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Adequacy of the 1995 Antitrust Guidelines for the Licensing of Intellectual Property in Complex High-Tech Markets

by
*Clovia Hamilton**

In 1995, the Department of Justice and the Federal Trade Commission adopted new guidelines for those wishing to license intellectual property rights without violating antitrust laws. Designed to provide clarity, these guidelines instead breed confusion because they misunderstand the nature of intellectual property markets and provide insufficient guidance in the most difficult areas. Section I of this article will discuss the basic provisions of the guidelines, especially their treatment of "innovation markets." It argues that government enforcers should focus primarily on activity that creates entry barriers. Understanding the use and misuse of licensing is the key to analyzing barriers in the IP field. The remainder of the article therefore examines three common types of license misuse. Section II considers patent holders' potential liability for refusing to grant licenses to competitors. Section III looks at the effect of setting industry standards and at patent holders' misconduct during industry standard setting. Section IV analyzes patent accumulation through devices such as pooling and cross-licensing. The article concludes that the government should further amend the Guidelines to provide clearer rules for use of IP licenses.

I. INTRODUCTION

A. The IP Guidelines Generally

The 1995 Antitrust Guidelines for the Licensing of Intellectual Property (the "IP Guidelines") state the antitrust enforcement policy of the Department of Justice ("DOJ") and the Federal Trade Commission ("FTC") with respect to the licensing of intellectual property protected by patent, copyright, trade secret, and know-how.¹ The IP Guidelines replaced the 1988 IP Guidelines as a general policy statement designed to assist those who need to predict whether the Agencies will challenge a practice as anticompetitive.² The 1988 IP Guidelines were drafted during the Reagan Administration when Associate Attorney General William Baxter, one of the most important

* J.D., John Marshall; B.S. Civil Engineering and LL.M., University of Illinois. Member, Georgia Bar and registered to practice before the US PTO. Director of Intellectual Property and Research Compliance, and Assistant Professor, Old Dominion University. The opinions expressed in this article are solely those of the author. This paper is based in part on the author's thesis written to fulfill the requirements of the LL.M. program at the University of Illinois.

1. U.S. DEP'T OF JUSTICE AND FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 1.0 (April 1995).
2. *Id.*

people in the patent reforms, was at the DOJ.³ Baxter was an advocate of free market economics and cut back the DOJ's antitrust section.⁴ Although Republicans have advocated that markets are likely to be self-correcting if a single firm reaches a dominant position, thereby reducing the need for government intervention, the decline in antitrust enforcement during the Reagan administration was unexpected.⁵

The 1995 IP Guidelines, however, were drafted during the Clinton Administration. The different antitrust philosophies between the Reagan and Clinton Administrations created an expectation of substantial change from the 1988 IP Guidelines to the 1995 version.⁶ Contrary to these expectations, the 1995 IP Guidelines brought about minimal change.⁷

The DOJ and FTC (the "Agencies") will apply the IP Guidelines and continue to assess the legality of most intellectual property license restraints under the "rule of reason."⁸ The rule of reason is a balancing test whereby a plaintiff must prove that anticompetitive effects outweigh pro-competitive effects.⁹ First, the restraint on trade created by a license, or lack thereof, is identified.¹⁰ Next, the licensing restraint is evaluated to determine whether it is reasonably necessary to achieve pro-competitive benefits that outweigh any anticompetitive effects.¹¹ The rule of reason analysis is applied rather than a *per se* analysis because licenses are often efficiency-enhancing in that, without licenses, intellectual property cannot be used or would cost more to the user.¹²

In addition, the 1995 IP Guidelines define a new antitrust safety zone within which the Agencies will not challenge a licensing agreement restraint.¹³ This safety zone applies to restraints that do not warrant *per se* treatment, and to licenses in which "the licensor and its licensees collectively

3. Yoshitake Kihara, *U.S. Pro-Patent Policy: A Review of the Last 20 Years*, CASRIP NEWSLETTER 13-14 (Winter 2000).

4. *Id.* at 13.

5. *Small Shift in Antitrust Policy Likely*, NEMA Publications (Mar. 2001), available at <http://www.nema.org/publications/ei/mar01/smallshift.htm>.

6. Ronald Katz, *Recent Cases Reveal Gaps in Draft Antitrust/IP Guidelines*, Coudert Brothers (November 1994), available at <http://www.coudert.com/practice/gapanti.htm> (last visited Aug. 9, 2002).

7. *Id.*

8. See GUIDELINES, *supra* note 1, at § 3.4.

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.*

13. *Id.* at § 4.3.

account for no more than twenty percent of each relevant market significantly affected by the restraint.”¹⁴

Further, the IP Guidelines define three different relevant markets.¹⁵ The first is the traditional market for goods and services produced using intellectual property.¹⁶ Second, intellectual property agreements can have an impact on the technology market itself.¹⁷ The scope of this technology market will be determined by evaluating other technologies that buyers could substitute at a cost comparable to that of using the licensed technology.¹⁸ Thus, generally, a technology market is the actual intellectual property being licensed to a manufacturer of an end product, including any technology that is a close substitute.¹⁹ A third market is the new innovation market.²⁰

B. The New Innovation Market

The innovation market concept stemmed in part from the 1984 National Cooperative Research Act (“NCRA”),²¹ in which Congress endorsed the idea that firms compete in innovation markets and lowered the antitrust liability of certain joint ventures.²² The concept of innovation markets also stemmed in part from the D.C. Circuit ruling in *FTC v. PPG Industries, Inc.*, which blocked the merger of two of the world’s four largest manufacturers of airplane windows and windshields.²³ In 1986, the court in *PPG* held that merger law “rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels.”²⁴ Nine years later, consistent with *PPG*’s involvement of “four” manufacturers, the 1995 IP Guidelines stated that absent credible market share data, the Agencies will not challenge a licensing restraint if there are four or more

14. *Id.*

15. *Id.* at § 3.2.

16. *Id.* at § 3.2.1. (describing “Goods markets”).

17. *Id.* at § 3.2.2. (describing “Technology markets”).

18. *Id.*

19. See Azam Aziz, *Defining Technology and Innovation Markets: The DOJ’s Antitrust Guidelines for the Licensing of Intellectual Property*, 24 HOFSTRA L. REV. 475, 485 (1995).

20. See GUIDELINES, *supra* note 1, at § 3.2.3.

21. National Cooperative Research Act of 1984, 15 U.S.C. § 4301 (2000).

22. Lawrence Landman, *Competitiveness, Innovation Policy, and the Innovation Market Myth: A Reply to Tom and Newberg on Innovation Markets as the “Centerpiece” of “New Thinking” on Innovation*, 13 ST. JOHN’S J.L. COMM. 223, 236 (1998).

23. See *FTC v. PPG Industries, Inc.*, 798 F.2d 1500, 1502-03 (D.C. Cir. 1986).

24. *Id.* at 1503.

independent firms with substitutable technology.²⁵ Further, in an innovation market, the Agencies will not challenge a licensing restraint if there are four or more independent firms with comparable research and development capabilities.²⁶

According to the IP Guidelines, the innovation market share is to be determined by measuring the share of research and development expenditures of each participant.²⁷ This approach, however, does not work well because more research and development is not necessarily better than less research and development, and there is no functional relationship between the level of research and development expenditure and the level of innovation at the market level.²⁸

In order to determine the relevant research and development market, the Agencies will consider: (1) the nature of the product and the ability or willingness of its users to substitute other products for it; (2) the way in which geographic location bears on the substitutability of alternatives; and (3) the likelihood of a new firm entering the research and development market.²⁹ Unfortunately, the relevant market definition approach does not provide adequate direction in analyzing high-technology cases in industries such as computer hardware and software, pharmaceuticals, medical devices, biotechnology, communications, and defense.

Innovation markets are defined by the Agencies only when the capability to engage in research and development can be associated with specialized assets or characteristics of specific firms that can be reasonably identified.³⁰ Besides facilities, equipment, or patents held, a research and development organization's true research capabilities, or specialized assets, are its unique intellectual capital; in other words, their researchers' knowledge base. It will be difficult for any one person or firm to define or dominate such a market. Thus, practitioners argue, there could be no precision or accuracy in the process of defining an innovation market because market shares and levels of market concentration could not be determined.³¹

Practitioners argue that it is very difficult to define the relevant product and location for high-tech innovations because such innovations are gener-

25. See GUIDELINES, *supra* note 1, at § 3.2.3 (Example 4).

26. *Id.*

27. *Id.* See also Landman, *supra* note 22, at 237.

28. Richard Rapp, *The Misapplication of the Innovation Market Approach to Merger Analysis*, 64 ANTITRUST L.J. 19, 33 (1995).

29. *Id.* at 40.

30. See GUIDELINES, *supra* note 1, at § 3.2.3.

31. Janet McDavid, *Mergers 1995*, Statement before the Federal Trade Commission III. 7, available at <http://www.ftc.gov/opp/global/129941.htm> (last visited July 29, 2001).

ally not actual, identifiable end products.³² The new innovation markets are markets for pure research and development unrelated to the licensing of a good or product. These markets are related to knowledge and embryonic research findings.³³ For high-technology, end products may not possess the importance of valuable and marketable intellectual capital, intermediate ideas, tools, and prototypes.³⁴ Therefore, innovation markets have been called theoretical markets in which companies compete to develop products that do not currently exist.³⁵ For example, “[m]uch current biotechnology commercialization activity is focused not on end-products . . . but on intermediates or tools that are a step on the way to the final product.”³⁶

In addition, the principal problem associated with market definition is determining which of the existing firms and potential competitors have sufficient restraining influence on a defendant’s power over price to warrant their inclusion in the relevant market.³⁷ In the high-tech sector, market definition is more complex. The issue of whether products are reasonably interchangeable may be problematic. If products can be interchangeable as close substitutes, they belong in the same market. For example, hardware and operating system software are functionally dependent on one another but are viewed as two separate markets.

The difficulty of defining markets is illustrated by the DOJ’s attempt to regulate innovation competition by requiring Microsoft to sell its Internet Explorer as a separate product from its Windows operating system.³⁸ In 1990, the FTC began an investigation into Microsoft’s licensing practices, which was subsequently taken over by the DOJ in 1993.³⁹ In 1994, the DOJ filed a complaint against Microsoft and a motion to approve a consent decree.⁴⁰ The resulting 1995 consent decree challenged various contractual pro-

32. See Aziz, *supra* note 19, at 500.

33. Dominic Bencivenga, *An Innovative Theory Impact Seen in Clash of Patent, Antitrust Law*, 220 N.Y. L.J. 6 (1998).

34. *Id.*

35. Nicholas A. Widnell, *The Crystal Ball of Innovation Market Analysis in Merger Review: An Appropriate Means of Predicting the Future?*, 4 GEO. MASON L. REV. 369, 370 (1996).

36. Stephen Johnson, *Biotech Licensor Should Know Misuse Doctrine*, 20 NAT’L L.J. 43 (1998).

37. MILTON HANDLER, ET AL., *TRADE REGULATION: CASES AND MATERIALS* 152 (4th ed. 1997).

38. Michelle M. Burtis & Bruce H. Kobayashi, *Intellectual Property and Antitrust Limitations on Contract*, Mercatus Center Symposium on Dynamic Competition and Public Policy, 22 (2000), available at <http://www.gmu.edu/departments/law/faculty/papers/chronology.html> (last visited Aug. 9, 2002).

39. *Id.*

40. *Id.*

visions, and the DOJ suggested that Microsoft's licensing practices created or supported entry barriers arising from the existence of network externalities and compatibility problems that harmed its rivals.⁴¹ In 1997, the DOJ sought to have Microsoft held in contempt for violating the 1995 consent decree by tying its Windows 95 to the Internet Explorer browser.⁴² In 1998, Microsoft won its argument that the decree allowed it to integrate these two products.⁴³ Opponents argued that, by controlling the browser market, Microsoft was attempting to monopolize the operating systems market.⁴⁴

Practitioners complain that innovation markets are mythical and difficult to define clearly, because they dilute the traditional practice of projecting a future goods market.⁴⁵ Instead, innovation markets can easily be defined in terms of the products and services with which they are associated.⁴⁶ This approach has been advocated for technology markets.⁴⁷ Thus, there is no need to confuse parties by forcing them to consider the innovation market in addition to the associated traditional goods market.

For instance, research and development efforts are often joint ventures, which are analogous to, or fall just short of, mergers.⁴⁸ Thus, innovation has always been a concern in merger analyses.⁴⁹ In 1999, the DOJ's Director of Operations and Merger Enforcement, Constance K. Robinson, stated that the first step in a merger innovation analysis is to determine the likely source of innovation.⁵⁰ Ms. Robinson advised practitioners that knowing the source is required in order to understand what drives the innovation. Further, the customers, the suppliers, and the collaborators as well as the research and development strategy will define the source of innovation.⁵¹ But these facts are no different from the facts researched in a traditional goods or services market

41. *Id.*

42. *Id.* at 24.

43. *Id.*

44. *Id.* at 25.

45. *See* Landman, *supra* note 22, at 241.

46. Aziz, *supra* note 19, at 500.

47. *Id.*

48. COMMERCIAL BIOTECHNOLOGY: AN INTERNATIONAL ANALYSIS 436, available at http://www.wws.princeton.edu/~ota/disk3/1984/8407_n.html (last visited Aug. 10, 2002).

49. George A. Hay, *Innovations in Antitrust Enforcement*, 64 ANTITRUST L.J. 7, 9 (1995).

50. *See* 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, Chicago, Illinois (June 10, 1999), available at <http://www.usdoj.gov/atr/public/speeches/2482.htm> (last visited Aug. 10, 2002).

51. *See id.*

analysis. The contributors, customers, suppliers, and research history would not change. They would simply be secondary considerations to shed light on the source that drives the product or service.

Further, Ms. Robinson discussed the Halliburton/Dresser merger as an example of how the merger innovation analysis works.⁵² Looking for the source of innovation, the DOJ concluded that there was no single innovator among the research group, and that the research organizations had different strategies or approaches to research and development.⁵³ This is not a very profound or influential finding. It is likely that the Agencies will have enough ammunition to challenge an intellectual property license restraint with the result of a standard goods market analysis, regardless of its effect on the source of innovation. Focusing on the sources of innovation and on research and development expenditures only serves to decrease the predictability of antitrust enforcement in the licensing of intellectual property.

In fact, the focus should not be on creating a new market definition for innovations. Innovations should merely be associated with the traditional market for the end-product line and location, which are the first two basic considerations of the relevant market definition. Rather, Agency guidance should focus on the third market definition consideration—conduct in the high-tech arena that creates potential entry barriers. Licensing is a key phase of market entry for the development of innovative products and services.⁵⁴

C. Identifying Entry Barriers

In merger analyses, the main mitigating factor is the potential for entry.⁵⁵ “If entry barriers are low, then it is unlikely that market power, whether individually or collectively exercised, will persist for long since high profits will prompt new firms to enter the market.”⁵⁶ The likelihood of a new firm entering the high-technology research and development market depends on the expense to the newcomer.⁵⁷ Expenses include equipment, facilities, skilled personnel, and marketing. There are also expenses incurred from intellectual property licensing and/or sales efforts.

The FTC utilizes this analysis. In January 1996, FTC’s Commissioner Mary Azcuenaga stated:

52. *See id.*

53. *See id.*

54. *See* U.S. DEP’T OF JUSTICE AND FED. TRADE COMM’N, HORIZONTAL MERGER GUIDELINES (1992) § 3.1, *reprinted in* 4 TRADE REG. REP. (CCH) ¶ 13, 104, *available at* http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html (last visited Aug. 10, 2002).

55. Ilene Knable Gotts, *The “Innovation Market”: Competitive Fact or Regulatory Fantasy?*, 44 No. 1 THE PRACTICAL LAWYER 79, 84 (1998).

56. *Id.*

57. HANDLER, *supra* note 37, at 153.

[c]ompetition in true innovation or pure research . . . poses an entirely new set of challenges for antitrust enforcers, such as identifying barriers to entry into research, as distinguished from entry into a product line. The Commission has not yet ventured far into this difficult terrain, and I rather doubt that it will in the next few years.⁵⁸

Thus, identifying entry barriers is a new challenge for high-tech innovations. In fact, in the research and development cases brought by the Agencies, entry barriers were substantial because the secret nature of research may have increased the cost of strategic planning for research and resource allocation. It may also have been difficult to ascertain customer needs via market research, and there may have been costly regulatory approval processes to overcome. Finally, proprietary intellectual property rights may have blocked the path.⁵⁹ With respect to proprietary intellectual property rights, licensing provides the key to market entry.⁶⁰ Thus, the remainder of this article addresses the potential barriers involving high-tech licensing, such as refusing to license, misconduct related to industry standards setting, and the problem of patent pooling.

II. REFUSING TO LICENSE

Refusing to license a patent can sometimes constitute improper exclusionary conduct. In a 1992 case, *Eastman Kodak Co. v. Image Technical Services, Inc.*, the Supreme Court considered the unilateral refusal to sell or license a patented or copyrighted product and tying arrangements.⁶¹ Although Section 5.3 of the 1995 IP Guidelines cites *Eastman Kodak*,⁶² the Guidelines do not provide much guidance in the area of exclusionary conduct.⁶³ Section 5.5 of the IP Guidelines states that exclusion from a licensing arrangement among competing technologies is unlikely to have anticompetitive effects "unless (1) excluded firms cannot effectively compete in the relevant market for the good incorporating the licensed technologies and (2) the pool participants collectively possess market power in the relevant market."⁶⁴ If these circumstances exist, the Agencies will evaluate whether the arrangement's

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58. Mary Azcuenaga, Remarks at the Meeting of the American Intellectual Property Law Association (January 24, 1996), available at <http://www.ftc.gov/speeches/azcuenaga/intelp.htm> (last visited Sept. 14, 2002).
 59. See Thomas N. Dahdouh, *The Shape of Things to Come: Innovation Market Analysis in Merger Cases*, 64 ANTITRUST L.J. 405, 434-35 (1995).
 60. See HORIZONTAL MERGER GUIDELINES, *supra* note 54.
 61. See *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 459-62 (1992).
 62. GUIDELINES, *supra* note 1, at § 5.3.
 63. See *id.* at § 5.4.
 64. *Id.* at § 5.5.

limitations on participation are reasonably related to exploiting and developing the pooled technologies, and will assess the net effect of those limitations in the relevant market.⁶⁵ The IP Guidelines do not provide adequate guidance for determining whether and when refusing to license or sell patented technology or copyrighted work is justified as a legitimate business decision. The IP Guidelines merely state that the Agencies will determine whether a licensing restraint is reasonably necessary to achieve pro-competitive efficiencies.⁶⁶ And specific examples of pro-competitive efficiencies or business justifications are not provided.

In *Eastman Kodak*, Kodak took exclusionary action by implementing a policy to stop selling its replacement parts to Independent Service Operators ("ISOs"), and by securing agreements with other parts manufacturers not to sell parts to ISOs.⁶⁷ The ISOs alleged that Kodak's new policy of selling replacement parts only to Kodak machine owners that purchased Kodak's repair services constituted both monopolization and attempted monopolization of the market for Kodak repair services under Section 2 of the Sherman Act and a *per se* illegal tying arrangement under Section 1.⁶⁸

Kodak proffered three business justifications for its restrictive parts policy: (1) it wanted to guard against inadequate service to its customers because of its commitment to quality service; (2) it needed to control and lower its inventory costs; and (3) it desired to prevent the ISOs from free-riding on its capital investment in its equipment industry.⁶⁹ The Supreme Court held that these reasons were insufficient and pre-textual and that the proffered business justifications really did not play a part in Kodak's decision to implement this policy to refuse to sell or license.⁷⁰

There was evidence that Kodak had control over the availability of parts, resulting in excluded service competition, increased service prices, and forced unwilling consumption of Kodak service.⁷¹ The Court determined that Kodak controlled approximately 100% of the single brand parts market and 80 to 95% of the service market with no readily available substitutes.⁷² In *Eastman Kodak*, the Supreme Court reaffirmed the *Times-Picayune* principle that power gained naturally from a patent or copyright can give rise to anti-

65. *Id.*

66. *Id.* at § 4.2.

67. *Eastman Kodak*, 504 U.S. at 458.

68. *Id.* at 459.

69. *Id.* at 461.

70. *See id.* at 483-84.

71. *See id.* at 464-65.

72. *Id.* at 481.

trust liability if a seller exploits his dominant position in one market to expand his empire into the next.⁷³

After the Supreme Court remanded *Eastman Kodak*, the Ninth Circuit affirmed the trial court's jury verdict in favor of the ISOs.⁷⁴ Thus, refusal to deal in the complex high-tech market for photocopier and micrographics equipment, and its derivative aftermarket, proved detrimental to Kodak. Kodak was required to sell all of its patented parts to ISOs for a period of ten years and, after trebling damages, the ISOs obtained a judgment of \$71.8 million.⁷⁵ The Ninth Circuit held that "[u]nlike the other cases involving refusals to license patents, this case concerns a blanket refusal that included protected and unprotected products."⁷⁶ The presumption that refusing to license or sell is justified by legitimate business reasons may be rebutted by evidence that the monopolist acquired the intellectual property unlawfully, attempted to gain a monopoly beyond the grant of a patent, or relied on a pretextual business justification to mask anticompetitive conduct.⁷⁷ Here, there was evidence that the proffered business justification really did not play a part in the decision to act.⁷⁸ Kodak's parts manager testified that patent rights did not cross his mind at the time the policy to exclude ISOs was implemented.⁷⁹

Kodak held patents for over 220 parts needed to service its photocopiers.⁸⁰ Before *Eastman Kodak*, no court had ever compelled a patentee to license a valid patent, as doing so imposed antitrust liability on a patentee for refusing to license.⁸¹ The significance of a monopolist's unilateral refusal to sell or license a patented or copyrighted product in the context of a Section 2 claim based on monopoly leveraging was a question of first impression.⁸² In fact, the DOJ had not filed a Section 2 case, nor said much

73. See *id.* at 479 n.29 (quoting *Times-Picayune Pub. Co. v. United States*, 345 U.S. 594, 611 (1953)).

74. See *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1201, 1228 (9th Cir. 1997).

75. *Id.* at 1201, 1227-28.

76. *Id.* at 1219.

77. *Id.* at 1216, 1219. See also Richard J. Gilbert, *Patents, Sleeping Patents, and Entry Deterrence*, in STRATEGY, PREDATION, AND ANTITRUST ANALYSIS 205, 206-207 (Steven C. Salop ed., 1981).

78. *Image Technical Servs.*, 125 F.3d at 1219.

79. *Id.*

80. *Id.* at 1214.

81. Tonya Trumm, *Expansion of the Compulsory Licensing Doctrine? Image Technical Services, Inc. v. Eastman Kodak Co.*, 24 J. CORP. L. 157, 158 (1998).

82. *Image Technical Servs.*, 125 F.3d at 1214.

about the issue.⁸³ The Ninth Circuit held that the mere desire to protect intellectual property is not in and of itself a legitimate business justification.⁸⁴

The Federal Circuit, on the other hand, has upheld refusals to license as proper use of the patent monopoly. In 2000, the court decided *CSU v. Xerox*,⁸⁵ which arose out of a class action antitrust lawsuit with facts very similar to those of *Eastman Kodak*. In 1984, Xerox established a parts policy in which it refused to sell parts to CSU and other ISOs.⁸⁶ The district court concluded that a monopolist's refusal to license its patented or copyrighted product could never give rise to antitrust liability on the ground that such a refusal to license is immune from antitrust scrutiny.⁸⁷ In considering the effect of Xerox's unilateral right to refuse to license copyrighted manuals and diagnostic software on liability under the antitrust laws, the Federal Circuit in *CSU* embraced the First Circuit's approach on liability under the antitrust laws.⁸⁸

The First Circuit's approach was set out in *Data General Corp. v. Grumman Systems Support Corp.*, in which it stated that copyright monopolies are based on Congress' assumption that the right to exclude others creates a system of incentives that promotes consumer welfare by encouraging investment in the creation of expressive work.⁸⁹ Applying this principle to *CSU*, the Federal Circuit concluded that exclusionary conduct could include a monopolist's refusal to license.⁹⁰ This is presumed to be a legitimate business justification; the antitrust plaintiff has the burden to overcome this presumption.⁹¹ The Federal Circuit rejected CSU's invitation to examine Xerox's subjective motivation in asserting its right to exclude under the copyright laws for pretext.⁹²

The Federal Circuit also came to this conclusion in *Intergraph Corp. v. Intel Corp.*, in a case arising out of a dispute over Intergraph's Clipper technology, which it used in high-performance microprocessors.⁹³ To this end, the Federal Circuit held that Xerox's refusal to license was "squarely within

83. Steven Reynolds, *Antitrust and Patent Licensing: Cycles of Enforcement and Current Policy*, 37 JURIMETRICS J. 129, 147 (1997).

84. *Image Technical Servs.*, 125 F.3d at 1218-19.

85. *See CSU, L.L.C. v. Xerox Corp.*, 203 F.3d 1322 (Fed. Cir. 2000).

86. *Id.* at 1324.

87. *Id.*

88. *Id.* at 1329.

89. *See Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1186-87 (1st Cir. 1994).

90. *See CSU, L.L.C.*, 203 F.3d at 1327.

91. *Id.*

92. *Id.* at 1329.

93. *See Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1349-50 (Fed. Cir. 1999).

the rights granted by Congress to the copyright holder and did not constitute a violation of the antitrust laws" in the absence of definitive rebuttal evidence. Such a rebuttal would include evidence that copyrights were obtained by unlawful means or were used to gain monopoly power beyond the statutory copyright grant.⁹⁴

The FTC sometimes requires licensing a patent to a potential competitor as a condition of merger approval. For example, the FTC challenged the \$63 million merger of pharmaceutical companies Ciba-Geigy and Sandoz into Novartis in 1996.⁹⁵ The FTC was concerned about broadly focused therapeutic markets for four specific products.⁹⁶ The FTC alleged that the combination would reduce or suppress research and development because the merged firm would have less incentive to license its intellectual property rights to or collaborate with others.⁹⁷ To prevent this from occurring, the FTC required the licensing of specified gene therapy technology and patent rights to Rhone-Poulenc Rorer, Inc., which would put Rhone in a position to compete against the combined firm Novartis.⁹⁸ Hence, this is an example of compulsory licensing as a remedial practice.⁹⁹

Rather than helping to alleviate this confusion, the IP Guidelines do not provide much guidance on exclusionary conduct in the form of the refusal to license or sell intellectual property. The Agencies should provide guidance on: (1) what types of business justification arguments are valid; (2) when reliance on a business justification is a pretext to mask anticompetitive conduct; and (3) how a claim of legitimate business justification can be rebutted with evidence that the refusal involved intellectual property that was unlawfully acquired, such as by patent misuse, a combination of protected and unprotected products, or a monopoly beyond the grant of a patent or statutory copyright grant.

III. MISCONDUCT DURING STANDARDS-SETTING

The setting of industry standards can also be anticompetitive. Section 5.5 of the IP Guidelines, which covers cross-licensing and pooling arrangements, states that a possible anticompetitive effect may occur if participants are discouraged from engaging in research and development.¹⁰⁰ For example,

94. *CSU, L.L.C.*, 203 F.3d at 1329.

95. *See In re Ciba-Geigy Ltd.*, 123 F.T.C. 842 (1997).

96. *See id.* at 844-45.

97. *Id.* at 851.

98. *Id.* at 842.

99. *FTC Accord in CIBA Geigy/Sandoz Merger to Prevent Slowdown in Gene Therapy Development & Preserve Competition in Corn Herbicides, Flea-Control Markets*, Press Release, FTC (Dec. 17, 1996), available at <http://www.ftc.gov/opa/1996/9612/ciba.htm>.

100. *See Guidelines, supra* note 1, at § 5.5.

a pooling arrangement requiring members to grant licenses to each other for current and future technology at minimal cost may suppress technology by reducing the incentive to engage in research and development, because members of the pool have to share their successful research and development and each of the members can free-ride on the accomplishments of other pool members.¹⁰¹ This may be true of standards-setting organizations that overlap to some extent in structure and purpose with joint ventures.¹⁰²

As a practical commercial matter, licensees generally want exclusive rights to justify the significant effort and expense incurred in exploiting high-technology. The 1995 IP Guidelines do not specifically address participation and conduct in industry standards-setting groups that are prevalent in the high-technology arena. The IP Guidelines should have addressed the potential for monopolies in the development of high-technology standards and interface specifications. Industry standards are agreed upon specifications for the production of functionally compatible goods and services and are vital to many aspects of the economy, since they may be the only way to ensure that technology are compatible with each other.¹⁰³ The line between beneficial standards and standards used as anticompetitive devices must be made clearer.

A. *De facto* Standards-Setting

The two types of standards-setting are *de facto* and *de jure*. *De facto* standard-setting occurs when a standard achieves a critical mass and dominates an industry.¹⁰⁴ Companies that set *de facto* industry standards have tremendous economic power in that they can control the interfaces to the products for which they set the standard.¹⁰⁵ If competitors cannot interface with the standard-setting product, then that competitor cannot compete effectively.¹⁰⁶ Thus, interfaces may actually define relevant markets.¹⁰⁷ Further, standards-setting can have anticompetitive effects if it thwarts innovation by advocating an older standard when a newer, better, or more widely accepted

101. *Id.*

102. Mark Lemley, *Antitrust and the Internet Standardization Problem*, 28 CONN. L. REV. 1041, 1094 n.169 (1996).

103. David Healey, *Group Standard-Setting Grows More Significant: De Jure Standard-Setting Raises Patent Enforceability Issues as well as Antitrust Implications*, 20 NAT'L L.J. 38 at C36 (May 18, 1998).

104. See Dictionary of PC Hardware and Data (1996), available at <http://www.oreilly.com>.

105. Joseph Farrell & Garth Saloner, *Converters, Compatibility, and the Control of Interfaces*, 40 J. INDUS. ECON. 9, 35 (1992).

106. *Id.*

107. *Id.*

technology is available.¹⁰⁸ Standard-setting might also provide a forum for collusion, such as selecting a standard designed to preclude the use or acceptance of another's product.¹⁰⁹

The personal computer software industry exhibits a particular set of conditions known to economists as network effects.¹¹⁰ A network effect is present when the value of a product or service increases with the cumulative number of purchases, and each additional purchase raises the value of the product to existing users as well as the expected value of the product to future adopters.¹¹¹ For example, Netscape uses the network effect by not charging anything, but increasing the value of its product and itself.¹¹² Network effects permit a market's first entrant to achieve domination of a market by getting a head start in building an installed base of users that increase the value of that first entrant's product.¹¹³

In November 1995, the FTC conducted hearings on global and innovation-based competition to consider networks, standards, foreclosure, and strategic conduct.¹¹⁴ Robert Kohn of Borland International discussed the monopoly in standard interface specifications.¹¹⁵ Kohn stated that users adopt a particular interface standard by investing time and resources in learning how to operate the product efficiently.¹¹⁶ Users increase this investment by purchasing complementary products that are compatible with the interface standard of the original product.¹¹⁷ Ultimately, a market leader in control of an interface standard may substantially raise the cost to consumers of switching to alternative product offerings of subsequent market entrants, and these

108. David A. Balto, *Standard Setting in a Network Economy*, Remarks at the Cutting Edge Antitrust Law Seminars International (Feb. 17, 2000) available at <http://www.ftc.gov/speeches/other/standardsetting.htm> (last visited Aug. 12, 2002).

109. *Id.*

110. Burtis & Kobayaski, *supra* note 38.

111. *See* Addamax v. Open Software Found., 152 F.3d 48, 50 n.4 (1st Cir. 1998).

112. John M. Gallagher & Yu-Ming Wang, *Network Effects and the Impact of Free Goods: An Analysis of the Web Server Market*, 3 INT'L J. OF ELEC. COM. 67, 88 (1999).

113. *Id.*

114. *See* Robert Kohn, Remarks at Hearings on Global and Innovation-Based Competition (Nov. 29, 1995), available at <http://www.ftc.gov/opp/global/GC112995.htm> (last visited Aug. 27, 2002).

115. *Id.*

116. *Id.*

117. *Id.*

alternative products might actually be better, cheaper, and more innovative.¹¹⁸

Further, promoting innovation is a function of properly circumscribing the scope of intellectual property protection and enforcing antitrust laws to prevent monopoly control over interface standards. For example, Microsoft controls the desktop computer operating system standard.¹¹⁹ With respect to this operating system, Microsoft won a \$13.6 million judgment against Stac Electronics for the misappropriation of its trade secrets.¹²⁰ A federal jury awarded Stac \$120 million for patent infringement and Microsoft the \$13.6 million for trade secret misuse, and required the parties to enter into a broad cross-licensing agreement.¹²¹

In addition to the potential for a market leader in control of an industry standard to raise the cost to consumers, there is also potential for exclusionary conduct. According to Robert Kohn, Stac would be out of business if Microsoft refused to license to it.¹²² Kohn recommended requiring compulsory licensing of the source code, subject to a modest royalty that implements the interface standard in order to allow competitors to develop complementary products.¹²³ Absent such licensing, the users of original software programs will face switching costs if the software is not allowed to be compatible or if follow-on firms are not allowed zero-priced access to *de facto* industry standards.¹²⁴ When a competitor so dominates a market by becoming the sole standard-setting authority, its power must be carefully monitored or actively constrained if innovation in related markets is not to be suppressed.¹²⁵

The lengthy legal battle between the Addamax Corporation and the Open Software Foundation ("OSF") raised the issue of *de facto* industry stan-

118. See S.J. Liebowitz & Stephen E. Margolis, *Should Technology Choice Be a Concern of Antitrust Policy?*, 9 HARV. J. L. & TECH. 283, 288 (1996).

119. See George Willingmyre, *International Standards: At the Crossroads*, available at <http://www.gtwassociates.com/answers/international.html> (last visited Aug. 27, 2002).

120. See *Stac Electronics v. Microsoft Corp.*, 38 F.3d 1222 (Fed. Cir. 1994).

121. See *Three Significant Court Cases*, Software Patent Institute Database of Software Technologies, available at <http://www.spi.org/3cases.htm> (last visited Aug. 27, 2002).

122. Kohn, *supra* note 114.

123. *Id.*

124. See *id.* This zero-priced access is compulsory licensing provided for when standards can be treated as essential facilities. See Lemley, *supra* note 102, at 1091.

125. See John Flynn, *Antitrust Policy, Innovation Efficiencies, and the Suppression of Technology*, available at http://www.econ.utah.edu/les/version_2.0/papers/FlynnAntitrust.htm (last visited Sept. 23, 2002).

standard-setting.¹²⁶ Addamax produced B-1 rated security software systems for the computer industry. The OSF is a high-tech joint research and development venture registered under the National Cooperative Research and Production Act of 1984.¹²⁷ Eight computer manufacturers established the OSF in 1988, including Hewlett-Packard and Digital, to conduct computer interface research and experimentation and to produce and promote a software alternative to the UNIX operating system.¹²⁸

Addamax lost a bid for the development of OSF's security software and alleged that OSF's conduct with respect to its *de facto* industry standards had an anticompetitive impact on the industry because OSF allegedly conspired to force the price for security software down below the free-market level, limiting Addamax's ability to compete.¹²⁹ The courts did not explore the market issue, but examined the causal connection between Addamax's business and OSF's alleged monopsony power.¹³⁰ The courts held that antitrust violations were not the material cause of Addamax's business failure because the security software market is a high-risk business and Addamax's product was too expensive and complex.¹³¹

Had OSF's selection of a security software platform been viewed as a desire to set a *de facto* industry standard, as opposed to merely selecting the lowest bidder, OSF's selection could have been considered an anticompetitive means to preclude the use or acceptance of Addamax's product. The FTC, however, has stated that OSF's actions seemed innocently consistent with competitive rivalry; moreover, OSF's actions were mitigated by the fact that the joint venture was designed to counter AT&T/Sun's alleged attempts to dominate the industry with the UNIX operating system.¹³² Given the courts' holdings that all high-tech software business deals are risky, and the FTC's view that this is merely a case of competitive rivalry, Addamax did not have a chance to prevail.

B. *De jure* Standards-Setting

De jure standards-setting occurs when an industry group or consortia adopts standards.¹³³ For example, in February 1992, Dell Computer Corporation joined the Video Electronics Standards Association ("VESA"), which is composed of all of the major US computer hardware and software manufac-

126. See *Addamax Corp. v. Open Software Found.*, 888 F. Supp. 274, 277 (D. Mass. 1995).

127. *Id.* at 277 n.3.

128. *Id.* at 277.

129. *Id.* at 278.

130. See *Addamax v. Open Software Found.*, 152 F.3d 48, 53 (1st Cir. 1998).

131. *Id.*

132. *Id.*

133. See Healey, *supra* note 103.

turers.¹³⁴ In August 1992, VESA adopted a final standard for a computer bus design, the VL-bus, for transferring instructions between a computer's central processing unit and peripherals.¹³⁵ In line with the common practice of *de jure* industry standard-setting organizations, VESA required that participants disclose their intellectual property rights to one another, and Dell representatives certified on several occasions that the VESA proposal did not infringe on any of their patents.¹³⁶

After the VESA VL-bus design was adopted and incorporated into over one million computers, Dell revealed that it obtained a VL-bus patent in 1991, and announced that it intended to enforce the patent by requiring patent licenses from users of its design.¹³⁷ In 1995, the FTC charged Dell with violating Section 5 of the FTC Act, which covers unfair methods of competition, because of its failure to disclose its patents during open-standards deliberations.¹³⁸ The FTC complained that Dell's actions unreasonably restrained competition by hindering the industry's acceptance of the VL-bus design standard, raising the costs of implementing the standard, and chilling the willingness to participate in future standard-setting activities.¹³⁹ Dell subsequently signed a consent decree with the FTC that prohibited the company from enforcing any of the patents it failed to disclose to the standards group for ten years.¹⁴⁰

Hitachi recently cited the 1996 FTC case against Dell when it alleged that Rambus violated the rules of the standards-setting body called Joint Electron Devices Engineering Council ("JEDEC").¹⁴¹ Hitachi alleged that Rambus tried to restrain trade by refusing to reveal its patent enforcement intentions during open standards-setting discussions in the early 1990s.¹⁴² Rambus has enforced its proprietary Synchronous DRAM (S-DRAM) by forcing memory chipmakers to pay royalties.¹⁴³ Although Hitachi has argued that Rambus's technology is an open industry standard, Samsung Electronics, Oki Electric Industry, Elpida Memory, Mitsubishi Electric, Toshiba, and

134. Dell Computer Corp.; Consent Agreement with Analysis to Aid Public Comment, 60 Fed. Reg. 57,870, 57,872 (Nov. 22, 1995).

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.* at 57,870-71.

141. Jack Robertson, *DRAM Industry Considers Antitrust Action*, ELECTRONIC BUYER'S NEWS, at <http://www.ebnews.com/story/OEG20000710S0028>, July 10, 2000.

142. *Id.*

143. *Id.*

Hitachi all agreed to license the patents and pay Rambus royalties.¹⁴⁴ Hyundai Electronics Industries, Micron technology, and Infineon Technologies sued Rambus on this issue.¹⁴⁵

In addition to utilizing compulsory licensing as a remedial measure for misconduct during the standards-setting process, courts may impose an "implied license." For example, in a 1997 decision, *Wang Laboratories, Inc. v. Mitsubishi Electronics America, Inc.*, the Federal Circuit found that Wang's conduct in an industry standards-setting group gave rise to a perpetual, royalty-free implied license to Mitsubishi.¹⁴⁶ Wang developed a computer memory product in 1983 and promoted it as an industry standard through JEDEC.¹⁴⁷ Because Wang encouraged Mitsubishi to make and promote the product, the Federal Circuit held that Mitsubishi's support for the Wang standard was part of the consideration to support an implied license.¹⁴⁸

In conclusion, misconduct includes both encouraging participants in a standards-setting process to make and promote a product and refusing to reveal patent enforcement intentions during open standards-setting discussions (while later enforcing intellectual property rights against the participants). A remedial measure is compulsory, or implied, licensing. The increase in legal actions against the manipulation of the standards-setting process is evidence that the Agencies should have provided guidance on this matter in their IP Guidelines. This issue is at least on the Agencies' radar screens because in 2000, the Assistant Director of the FTC Bureau of Competition advised that standards should not overreach, should not restrict or define the product more than necessary, should not be applied to just members, but to nonmembers as well, and should not do anything to stifle innovation.¹⁴⁹

IV. PROBLEM OF PATENT ACCUMULATION

"[C]ross-licensing, package licenses or patent pools are created to enable all participants to use the intellectual property where, without the licenses, perhaps none could do so because of possible or probable infringement."¹⁵⁰ The IP Guidelines state that the joint marketing of pooled intellectual property with collective price setting or coordinated output re-

144. *Mitsubishi Signs License Agreement with Rambus*, BLOOMBERG NEWS, Jan. 2, 2001.

145. *Korea Hyundai Elec Adds Plaintiffs to Rambus Lawsuit*, REUTERS, Oct. 19, 2000.

146. *Wang Laboratories Inc. v. Mitsubishi Electronics America, Inc.*, 103 F.3d 1571, 1573 (Fed. Cir.), *cert denied*, 522 U.S. 818 (1997).

147. *Id.* at 1573.

148. *Id.* at 1580.

149. Balto, *supra* note 108.

150. Robert A. McTamane, *Antitrust and Intellectual Property Rights: The Devil is in the Details*, 219 N.Y. L.J. 21 (1998).

restrictions may have anticompetitive effects.¹⁵¹ The IP Guidelines, however, do not adequately address the entry barrier problem of acquiring broader protection for narrow inventions and the combination of patent rights by cross-licensing.¹⁵² Practitioners must look elsewhere for guidance, and the DOJ Business Review Letters are helpful.

For example, in December 1998, pursuant to the DOJ Business Review Procedure,¹⁵³ the DOJ provided a statement of its enforcement intentions with respect to a proposed arrangement in which Koninklijke Philips Electronics would assemble, offer a package license, and distribute royalty income under Philips, Sony, and Pioneer Electronic patents.¹⁵⁴ Allegedly, the patents are essential to the manufacturing of Digital Versatile Discs (“DVDs”) and players in compliance with the DVD-ROM and DVD-Video formats.¹⁵⁵ Essential patents have no substitutes and must be licensed in order to comply with standard specifications.¹⁵⁶

The DOJ stated that by reducing what would otherwise be three licensing transactions into one, the pool would reduce transaction costs for licensors and licensees alike.¹⁵⁷ Also, “[b]y ensuring that each Licensor’s patents will not be blocked by those of the other two, the pool would enhance the value of all three Licensors’ patents.”¹⁵⁸ The DOJ concluded that the proposed arrangement is not likely to initiate antitrust enforcement action against the proposed cross-license because the combination would lower costs to manufacturers that need access to the essential patents in order to produce discs and players in conformity with the DVD-Video and DVD-ROM formats.¹⁵⁹

151. GUIDELINES, *supra* note 1, at § 5.5.

152. James B. Kobak, Jr., *Intellectual Property, Competition Law and Hidden Choices Between Original and Sequential Innovation*, 3 VA. J. L. & TECH. 6, ¶27 (1998).

153. This procedure is set out at 28 C.F.R. Section 50.6.

154. Letter from Joel Klein to Garrard Beeney (Dec. 16, 1998) (discussing DVD ROM and DVD Video Business Review), *available at* <http://www.usdoj.gov/atr/public/busreview/2121.htm> (last visited Aug. 9, 2002).

155. *Id.*

156. Garrard Beeney, *Pro-Competitive Aspects of Intellectual Property Pools: A Proposal For Safe Harbor Provisions*, Submission to the United States Department of Justice Antitrust Division and the Federal Trade Commission, Joint Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy, *available at* <http://www.ftc.gov/opp/intellect/020417garrardbeeney.pdf> (last visited Sept. 23, 2002).

157. Klein, *supra* note 154.

158. *Id.*

159. *Id.*

Another example is a 1999 DOJ statement of its enforcement intentions with respect to a proposed arrangement whereby the Toshiba Corporation would assemble and offer a package license with Hitachi, Matsushita Electrical Industrial, Mitsubishi Electric, and Time Warner for DVD-Rom and DVD-Video formats.¹⁶⁰ Again, the DOJ concluded that the proposed arrangement was not likely to initiate antitrust enforcement action against the proposed cross-license because the combination would lower the costs of manufacturers that need access to essential patents in order to produce conforming products.¹⁶¹

Conceptually, the problem of patent accumulation is indistinguishable from the merger problem under antitrust law.¹⁶² In the merger analysis, combinations and collusions eliminate competition from competing patents that would drive royalty rates down to the point at which each patentee could hope to charge a royalty that merely reflected the degree to which its patent was more valuable than others.¹⁶³ As with competing patents, there is a significant danger that the cross-licensing of complementary patents will mask price fixing conspiracies.¹⁶⁴

The cross-licensing of intellectual property rights is sometimes the product of the settlement of an infringement suits. Settlements can be an efficient means to avoid litigation and, in general, courts favor settlements.¹⁶⁵ They are not, however, immune from antitrust scrutiny. The IP Guidelines provide that when cross-licensing involves horizontal competitors, the Agencies will consider whether the effect of the settlement is to diminish competition among parties that would have been actual or likely competitors in a relevant market in the absence of the cross-license.¹⁶⁶ "In the absence of offsetting efficiencies, such settlements may be challenged as unlawful restraints of trade."¹⁶⁷ Examples of offsetting efficiencies include the anticipated lower manufacturing costs cited in the aforementioned DOJ business review letters, and the decision by the owner of weaker patents to license them only as a package since they might be more valuable and productive as a packaged license.¹⁶⁸

160. Letter from Joel Klein to Carey Ramos (June 10, 1999) (discussing DVD ROM and DVD Video Business Review), available at <http://www.usdoj.gov>.

161. *Id.*

162. Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1867 (1984).

163. *Id.* at 1868.

164. *Id.* at 1860-61.

165. GUIDELINES, *supra* note 1, at § 5.5.

166. *Id.*

167. *Id.* (citing *United States v. Singer Mfg. Co.*, 374 U.S. 174 (1963)).

168. *McTamanev*, *supra* note 150.

In 1997, the DOJ suggested that it is likely to scrutinize patent cross-licenses and settlements of infringement suits to a greater degree.¹⁶⁹ The DOJ proposed a notification procedure to enable it to investigate significant cross-licenses, licenses in general, and patent infringement suit settlement agreements.¹⁷⁰ Joel Klein, the Acting Assistant Attorney General at the time, stated that cross-licenses had previously remained largely off the DOJ's agenda.¹⁷¹ Perhaps this is why the discussion of cross-licensing and settlement agreements is limited in the IP Guidelines.

Cross-licensing remains largely missing from the DOJ's agenda. Therefore, there is a need for more guidance on the entry barrier problem of gaining broad protection for narrow inventions, combining patents and/or other intellectual property, by cross-licensing, using cross-licensing to mask price fixing conspiracies, or using settlement agreements to diminish competition. According to DOJ Business Review Letters, legitimate transactions include those that prevent blocked patents, enhance patent value, and lower costs to manufacturers that need access to essential patents. In 1981, a former Deputy Attorney General for Economics advised that the DOJ should bring an antitrust action when a company with a dominant position enters into extensive cross-licenses with competitors and the licenses featured restrictions on the availability of licenses to new entrants.¹⁷² Thus, practitioners would benefit greatly from a thorough discussion of legitimate and insufficient transactions in the IP Guidelines.

V. CONCLUSION

Innovation is encouraged and is necessary for the economic growth of nations, and the obvious solution to defining innovation markets is simply to define relevant innovations in terms of the traditional goods and services markets associated with the licensed innovations. Agency focus should not be on creating a new market definition for innovations. Innovations should merely be associated with the traditional market for the end-product line and location, which are the first two basic considerations of the relevant market definition. Since licensing is a key phase of market entry for the development of innovative products and services,¹⁷³ Agency guidance should focus on conduct in the high-tech arena that constitutes a potential entry barrier. Key high-tech entry barriers include refusals to license, misconduct during standards-setting activities, and patent accumulation methods such as cross-li-

169. See Joel Klein, *Cross-Licensing and Antitrust Law*, Remarks at the Meeting of the American Intellectual Property Law Association (May 2, 1997), available at <http://www.usdoj.gov/atr/public/speeches/1123.htm> (last visited Aug. 9, 2002).

170. *Id.* at 17.

171. *Id.* at 3.

172. See Reynolds, *supra* note 83, at 147.

173. See HORIZONTAL MERGER GUIDELINES, *supra* note 54.

censing, package licensing, and patent pools. These activities merit closer attention and practitioners need better guidance from the Agencies.