respects, two of which are relevant here: (1) the frequency of disputes over the boundaries of each person's property, and (2) the degree to which multiple complements may be necessary in order to produce a product. As a result, appropriate public policy may be exceptionally difficult to discern in circumstances like those alleged to have existed in *FTC v. Intel*. On the one hand, Intel advanced some compelling arguments that patents were a positive hindrance to the very existence of a product in this market. On the other hand, if the FTC were right that Intel was a monopolist and was using its monopoly power to prevent other firms from reaping a reward from their inventions, it is not at all clear that leaving the patents in place but allowing Intel to escape their effects would yield the best possible result.

E. FTC Generic Drug Cases

The IP Guidelines recognize that:

> [s]ettlements involving the cross-licensing of intellectual property rights can be an efficient means to avoid litigation and, in general, courts favor such settlements. When such cross-licensing involves horizontal competitors, however, the agencies will consider whether the effect of the settlement is to diminish competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the cross-license. In the absence of offsetting efficiencies, such settlements may be challenged as unlawful restraints of trade.[88]

The FTC has challenged settlements involving owners of drug patents and their generic equivalents on three occasions.[89] The first was a settlement between Abbott and Geneva involving Hytrin, Abbott's brand name hypertension and prostate drug. The second settlement

---

[87] *Supra* note 7.
[88] IP Guidelines at § 5.5.
[89] *See, e.g.*, Sheila F. Anthony, Riddles and Lessons from the Prescription Drug Wars: Antitrust Implications of Certain Types of Agreements Involving Intellectual Property, Address to ABA Antitrust and Intellectual Property: The Crossroads Program , (June 1, 2000), available at http://www.ftc.gov/speeches/anthony/sfip000601.htm, Thomas B. Leary, Antitrust Issues in Settlement of Pharmaceutical Patent Disputes," Sixth Annual Health Care Antitrust Forum, (Nov. 3, 2000), available at http://www.ftc.gov/speeches/leary/learypharma.htm.

was between Hoechst Marion Roussel (now Aventis) and the Andrx Corporation involving the hypertension and angina drug Cardizem CD.[90] The third involved settlements between Schering-Plough and Upshur-Smith and between Schering-Plough and the ESI-Lederle division of American Home Products involving the potassium supplement K-Dur.[91] The FTC is also investigating an agreement between Bristol-Meyers-Squibb and American Biosciences regarding the cancer drug Taxol[92] and the Commission has issued a proposal to conduct a study of generic drug competition that would focus on potentially anticompetitive agreements between brand-name and generic drug-makers.[93]

The settlements challenged by the FTC relate to provisions created by the Drug Price Competition and Patent Term Restoration Act, passed by Congress in 1984 and commonly known as the Hatch-Waxman Act. The Act streamlined the approval process for generic equivalents of patented drugs by creating the abbreviated new drug application, or ANDA. The ANDA allows generic manufacturers to sidestep the lengthy Federal Drug Administration approval process for a new drug by demonstrating that the generic is bioequivalent to an already approved drug product (the reference drug). However the ANDA applicant also must certify that the reference drug is not patented, the patent has expired or will expire, or that the patent is invalid or will not be infringed by the generic product. This latter claim is called a "Paragraph IV" certification. If the applicant makes a Paragraph IV certification, the FDA will stay the approval of the ANDA for the earlier of 30 months or the issuance of a non-appealable court decision finding the patent invalid or not infringed, provided that the patentee initiates a patent infringement suit against the applicant within 45 days from the date of the certification. Importantly, the Act also provides that the first applicant to submit an ANDA with a Paragraph IV certification is protected from competition from subsequent generic versions of the same drug for a period of 180 days. This 180-day exclusivity lasts from the earlier of (i) the date of a

---

[90] Hoechst Marion Roussel, Inc., Docket No. 9293, (F.T.C. Mar. 16, 2000 Complaint); consent order accepted for public comment, April 2, 2001 (Agreement Containing Consent Order available at http://www.ftc.gov/os/2001/04/hoechstagr.pdf).

[91] Schering-Plough Corp., Docket . No. 9297 (F.T.C. Apr. 2, 2001 Complaint) (available at http://www.ftc.gov/os/2001/04/scheringpart3cmp.pdf).

[92] Brief of Federal Trade Commission as Amicus Curiae, American Bioscience, Inc. v. Bristol-Myers Squibb Co., Case No. CV-00-08577 WMB (AJWx) (C.D. Cal. Sept. 1, 2000) (available at http://www.ftc.gov/os/2000/09/amicusbrief.pdf.

[93] *See* http://www.ftc.gov/os/2000/10/frngenericdrugstudy.htm; http://www.ftc.gov/os/2001/02/v000014.htm (Notice and Request for Comment).

court decision holding the patent invalid or not infringed or (ii) the date the generic manufacturer begins marketing the drug.

The 180-day exclusivity period was intended to encourage generic manufacturers to challenge weak drug patents or to design non-infringing drug products by rewarding these firms with a period of limited competition.[94] In practice, however, the Act also creates a prime opportunity for parties to avoid competition. The generic company that is the first applicant for an ANDA can agree to drop or delay a challenge to the validity of the patent in exchange for compensation from the patentee. This will eliminate competition from the generic company for however long the agreement provides. But this is only the tip of the iceberg. If the generic company also agrees not to relinquish or transfer its entitlement to the 180-day exclusivity period, no other firm can market a generic until the first applicant's 180-day exclusivity period expires. This could be much later than the earliest date at which a generic supplier could survive a preliminary injunction from the patentee.

The agreements between Abbott and Geneva over Hytrin and between Aventis and Andrx over Cardizem CD included the requirements that the generic company not relinquish or transfer its right to the 180-day exclusivity period – pending the outcome of the infringement suit – and not introduce a bioequivalent product, even if that product did not infringe the branded drug's patent. The agreements between Schering-Plough and Upshur-Smith and between Schering-Plough and the ESI-Lederle division of American Home Products were final settlements of their infringement suits, and provided that Upshur-Smith and ESI would not enter until a date certain. In return for these concessions, Abbott agreed to pay Geneva $4.5 million per month from the date of ANDA approval until there was a district court judgment in the parties' patent infringement suit and, if Geneva won before the district court, to pay $4.5 million per month into an escrow account until the final resolution of the litigation. The latter funds would be returned to Abbott if the district court judgment were reversed. Aventis agreed to pay Andrx $10 million per quarter beginning with ANDA approval until the earlier of the entry of final judgment of the lawsuit or licensing by Aventis of a generic version of Cardizem CD. In addition, the agreement specified that Aventis would pay Andrx an additional $60 million per year for this period if Aventis should lose the patent suit. The Commission alleged

[94] Comment of the Staff of the Bureau of Competition and Policy Planning of the Federal Trade Commission 64 Fed. Reg. at 42,882 (Nov. 4, 1999).

that the payments to Geneva exceeded the profits it was likely to earn as a supplier of a generic form of Hytrin. According to the complaint, Schering-Plough agreed to pay Upshur-Smith and ESI $60 million and up to $30 million, respectively. In part, these payments were ostensibly for licensing certain products to Schering-Plough, but the FTC alleged that the payments were unrelated to, and greatly exceeded, the value of those products, if any, to Schering-Plough.

Based on the allegations in the public record materials, these agreements appear to be anticompetitive arrangements to eliminate competition and to divide the monopoly profits of successful branded drugs. The IP Guidelines recognize such hazards and these concerns were amplified in a speech by Assistant Attorney General Joel Klein.[95] However, these cases are not as simple as they may appear. Courts recognize the rights of parties in litigation to settle their differences privately, and parties may have legitimate interests in a patent settlement that does not involve anticompetitive objectives. Parties have an incentive to negotiate a settlement if the total economic value that the parties could achieve in a settlement exceeds the total economic value they could achieve by proceeding with litigation. The settlement value can be higher because settling may avoid litigation costs or provide an opportunity for the parties to structure arrangements that add social value to the products at issue (such as coordinating the pricing and supply of complementary products). These are potentially procompetitive benefits from settling a patent dispute. Unfortunately, settlement of a patent dispute also involves the welfare of third parties (that is, consumers of patented drugs) who have an interest in the outcome of the litigation. Consequently, settlements can be privately profitable, but socially undesirable because consumers who may be affected by the settlement are not present at the bargaining table.

The limits placed on the ability of a patentee to settle validity suits affects the protection afforded by the patent grant and should be considered in the context of patent policy more generally. Permitting a patentee to settle a dispute over the validity of the patent effectively extends the breadth of the patent grant. If the patent is indeed invalid, settlement allows the patentee to reap a reward even though it has failed to achieve a patentable innovation. On the

[95] Joel I. Klein, Cross-Licensing and Antitrust Law, Address Before the American Intellectual Property Law Association, (May 2, 1997), available at http://www.usdoj.gov/atr/public/speeches/1123.htm.

other hand, prohibiting a settlement incurs the risk that a court may erroneously conclude that a patent is invalid.[96]

In response to the FTC's complaint, Aventis argued that its actions were a legitimate attempt to protect its patent against an infringing product. According to Aventis, the settlement "was an attempt by the litigants to fashion a negotiated preliminary injunction that would prevent [Aventis] from being harmed by the sale of an infringing product during the pendency of litigation and would also make Andrx whole for lost profits in the event that its product was ultimately determined not to infringe a valid [Aventis] patent." Aventis also claimed that the settlement was "carefully crafted so as not to remove the incentive from either party to seek and obtain a timely judicial resolution of the patent dispute . . . ."[97] If, in the absence of the agreement, a court would have awarded Aventis an injunction to prevent Andrx from marketing a generic product before resolution of the patent dispute, and if the settlement did not cause the parties to delay the resolution of their dispute, then the settlement would not impose additional social costs from Andrx's agreement not to market that particular product. Of course, the settlement might impose additional social costs from Andrx's agreement not to market another, non-infringing, product or to waive its 180-day exclusivity.

Clearly there are instances where settlements of patent disputes are socially harmful. If the patent is likely invalid, a settlement can be justified only if the social costs of proving invalidity are very large. Moreover, the requirements that the generic manufacturer not introduce a bioequivalent product, *even if it does not infringe the patent*, and not transfer or relinquish the 180-day exclusivity period are difficult to reconcile with economic efficiency.[98]

FTC Commissioners Anthony and Leary both note that settlements involving patent disputes may be procompetitive and caution against blanket prohibitions of such arrangements. What can be done to distinguish potentially procompetitive settlements from those that are likely to be anticompetitive? The fact that the settlement involves a payment from the patentee to the challenger is not sufficient to determine that the settlement is anticompetitive. The

---

[96] To the extent that the judicial system would grant a preliminary injunction to prevent generic sales if the patent is likely to be valid, permitting the patentee to settle with the generic challenger may err too far in the direction of sustaining invalid patents. Note that similar arguments apply to suits where the issue is infringement rather than validity.

[97] Answer to the Complaint, Aventis Pharmaceuticals Inc., Hoechst Marion Roussel, Inc., Docket No. 9293 (F.T.C. April 10, 2000).

savings in transactions costs and the risk-allocation benefits could outweigh the potential benefits from a finding of invalidity. Furthermore, parties could attempt to hide payments, for example by offering concessions on other products. We suggest the following factors as a guide to assess these settlements. However, none of these conditions, standing alone, is sufficient to determine that a settlement is anticompetitive.

- Concerns should be greater if the size of the payment from the patentee to the challenger is a large fraction of the monopoly profits from the patented drug. This would suggest that the patentee has a high expectation that the patent is invalid.
- Concerns should be greater if the transactions costs that are saved by a settlement are small.
- Concerns should be greater if the settlement has not been subjected to judicial review (and ideally, inspection and comment by third parties).
- Concerns should be greater if the patentee would not have been likely to obtain a preliminary injunction against the generic challenger.
- Concerns should be greater if the terms of the settlement clearly delay the date at which a judicial finding of invalidity is likely to occur.

F. FTC v. Summit Technology and VISX, Inc.

On March 24, 1998, the FTC filed an administrative complaint against Summit Technology and VISX, Inc. for illegal patent pooling, and against VISX for procurement of patents by fraud or inequitable conduct.[99] Five months later, it accepted a partial settlement dissolving the pool,[100] and later proceeded to trial against VISX on the fraud and inequitable conduct claims. The fraud and inequitable conduct claims were rejected by an Administrative Law Judge.[101]

---

[98] It is conceivable that these conditions could promote efficiency if they are part of other measures that allow a generic supplier to enter at a later date with a more competitive product.

[99] Summit Technology, Inc., Docket. No. 9286 (F.T.C. Mar. 24, 1998 Complaint) (available at http://www.ftc.gov/os/1998/ 9803/summit.cmp.htm).

[100] Summit Technology, Inc., Docket . No. 9286. F.T.C. Feb. 23, 1999 Agreement Containing Consent Order To Cease and Desist (available at http://www.ftc.gov/os/1999/9903/ d09286visxd%26o.htm).

[101] VISX, Inc., Docket No. 9286 (F.T.C. May 27, 1999 Initial Decision) (available at http://www.ftc.gov/os/1999/9906/visxid.pdf.) While the rejection was pending on appeal to the full Commission, the Patent And Trademark Office issued a reexamination certificate rejecting all of VISX's original patent claims but allowing 65 new claims that, in complaint counsel's view, rendered the fraud and inequitable conduct count

According to the complaint, Summit and VISX were the only two firms legally able to market laser equipment to be used for photorefractive keratectomy (PRK) – laser vision correction – in the United States. The firms placed their patents in a patent pool. The pool established a $250 licensing fee to be paid to the pool each and every time a laser produced by either firm was used to perform PRK. The proceeds from these license fees were then split between the two firms according to a predetermined formula. The effect of this per-procedure fee was that neither firm had an incentive to charge doctors less than $250 per procedure.

The FTC's Analysis To Aid Public Comment acknowledged that, under the IP Guidelines, "pooling arrangements 'may provide procompetitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation'."[102] However, the Analysis went on to note that "where pooling arrangements 'are mechanisms to accomplish naked price fixing or market division,' or where they 'diminish competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the cross-license,' they are subject to challenge."[103]

Accordingly, in the FTC's view, the principal issue was whether the two firms would have competed to supply laser vision correction technology absent a license between them. The FTC concluded that the two firms could have and would have competed with one another in the absence of the patent pool.[104] Summit and VISX disagreed, arguing that the FTC should accept a patent pool as a legitimate means to settle a non-sham infringement dispute, regardless of the FTC's assessment of the underlying merits of the dispute. The Analysis to Aid Public Comment rejected that approach, declaring:

---

against VISX moot. (Complaint Counsel's Memorandum In Support Of Motion To Dismiss The Complaint And In Response To VISX's Motion To Reopen The Record To Receive New Evidence, available at http://www.ftc.gov/os/adjpro/d9286/991201dismiss.pdf.) Accordingly, complaint counsel moved for, and Commission ordered, dismissal of the complaint. (Complaint Counsel's Motion To Dismiss The Complaint, available at http://www.ftc.gov/os/adjpro/d9286/991201dismiss.pdf; Order Reopening The Record And Dismissing The Complaint, available at http://www.ftc.gov/os/2001/02/summitvisxorder.htm (February 7, 2001)).

[102] Analysis, available at http://www.ftc.gov/os/1998/9808/d09286ana.htm, quoting IP Guidelines at § 5.5.

[103] *Id.* quoting IP Guidelines at § 5.5.

[104] The dismissal of the fraud and inequitable conduct count raises an interesting question about the basis for this finding. The FTC's conclusion that Summit could have competed absent a license to the patents challenged in the fraud and inequitable conduct count could only have been based upon four possibilities: (1) Summit's technology did not infringe the patent, (2) Summit could have invented around the patent, (3) the patent was unenforceable due to fraud upon, or inequitable conduct before, the Patent and Trademark Office, or (4) the patent was invalid or

> Summit and VISX contended that [the patent pool] reduced the uncertainty and expense associated with the patent litigation that would have inevitably ensued without [the pool] . . . . Summit and VISX could have achieved these efficiencies by any number of significantly less restrictive means, including simple licenses or cross-licenses that did not dictate prices to users or restrict entry.

In other words, once the FTC concluded that the two parties were in fact horizontal competitors -- i.e., that they could have competed absent licenses to each other-- then it followed that any remaining efficiencies from allowing amicable settlement of patent disputes should be balanced against anticompetitive harms in the same manner as other efficiencies. This approach seems consistent with a literal reading of the IP Guidelines, which frames the issue in terms of whether there would have been competition absent the license. Moreover, it may provide the right incentive -- to avoid excessive restriction on competition -- to the parties, who are best positioned to assess whether their respective patent positions truly justify a severe restriction on competition. On the other hand, there is no doubt that this approach places a difficult counseling burden on the parties, who must make their decisions under conditions of uncertainty.

In evaluating two other examples of patent pooling arrangements -- the MPEG and DVD patent pools -- the DOJ reached a different conclusion. However, these pooling arrangements, which we discuss below, included important competitive safeguards.

G. MPEG and DVD Business Review Letters

On June 26, 1997, the DOJ responded to a request by the MPEG LA group[105] for a business review letter in connection with the group's intention to pool and jointly license patents necessary to comply with the MPEG-2 standard.[106] MPEG-2 is a digital technology for video compression. Nine different entities owned patents that were essential to use the MPEG technology. The MPEG group proposed a jointly owned agent (MPEG LA) that would license the essential patents as a single package. The group also would employ an independent patent

---

unenforceable for other reasons. Complaint Counsel's motion to dismiss the complaint casts some doubt upon (1), (2), and (3).

[105] MPEG stands for Motion Picture Entertainment Group.

[106] Business Review Letter from Joel I. Klein to Garrad R. Beeney, June 26, 1997 (available at http://www.usdoj.gov/atr/public/busreview/1170.htm).

expert to settle disputes over whether a patent is essential for the MPEG technology and therefore should be included in the pool.

On December 16, 1998, the Antitrust Division issued a similar business review letter in connection with the Digital Versatile Disc (DVD) technology.[107] The letter was in response to a proposed arrangement that would permit Philips to assemble and offer a package license. The license would include patents owned by Philips, Sony, and Pioneer that were necessary to manufacture DVDs and players in compliance with the DVD-ROM and DVD-video formats.

The DOJ reacted favorably to both the MPEG and DVD proposals, noting that the efficiencies from the proposed arrangements outweighed any risks of competitive harms. Yet other patent pooling arrangements have attracted antitrust scrutiny. The FTC noted that the accumulation of patent rights for gene therapy treatments was a reason to challenge the proposed merger of Ciba-Geigy and Sandoz and imposed several licensing requirements before approving the merger. The FTC also objected to the VISX patent pool. What set the MPEG and DVD proposals apart from these other patent pooling arrangements?

A key distinction in the MPEG and DVD proposals was the employment of a patent expert to make an independent determination of whether patents were essential to use the MPEG and the DVD technologies. Only patents that were essential to use the technology were supposed to be included in the pool. Citing the IP Guidelines, both business review letters noted that the pooling of essential patents may provide procompetitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation. At the same time, by limiting the pools only to essential patents, the arrangement avoids the risk that the pool would eliminate competition between technological alternatives. The combination of patents in the Ciba-Geigy and Sandoz merger would not have been limited to those patents that were essential to practice particular gene therapies. Similarly, the VISX pool had no provision to limit the pool to essential patents.

The FTC noted that the accumulation of patents in the Ciba-Geigy/Sandoz merger could raise barriers to entry even if the patents were complementary. The merged company might be unwilling to license its patents and it would be difficult for competitors to invent around the merged company's large patent portfolio. The DOJ concluded that the MPEG and the DVD

[107] Business Review Letter from Joel I. Klein to Garrad R. Beeney, December 16, 1998 (available at http://www.usdoj.gov/atr/public/busreview/2121.htm).

patent pools did not raise similar concerns. The pools did not limit the ability of firms to license individual patents. Furthermore, the pools were obligated to offer non-exclusive licenses to all takers at non-discriminatory terms and the royalty rates appeared to be small relative to the values of the products in which the technologies would be used. These facts appeared to mitigate concerns that the pool might raise barriers to entry or otherwise foreclose competition.

Following the IP Guidelines, patent pooling arrangements raise concerns if they affect competition that would have occurred in the absence of the pool. The FTC concluded that Ciba-Geigy and Sandoz could have competed with each other or facilitated competition by others if they did not combine their patent portfolios. Similarly, the FTC concluded that the VISX pool eliminated competition that could have occurred in its absence, or at least was not structured to avoid such an effect. In contrast, the MPEG and DVD pools employed safeguards to limit the pools to essential patents, which by definition are necessary to practice the technology and hence not substitutes for each other. An additional consideration with respect to the MPEG and DVD pools is that the competition that may have occurred in the absence of these arrangements would have been a "standards war" that could have delayed the arrival of these technologies, to the detriment of consumers.

V. IS INNOVATION "KING" AT THE ANTITRUST AGENCIES?

As discussed above, there has been a dramatic increase in the number of antitrust actions at the agencies that allege effects on innovation. The number of merger cases that include allegations of innovation effects has increased from only four in the first half of the 1990s to forty seven in the second half of the decade. Several non-merger civil cases brought in the second half of the decade deal directly with innovation effects.

However, a closer look shows that a substantial majority of the merger cases that allege effects on innovation also exceed the Merger Guidelines thresholds that raise serious concerns about competitive effects in markets for existing goods and services. Assuming that the other conditions for sustaining a challenge to a merger were satisfied, such as high barriers to entry, these are all transactions that likely would have been challenged without regard to their impacts on innovation. This does not mean that innovation was unimportant in the agencies' calculus.

It simply means that, had innovation been excluded from the analysis, it is unlikely that in these case the enforcement decision would have been different.

The eight or so merger cases in which innovation concerns were central to the enforcement decision or to the choice of remedies reflect a belief at the agencies that competition is good for research and development, just as competition is good for consumers in existing product markets. In this respect, the agencies' orientation with respect to innovation reinforces their traditional posture with respect to competition in existing product markets. We believe the agencies' desire to preserve competition in research and development is appropriate. However we also note that the basis for this conclusion is largely anecdotal. Economic theory does not prove that more competition is better for R&D and statistical studies do not support that conclusion either. At the same time, neither economic theory nor statistical studies support a conclusion that highly concentrated markets promote R&D, and there is considerable anecdotal evidence to the contrary.

Innovation concerns have been central to several enforcement decisions by the agencies in the civil non-merger area. The DOJ and the district court noted that Microsoft's conduct deterred innovation in the computer industry. But Microsoft's exclusionary contracts with original equipment suppliers, Internet service providers, and Internet content providers, likely would have gotten the company in hot antitrust water without regard to innovation issues. The Microsoft case does raise innovation-related issues that future guidelines should address. Network effects were an important element in the Microsoft case. Network effects contributed to high barriers to entry in the market for personal computer operating system software and Microsoft's challenged conduct was designed to protect these high barriers to entry by undermining the competitive significance of alternative technologies, such as browsers and the Java language, that are not specific to the Windows platform.

Innovation was central to the government's case against Visa and MasterCard. That case focuses on structural conditions in the credit card industry that limit innovation by the two dominant credit card companies. Other cases, such as the FTC challenges of settlements with generic drug competitors and the DOJ's business reviews of the MPEG and DVD patent pools, deal squarely with innovation issues and particularly the intersection of intellectual property rights and the antitrust laws.

Based on mere numbers, innovation has not been "King" at the antitrust agencies. Most cases brought by the agencies are decided by anticipated price impacts in traditional goods markets. However, innovation concerns have been critical in a handful of merger cases and in several prominent non-merger cases. These enforcement actions have dealt with competition issues that have profound consequences for consumers. In this respect, the status of innovation competition as a dimension of antitrust enforcement has been elevated dramatically in the latter half of the 1990s, and we believe appropriately so.

VI. HAVE THE AGENCIES' ACTIONS BEEN CONSISTENT WITH THE GUIDELINES, AND IS ADDITIONAL GUIDANCE NEEDED?

We are not aware of any antitrust action by the agencies since 1995 that was plainly inconsistent with the IP Guidelines. The IP Guidelines state:

> The competitive effects of licensing arrangements often can be adequately assessed within the relevant markets for the goods affected by the arrangements. In such instances, the agencies will delineate and analyze only goods markets. In other cases, however, the analysis may require the delineation of markets for technology or markets for research and development (innovation markets).[108]

The agencies' actions with respect to mergers and acquisitions have been consistent with this principle. The agencies generally have analyzed the effects of mergers and acquisitions in goods markets when such markets have been sufficient to address the likely competitive effects of the transactions. Only a few merger cases have required an independent analysis of competitive effects in innovation markets.

The IP Guidelines also state that "[t]he agencies will delineate an innovation market only when the capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms." Again, the agencies' conduct appears to have been consistent with this statement. In the handful of merger cases since 1995

[108] IP Guidelines at § 3.2.

that specifically address innovation markets, the parties to the merger all possessed specialized assets or characteristics that distinguished them from other potential innovators. Glaxo, Wellcome, Ciba-Geigy, and Sandoz were distinguished from their competitors by the fact that each had engaged in substantial R&D and each had products that were part way through the FDA pipeline for the approval of drugs. That was also true for the markets in which Upjohn and Pharmacia, American Home Products and American Cyanamid, and Baxter and Immuno were R&D competitors. The R&D assets controlled by these companies are specific to particular innovative activities and would be difficult for others to replicate. Lockheed Martin and Northrop Grumman also had characteristics that distinguished them from other innovators of defense weapons systems. Such innovation requires specialized assets that are possessed by only a few firms.

The agencies' enforcement decisions in civil non-merger cases since 1995 appear consistent with the IP Guidelines, although they also raise issues that are not addressed in the guidelines. A case in point is the FTC action with respect to Dell Computer. The FTC initiative prevented Dell from exercising market power that it obtained by failing to disclose its intellectual property. Users of the VL-bus standard would have been locked into a dependence on Dell's intellectual property. Antitrust practitioners and the business community would benefit from a discussion of the characteristics of lock-in and its implications for antitrust policy in standard-setting.

The IP Guidelines' discussion of patent pools and cross-licensing arrangements is broadly consistent with the actions of the DOJ and the FTC with respect to the MPEG, DVD, and VISX patent pools. The IP Guidelines, together with the DOJ business review letters for the MPEG and DVD pools, appear to provide sound guidance for antitrust enforcement for patent pools and cross-licensing arrangements.

One area for which guidance would be very useful is in the settlement of patent disputes. The FTC's challenges to the patent settlements between Aventis and Andrx, Abbott and Geneva, Schering-Plough and Upshur-Smith, and Schering-Plough and American Home Products indicate a new and important trend in antitrust enforcement involving intellectual property. The patent settlement cases are not fully anticipated by the IP Guidelines, although they appear to be generally consistent with those guidelines. The guidelines focus upon whether there would have been competition absent a license. The patent settlement cases deal

with efforts to forestall the *possibility* of competition, under circumstances in which it is difficult to predict whether such competition would have emerged or instead would have been enjoined absent the conduct. Based on the publicly available materials, the enforcement actions in these three cases appear generally appropriate to prevent conduct that would be detrimental to consumers. However, they have to be reconciled with the objectives of protecting the freedom of litigation parties to settle their disputes and permitting patentees to enforce valid patent rights. Clearly, more advice is needed in this important area.

The FTC's case against Intel raises important issues that bear on cross-licensing and the settlement of patent disputes. The IP Guidelines state that the mere possession of market power that arises in the connection of intellectual property or any other form of property does not violate the antitrust laws.

> Nor does such market power impose on the intellectual property owner an obligation to license the use of that property to others. As in other antitrust contexts, however, market power could be illegally acquired or maintained, or, even if lawfully acquired and maintained, would be relevant to the ability of an intellectual property owner to harm competition through unreasonable conduct in connection with such property.[109]

This advice is sufficiently ambiguous to allow broad discretion for intervention, such as that which occurred in *FTC v. Intel*. A key issue with regard to unilateral licensing should be the extent to which a company uses its market power in a way that discourages innovation generally. This is an innovation markets analysis. The issue was raised in the Intel case, and the parties disagreed as to its impacts.

The FTC's actions in the Intel case apply to a situation to which the IP Guidelines had devoted relatively little attention: what appropriate ways exist to deal with situations in which patents are so numerous and widely distributed that it becomes difficult to produce a product at all without infringement? Future guidelines would provide a service by elaborating on the benefits of cross-licensing arrangements in these circumstances and on the range of permissible conduct in the course of cross-licensing negotiations.

---

[109] IP Guidelines § 2.2.