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# Patent Pools and the Antitrust Dilemma

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## Note

# Patent Pools and the Antitrust Dilemma

Steven C. Carlson<sup>†</sup>

*A new era has begun in antitrust regulation of patent pools. With the issuance of the 1995 Antitrust Guidelines for the Licensing of Intellectual Property and the 1997 Department of Justice approval of the MPEG LA patent pool, federal antitrust authorities have espoused a more permissive attitude toward patent pools and cross-licensing arrangements than in recent decades. Procompetitive benefits undoubtedly justify the formation of patent pools in certain contexts, but serious anticompetitive risks are also present, particularly in standard-dependent industries. This Note argues that the Department of Justice and the Federal Trade Commission should not adopt a per se rule of legality for the pooling of blocking patents, and that these agencies must carefully delineate the permissible scope of broader pools.*

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## Introduction

Intellectual property law has always existed in tension with the goals of antitrust law, and the courts' deference to the policy goals of these two sets of laws has vacillated over the century.<sup>1</sup> Courts and regulators have

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1 For reviews of the historical tension between patent and antitrust law, see generally FLOYD L. VAUGHAN, *THE UNITED STATES PATENT SYSTEM: LEGAL AND ECONOMIC CONFLICTS IN AMERICAN PATENT HISTORY* (1956); Willard K. Tom & Joshua A. Newberg, *Antitrust and Intellectual Property: From Separate Spheres to Unified Field*, 66 ANTITRUST L.J. 167 (1997).

recently begun upholding the goals of intellectual property law to the detriment of antitrust law. One example of this deference, already documented in the case law, is the ability of electronics manufacturers to circumvent tying laws by copyrighting elements of their service tools.<sup>2</sup> This Note examines another instance in which intellectual property law is encroaching upon core principles of antitrust law.

Patent pools pose one of the most intractable problems in antitrust law. When rival innovators hold overlapping patent rights, neither may develop the underlying technology without infringing the other's patent. If the patentees adopt a cooperative solution and cross-license or pool their patents, they effectuate a horizontal merger of their assets and can perpetuate monopoly pricing. With the strengthening of intellectual property law, patent rights are increasingly blocking the development of new technologies, and support is growing to loosen legal constraints on patent pools.<sup>3</sup> This Note acknowledges that legitimate, even imperative, arguments justify loosening antitrust restraints on patent pools. The thesis of this Note, nonetheless, is that undue deference to patents risks sacrificing core principles of antitrust law.

The Department of Justice (DOJ) and the Federal Trade Commission (FTC) have recognized the difficulties posed by patent licensing agreements. They have jointly promulgated guidelines that point to a need

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2 Manufacturers are generally prohibited from tying repair services to equipment sales, particularly when sufficient consumer demand exists to support an aftermarket for service. See *Eastman Kodak Co. v. Image Technical Servs.*, 504 U.S. 451, 462-63 (1992) (ruling that a separate market could exist for Kodak equipment sales and for repairs); *Virtual Maintenance, Inc. v. Prime Computer, Inc.*, 11 F.3d 660, 667 (6th Cir. 1993) (finding that software support and hardware maintenance are separate products); *Service & Training, Inc. v. Data Gen. Corp.*, 963 F.2d 680, 684 (4th Cir. 1992) (finding that repair services and diagnostic software may constitute separate markets). If the underlying equipment and the tools for equipment repair are not covered by intellectual property protections, then equipment manufacturers may violate the antitrust laws if they foreclose independent service organizations (ISOs) from the aftermarket for repair. Equivalent conduct, however, is permissible when equipment manufacturers fence off the service aftermarket by copyrighting elements of equipment and/or tools for repair. When the underlying equipment, for example, comprises a copyrighted operating system, then ISOs are prohibited from repairing the systems, under the theory that to do so would require them to boot the system, load the copyrighted system into the random access memory (RAM), and thus unlawfully "copy" the system. See *Triad Sys. Corp. v. Southeastern Express Co.*, 64 F.3d 1330, 1335 (9th Cir. 1995) (affirming that copying for the purpose of the copyright law occurs when a computer program is transferred from permanent storage to a computer's RAM, and that the ISO infringed the equipment manufacturer's copyright); *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511, 518 (9th Cir. 1993) (same); *Advanced Computer Servs., Inc. v. MAI Sys. Corp.*, 845 F. Supp. 356, 360 (E.D. Va. 1994) (same). If the equipment manufacturer creates copyrighted diagnostic software, the manufacturer may withhold licenses from ISOs and thereby effectively prohibit ISOs from the service aftermarket. See *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147 (1st Cir. 1994) (ruling that holder of a copyrighted diagnostic tool may refuse to license ISOs); *Service & Training, Inc. v. Data Gen. Corp.*, 963 F.2d 680 (4th Cir. 1992) (same).

3 See Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 700 (1998); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293, 1355-58 (1996).

to balance the countervailing goals of preventing monopolistic behavior and of promoting the development of technology.<sup>4</sup> The guidelines signify a commitment by the agencies to recognize the procompetitive benefits of patent pools, and to formally depart from the per se prohibitions that have been applied to patent licensing practices in decades past.<sup>5</sup> Notably, the guidelines grant an exception to the antitrust laws by permitting holders of blocking patents to pool their patents and jointly to set royalty rates.<sup>6</sup> This Note considers, in depth, the issues raised by this position. This Note proceeds in four parts. Part I describes patent pools, cross-licensing agreements, and the factors that lead to their formation. Part II overviews the history of federal regulation of patent pools, culminating in the 1995 DOJ/FTC Antitrust Guidelines for the Licensing of Intellectual Property. Part III outlines the procompetitive benefits of patent pools. Finally, Part IV advances theories of the anticompetitive effects of these arrangements. The Note argues, in conclusion, that the DOJ and FTC should not adopt a per se rule of legality for the pooling of blocking patents, and that enforcement agencies must carefully delineate the permissible scope of broader pools.

## I. Blocking Patents and Patent Pools

### A. *Blocking Patents, Complementary Patents, and Competing Patents*

A primary cause of the formation of patent pools is the issuance of overlapping patent rights to technology. The relation of patents to one another may be described as blocking, complementary, or competing.

#### 1. Blocking Patents

Blocking patents naturally result from the diffuse, incremental process of innovation. Theoretically, a pioneer patent grants its holder a "prospect right" akin to that of a mineral lease, permitting him to develop all technologies underlying the metes and bounds of the patent.<sup>7</sup> Technology is far more dynamic than mineral veins, however, as the

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4 See U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY 105 (1995), reprinted in AMERICAN BAR ASSOCIATION, THE 1995 FEDERAL ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY: COMMENTARY AND TEXT (1995) [hereinafter IP LICENSING GUIDELINES].

5 See Bruce B. Wilson, Remarks to Michigan State Bar Antitrust Law Section and Patent Trademark and Copyright Law Section, reprinted in [1969-1983 Current Comment Transfer Binder] Trade Reg. Rep. (CCH) ¶ 50,146, at 50,146 (Sept. 21, 1972).

6 See IP LICENSING GUIDELINES, *supra* note 4, at 107, ex.10.

7 See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 267 (1977).

prospector is incapable of foreseeing all the potential products covered by the original patent. Innovation would be stifled if the pioneer alone were granted rights to develop improvements on the original work.

Sacrificing clarity of legal titles for incentives to innovate, the Patent and Trademark Office (PTO) often grants improvement, or blocking, patents.<sup>8</sup> The improvement patent is deemed to be "subservient" to the earlier, "dominant" patent.<sup>9</sup> The subservient and dominant patents are said to block one another.<sup>10</sup> The subservient patent cannot be exploited without infringing upon the dominant patent.<sup>11</sup> Likewise, the dominant patent cannot be developed in the improved embodiment without permission from the subservient patentee.<sup>12</sup> Although the granting of blocking patents provides incentives to innovate, it results in significant legal entanglements.<sup>13</sup>

Pioneer technologies frequently result in the issuance of blocking patents. The Wright brothers, for example, were inspired by the flight of buzzards to develop and patent a method for stabilizing flight by warping the wings of an aircraft.<sup>14</sup> Their patent covered any system that varied the lateral margins of the wings in opposite directions.<sup>15</sup> Soon thereafter, Glenn Curtiss and Alexander Graham Bell improved upon the Wright brothers' wing-warping device by using a set of wing flaps, or ailerons.<sup>16</sup> The Curtiss patent was issued in 1916, by which time all airplanes used wing flaps instead of the Wright method.<sup>17</sup> The Curtiss patent, however, was found to infringe upon the Wright patent.<sup>18</sup> As a result, Curtiss had no legal right to make, use, or sell his ailerons without a license from the Wright brothers,<sup>19</sup> and the Wright brothers had no legal right to make, use, or sell Curtiss's commercially successful form of the stabilizing device.<sup>20</sup> In patent parlance, the Wright brothers held a dominant patent, Curtiss held a subservient patent, and the patents mutually infringed and blocked one another.

Public key encryption provides a modern analogue to the aircraft

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8 See Robert P. Merges, *A Brief Note on Blocking Patents and Reverse Equivalents: Biotechnology as an Example*, 73 J. PAT. & TRADEMARK OFF. SOC'Y. 878, 878-79 (1991).

9 See *id.* at 878.

10 See *id.*

11 See *id.*

12 See *id.*

13 See *id.*, *supra* note 8, at 878-80.

14 See George Bittlingmayer, *Property Rights, Progress, and the Aircraft Patent Agreement*, 31 J.L. & ECON. 227, 230-31 (1988).

15 See *id.* at 231.

16 See *id.*

17 See *id.*

18 See *id.*

19 See *id.*

20 Extensive litigation resulted from this mutually blocking situation, requiring federal intervention. See *id.*

patents. Public key encryption is a method for ensuring confidential digital communications over insecure lines.<sup>21</sup> Public key encryption is "arguably the single most important tool to construct a rich and robust bedrock of electronic commerce."<sup>22</sup> The method requires an algorithm to generate a set of public and private keys that lock and unlock messages.<sup>23</sup> The method was first devised and patented at Stanford University, and licensed to Cylink.<sup>24</sup> The Cylink patent contains broad claims that do not specify an algorithm.<sup>25</sup> Soon thereafter, a team of scientists at the Massachusetts Institute of Technology developed and patented an algorithm, and licensed its use to RSA (named after the surnames of the algorithm's inventors, Ronald Rivest, Adi Shamir, and Leonard Adleman).<sup>26</sup> The RSA algorithm was successfully commercialized and became an industry standard.<sup>27</sup> Cylink alleged that the RSA algorithm infringed its patent, asserting that RSA lacked the legal right to make, use, or sell its algorithm without permission from Cylink.<sup>28</sup> Conversely, RSA claimed that Cylink lacked the legal right to practice its invention in the commercially preferred embodiment.<sup>29</sup> But for the settlement of the litigation through the formation of a patent pool, this vitally important technology would have been blocked by rival patents.<sup>30</sup>

## 2. Complementary Patents

Complementary patents, similar to blocking patents, are those patents covering technologies that are useless absent a license to a separate patented product.<sup>31</sup> Complementary patents result when different inventors

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21 See generally *RSA Data Sec., Inc. v. Cylink Corp.*, No. 96-20094 SW, 1996 WL 107272, at \*1-2 (N.D. Cal. Mar. 4, 1996); Philip R. Zimmerman, *Cryptography for the Internet*, SCI. AM., Oct. 1998, at 110, 110-15.

22 *Digital Signature: Let the Battles Begin*, INFO. L. ALERT: A VOORHEES REP., May 27, 1994 [hereinafter *Digital Signature*].

23 See Zimmerman, *supra* note 21, at 112.

24 See *The Friendliest of Enemies: Shaky Marriage Between Crypto Firms Shatters*, INFO. L. ALERT: A VOORHEES REP., Sept. 9, 1994 [hereinafter *Crypto Pool*]. Public key encryption was devised by a colorful personality, Whitfield Diffie. For a description of him and his path to invention, see Thomas Bass, *Whitfield Diffie: A Semi-Private Conversation with the Headman of the Cypherpunk Revolution*, OMNI, Dec. 22, 1995, at 86.

25 See U.S. Patent No. 4,200,770 (Apr. 29, 1980). Claim 1, for example, specifies no algorithm. See *id.*

26 See U.S. Patent No. 4,405,829 (Sept. 20, 1983); see also *Crypto Pool*, *supra* note 24.

27 See Darryl K. Taft, *Patent Rights Are New Issue in Signature Standard Fight*, GOV'T COMPUTER NEWS, Mar. 30, 1992, at 57.

28 See *At War over Crypto*, INFO. L. ALERT: A VOORHEES REP., Oct. 13, 1995.

29 See *Crypto Pool*, *supra* note 24.

30 See *id.*

31 See Gilbert Goller, *Competing, Complementary and Blocking Patents: Their Role in Determining Antitrust Violations in the Areas of Cross-Licensing, Patent Pooling and Package Licensing*, 50 J. PAT. & TRADEMARK OFF. SOC'Y 723, 725 (1968).

independently patent different components of a larger invention.<sup>32</sup> For the production of a light bulb, for example, rights to a patent over a vacuum bulb are inadequate without rights to a patent for a tungsten filament.<sup>33</sup> Absent cooperation between the holders of the complementary patents, products like the light bulb may be blocked from development due to competing patent claims.

### 3. Competing patents

The term “competing patents” describes patents over products or processes that compete with each other in the market.<sup>34</sup> Competing patents result when inventors devise totally novel products or processes that provide market substitutes for patented goods, or when inventors sufficiently modify existing patented goods so that the original patent is deemed “invented around” and not infringed. As an example, glass jars were commonly manufactured according to a number of distinct processes, such as the suspended gob feeding process and the suction process.<sup>35</sup> Absent collusion between the holders of the patents to these rival processes, glass manufacturers could choose between processes and erode the monopoly profits of the patentees down to competitive levels.<sup>36</sup>

### 4. Imperfect Categorization

The distinctions among the categories of blocking, complementary, and competing patents are unclear. One scholar noted that the lines of demarcation among the three kinds of patents “are very narrow” and that “in many instances, a mere shift of focus or frame of reference will result in a different categorization for the same patents.”<sup>37</sup> A number of legal factors obscure the distinctions among these categories.

First, not all patent claims are valid. Patents are procured from the Patent and Trademark Office (PTO) in *ex parte* proceedings.<sup>38</sup> Given the charged workload of the PTO and the absence of adversarial scrutiny, patent examiners frequently overlook relevant prior art that would otherwise preclude certain claims from being issued. Patents typically

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32 See *id.* at 725.

33 See *id.*; *cf.* *United States v. General Elec. Co.*, 272 U.S. 476, 480-81 (1926) (describing General Electric’s patents over the lightbulb).

34 See Goller, *supra* note 31, at 725-26.

35 See *Hartford-Empire Co. v. United States*, 323 U.S. 386, 393 (1945).

36 See generally Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305 (1992); Robert P. Merges, *Rent Control in the Patent District: Observations on the Grady-Alexander Thesis*, 78 VA. L. REV. 359 (1992).

37 Goller, *supra* note 31, at 726.

38 See Michael J. Meurer, *The Settlement of Patent Litigation*, 20 RAND J. ECON. 77, 77 (1989).



contain multiple claims.<sup>39</sup> When previously overlooked prior art is revealed, one or more of these claims can be invalidated through litigation. Thus, a patent with facially broad claims may have a relatively narrow scope once certain of its claims are invalidated. For example, patents that may have been perceived as blocking prior to litigation (i.e., mutually infringing) may be ruled to be competing (i.e., valid but not infringed) at trial once certain claims are invalidated.

Second, the doctrine of equivalents provides that the enforceable scope of a patent extends beyond the literal wording of the claims.<sup>40</sup> The purpose of the doctrine is to prevent would-be infringers from circumventing a patent by trivially modifying the patented good.<sup>41</sup> The doctrine effectively creates a penumbra of rights around the literal claims of the patent.<sup>42</sup> This penumbra of rights is "deliberately left nebulous" to create a deterrent against copyists.<sup>43</sup> The doctrine, however, obscures the relation between patents, such that it is not clear whether two patents are blocking, complementary, or competing.<sup>44</sup>

Third, the aberrations of patent litigation further complicate the relations between patents. Whereas the PTO grants patents, the courts determine their enforceable scope. Notwithstanding the attempts by the Supreme Court<sup>45</sup> and the Federal Circuit<sup>46</sup> to regularize patent litigation, it remains "far from the case" that the scope and enforceability of patents is a settled area of law.<sup>47</sup> Federal Circuit precedent offers little guidance to trial judges on the appropriate level of specificity for construing patent

39 See, e.g., U.S. Patent No. 4,200,770 (Apr. 29, 1980) (claiming eight different embodiments and methods of public key cryptography).

40 See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997); *Charles Greiner & Co. v. Mari-Med Mfg.*, 962 F.2d 1031, 1035 (Fed. Cir. 1992).

41 See Robert C. Haldiman, *Ephemeral Infringement by Customizable Software: Liability Structures to Promote New Technology and Protect the Old*, 80 J. PAT. & TRADEMARK OFF. SOC'Y 651, 663-64 (1998).

42 See *id.* at 664.

43 *Id.*

44 See Paul R. Michel, *Enabling the Jury to Apply Patent Law Rationally*, 1 YALE SYMP. L. & TECH. 1, ¶ 2 (1998) <[http://lawtech.law.yale.edu/symposium/98/speech\\_michel.htm](http://lawtech.law.yale.edu/symposium/98/speech_michel.htm)>. Judge Michel states:

You can ask very good patent lawyers in this country whether a certain device infringes a given patent, and a lot of them will tell you, "Well, I'm not sure." Some will say, "I think yes," and others will say, "I think no." Any system that routinely produces such a scattering of conclusions from competent, intelligent, and well-informed lawyers indicts itself in my view.

*Id.*

45 The Supreme Court recently pronounced that the interpretation of a patent's claims, or claim construction, shall be a matter of law to be resolved by the judge, rather than a matter of fact to be resolved by the jury. See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996).

46 The U.S. Court of Appeals for the Federal Circuit, established in 1982 with specialized subject-matter jurisdiction over intellectual property disputes, is widely credited with promoting uniformity in patent litigation. See, e.g., Helen W. Nies, *Celebrating the Tenth Anniversary of the United States Court of Appeals for the Federal Circuit*, 14 GEO. MASON L. REV. 505 (1992).

47 Michel, *supra* note 44, ¶ 2.

claims.<sup>48</sup> The complexity of patent law and the underlying facts, moreover, often overwhelm juries.<sup>49</sup>

The result of the aforementioned factors is an imprecision in the patent system that often creates overlapping rights over technologies. The PTO might purposefully grant blocking patents. Alternatively, courts may interpret otherwise distinct patents as blocking, either through a broad construction of the literal claim language, by applying the doctrine of equivalents, or through unpredictable jury verdicts. Patentees, too, may deliberately acquire blocking positions as a strategic move to frustrate the patenting programs of competitors.<sup>50</sup> Thus, a number of patents will often cover the same product, creating difficulties for those seeking to develop their patented technology.

## B. *Patent Pools and Cross-Licensing Arrangements*

When more than one patentee holds rights to a technology, neither party has a right to develop its products absent a license from the other patentee.<sup>51</sup> Technology becomes blocked under the overlapping patent rights. One method of solving this problem is to pool the patents into a single entity. Another approach is for the parties to execute cross-licenses to each others' patents. This Section will describe the structure and functioning of patent pools and cross-licensing arrangements, and will provide a close look at one patent pool, MPEG LA.

### 1. Patent Pools

Patent pools are private contractual agreements whereby rival patentees transfer their rights into a common holding company for the purpose of jointly licensing their patent portfolios.<sup>52</sup> Pools can comprise as

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48 See *id.* ¶ 5.

49 Judge Michel of the Federal Circuit states:

Patent law is a very complex area of law that has half a dozen big pieces, each of which has five or ten smaller pieces. These are all laid out in the thirty or forty pages that are read to jurors. Because the instructions are just too complicated, have too many parts, and are read only once to the jury, jurors may not be able to render a well-founded verdict. . . . The jury is simply read a series of interlocking rules and told, "Now you go and decide."

*Id.* ¶ 7.

50 See Richard J. Gilbert & David M.G. Newbery, *Preemptive Patenting and the Persistence of Monopoly*, 72 AM. ECON. REV. 514, 524 (1982); John Vickers, *Pre-Emptive Patenting, Joint Ventures, and the Persistence of Oligopoly*, 3 INT'L J. INDUS. ORG. 261, 272 (1985). Recent empirical evidence suggests that patents in the United States are widely procured with the intention of blocking the patenting strategies of rivals. See Wesley Cohen et al., *Appropriability Conditions and Why Firms Patent and Why They Do Not in the American Manufacturing Sector*, 16 (June 24, 1997) (unpublished manuscript, on file with author).

51 See Merges, *supra* note 8, at 878-79.

52 See Merges, *supra* note 3, at 1340.

few as two patents, or as many as hundreds.<sup>53</sup> Although the contractual provisions governing each pool are tailored to the technologies and patents at hand, patent pools generally share two common characteristics. First, patent pools consolidate the patent rights into a central, independent entity.<sup>54</sup> In many cases, the entity will be a partnership<sup>55</sup> or limited liability corporation.<sup>56</sup> The entity then sells licenses to the portfolio of pooled patents, often as a single package.<sup>57</sup>

Second, patent pools establish a method for valuing the patents and for dividing up the royalty stream generated through licensing revenues.<sup>58</sup> Several methods can be used to allocate this stream of royalties. In some pools, like the aircraft manufacturers' patent pool, an arbiter will assess the relative value of the patents held by the pool, and allocate an increased share to especially valuable patents.<sup>59</sup> In other pools, each patentee is allocated an equal share of the royalty stream.<sup>60</sup> The royalty allocation scheme can be critical to the success or failure of a pool, particularly in light of the difficulty of valuing intellectual property.<sup>61</sup>

The agreements are frequently employed as a means of settling existing litigation, with recent examples including patent pools in the laser eye surgery<sup>62</sup> and the public key encryption<sup>63</sup> industries. Pools can also be formed in advance of litigation to preclude likely suits and to promote the rapid development of technology. For example, the Manufacturers Aircraft Association was formed under government order on the eve of World War I to resolve patent disputes between Orville Wright and Glenn Curtiss and

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53 The Hartford-Empire pool, for example, comprised over 600 patents. See *Hartford-Empire Co. v. United States*, 323 U.S. 386, 400 (1945).

54 See *Merges*, *supra* note 3, at 1347.

55 For example, laser eye surgery patents were pooled into a partnership, Pillar Point Partners. See *In re Summit Tech., Inc.*, FTC Docket No. 9286, 1998 FTC LEXIS 29, ¶ 8 (Mar. 24, 1998) (complaint) [hereinafter *Summit Technology Complaint*]. Public key cryptography patents were pooled into Public Key Partners. See *Crypto Pool*, *supra* note 24.

56 For example, patents to the MPEG protocol for the compression of audio and visual digital signals were pooled into a Delaware-based limited liability corporation, MPEG LA. See Letter from Joel Klein, Acting Assistant Attorney General, to Gerrard R. Beeney, Esq., partner, Sullivan & Cromwell (June 26, 1997) <<http://www.usdoj.gov/atr/public/busreview/1170.htm>> [hereinafter *Klein MPEG Letter*].

57 The MPEG LA patent pool is one such example. See *infra* notes 76-103 and accompanying text.

58 See *Merges*, *supra* note 3, at 1347.

59 See Bittlingmayer, *supra* note 14, at 232-35.

60 The MPEG LA patent pool for the licensing of patents relating to the MPEG protocol is one such example. This pool is discussed in depth below. See *infra* notes 76-103 and accompanying text.

61 See *RSA Data Sec., Inc. v. Cylink Corp.*, No. 96-20094 SW, 1996 WL 107272, at \*3-4 (N.D. Cal. Mar. 4, 1996) (resolving breakup of pool that dissolved due to dispute between partners over licensing practices); Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 75 (1994).

62 See *Summit Technology Complaint*, *supra* note 55 ¶¶ 1-13.

63 See *Crypto Pool*, *supra* note 24.

spur aircraft production.<sup>64</sup> More recently, the Department of Justice approved the pooling of patents over the MPEG<sup>65</sup> and DVD<sup>66</sup> protocols relating to the compression, transmission, recording, and playback of audio and video signals, with the goal of facilitating development of on-line and broadcast communications.

## 2. Cross-Licensing Arrangements

Cross-licensing arrangements provide an alternative mechanism for carrying out the goals of patent pools. In contrast to patent pools, cross-licensing arrangements do not employ a central entity for holding the patents.<sup>67</sup> Instead, firms holding overlapping patent rights mutually execute licenses to gain access to one another's patented technology.<sup>68</sup> When cross-licenses are executed royalty-free, no direct economic harm is created.<sup>69</sup> Patentees, however, may be reluctant to enter into royalty-free cross-licensing arrangements, as these would create open competition over what would otherwise be monopoly goods.<sup>70</sup> Often, patentees seek to enter such cross-licensing arrangements to shield a bogus patent from litigation.<sup>71</sup> When cross-licensing arrangements are designed for more than just protecting defective patents, mutual royalty schemes or other restrictions are likely to be incorporated into cross-licensing provisions.<sup>72</sup>

Although they differ procedurally, cross-licensing agreements are largely equivalent to patent pools for the purposes of antitrust analysis.<sup>73</sup> Many of the major technology cartels of this century were effectuated through cross-licensing agreements, rather than through patent pools.<sup>74</sup>

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64 See Bittlingmayer, *supra* note 14, at 230-32.

65 See Klein MPEG Letter, *supra* note 56.

66 See Letter from Joel I. Klein, Assistant Attorney General, to Garrard R. Beeney, Esq., partner, Sullivan & Cromwell (Dec. 16, 1998) <<http://www.usdoj.gov/atr/public/busreview/2121.htm>> [hereinafter Klein DVD Letter].

67 See RISDALE ELLIS, PATENT LICENSES § 528 (1958).

68 See *id.*

69 See Bittlingmayer, *supra* note 14, at 229.

70 See George L. Priest, *Cartels and Patent License Arrangements*, 20 J.L. & ECON. 309, 357 (1977) ("[S]ince the cross-licensing makes each firm a competitor of the other, the two must agree to restrain sales to avoid competing away the patent rents.").

71 See, e.g., *United States v. Singer Mfg. Co.*, 374 U.S. 174, 178 n.2 (1963); *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 420 (1956) (Warren, J., dissenting); see also Klein DVD Letter, *supra* note 66. In the diaper industry, Kimberly Clark and Procter & Gamble entered into a cross-licensing arrangement after seven years of litigation once it became clear that Procter & Gamble's patents were at risk because of the litigation. Through the cross-licensing scheme, the firms were able to extract double royalties from other diaper manufacturers. See Tara Parker-Pope, *Cleaning Up: Stopping Diaper Leaks Can Be Nasty Business, P&G Shows Its Rivals*, WALL ST. J., Apr. 5, 1999, at A1.

72 See, e.g., *United States v. Line Material*, 333 U.S. 287, 314-15 (1948) (condemning a royalty-free cross-licensing agreement that stipulated a pricing scheme for sublicensees).

73 See Priest, *supra* note 70, at 359 n.188.

74 See, e.g., *United States v. Singer Mfg. Co.*, 374 U.S. 174, 174 (1963) (condemning

The 1995 Federal Antitrust Guidelines for the Licensing of Intellectual Property give similar treatment to cross-licensing agreements and patent pools.<sup>75</sup> The remainder of this Note will not distinguish between these two forms of technology exchanges.

### 3. One Example: The MPEG LA Patent Pool

MPEG LA provides a striking example of a modern day patent pool, not only in terms of its importance as a means for advancing technology, but also in terms of its anticompetitive potential. MPEG LA, which stands for Moving Pictures Expert Group Licensing Administrator, is a limited liability company devised to pool the rights to all patents deemed essential for implementing the MPEG-2 protocol.<sup>76</sup> MPEG-2 is a protocol, or syntax and semantics, for compressing and transmitting digitalized audio and video signals.<sup>77</sup> The MPEG-2 protocol is complex, with five major technological components.<sup>78</sup> The pool contains hundreds of patents worldwide, currently including forty-six U.S. patents,<sup>79</sup> and more "in the

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international cross-licensing scheme to destroy Japanese sales of sewing machines); *see also Hearings on Global and Innovation-Based Competition Before the Fed. Trade Comm'n* 49 (1995) (statement of John Barton, Professor, Stanford Univ.) [hereinafter *FTC Testimony*] (stating that cross-licensing arrangements can be set up such that "explicit or implicit barriers" restrict extension of licensing rights to outside parties); *id.* at 55 (statement of F.M. Scherer, Professor, Harvard Univ.) (stating that massive international cross-licensing arrangements underlay the cartelization of the 1920s and 1930s). The U.S. diaper industry is currently dominated by Procter & Gamble and Kimberly Clark, who have settled mutual legal disputes through a cross-licensing arrangement that holds the rest of the industry at bay. *See Parker-Pope, supra* note 71.

75 *See* IP LICENSING GUIDELINES, *supra* note 4, § 5.5.

76 For an overview of the MPEG LA patent pool, visit the rather remarkable MPEG LA website at <<http://www.mpegla.com>>. The site contains a slideshow description of its patent portfolio, as well as powerpoint presentations presented at MPEG LA conferences describing various technical, legal, and strategic issues relating to the protocol.

77 There are several versions of the MPEG protocol. MPEG-1 is "the standard for storage and retrieval of moving pictures and audio on storage media," as approved in November 1992 by the International Standard Organization (ISO). MPEG, THE MPEG HOME PAGE (visited Apr. 4, 1999) <<http://drogo.cselt.stet.it/mpeg/>> [hereinafter MPEG HOME PAGE]. One implementation of MPEG-1 is the controversial MP3 protocol (formally, MPEG-1 layer 3), which allows for transmission of digital audio signals over the Internet, and the piracy of many copyrighted works. *See* Nikki Goth Itoi, *Hard Day's Night: The Music Industry is Struggling to Adapt to the Internet*, RED HERRING, Jan. 1999, at 60, 60-62; Neil Strauss, *Expert to Help Devise Format for Delivering Music on Net*, N.Y. TIMES, Mar. 1, 1999, at C1.

The most recently approved version of MPEG is MPEG-4 version 1, which was standardized in October 1998 for use in multimedia applications. *See* MPEG HOME PAGE, *supra*. MPEG-4 incorporates copyright management systems which will help recording industries to safeguard their copyrights online. *See* Strauss, *supra*. Future protocols include MPEG-4 version 2 (to be standardized December 1999), and MPEG-7 (to be standardized July 2001 as the content representation standard for information searches). *See* MPEG HOME PAGE, *supra*.

78 The five components are spatial encoding, motion compensation, picture sequence, bit rate control, and systems. *See* MPEG LA, AN OVERVIEW OF MPEG LA (visited Apr. 4, 1999) <<http://www.mpegla.com/slideshow/java/slide8a.html>> [hereinafter OVERVIEW OF MPEG LA].

79 *See* OVERVIEW OF MPEG LA, *supra* note 78 (counting all U.S. patents and reissue patents, and excluding expired patents).

evaluation pipeline.”<sup>80</sup> There are currently fourteen different companies that have contributed patents to the pool.<sup>81</sup> The Department of Justice granted MPEG LA procompetitive clearance in June 1997.<sup>82</sup>

The MPEG-2 protocol, and its progeny, is vitally important to the information age. The MPEG-2 protocol is the basic transmission syntax for digital television (DTV).<sup>83</sup> The MPEG-4 protocol (presently not included in MPEG LA) will be the foundation for Internet transmission of audio and video works.<sup>84</sup> The MPEG-7 protocol, to be released in 2001, will be “the content representation standard for information searches.”<sup>85</sup> Audio and video information, in one form or another, will flow according to MPEG standards.

The MPEG LA pool offers a package license to firms whose products and services implement the MPEG-2 standard. The package license confers a license to all “essential” patents in the MPEG-2 portfolio.<sup>86</sup> Additional patents, not included in the portfolio, are available for specific implementations.<sup>87</sup> The pool offers a standardized five-year license to all prospective licensees.<sup>88</sup> The licensing royalties do not change if patents are added to the portfolio during the five-year licensing period, although the royalty rate may increase by up to 25% in a license renewal.<sup>89</sup> Each patent in the pool is valued equally.<sup>90</sup>

As mentioned above, the pooling agreement states that only essential patents will be included in the portfolio. An essential patent is “any Patent claiming an apparatus and/or method necessary for compliance with the MPEG-2 Standard under the laws of the country which issued or published the Patent.”<sup>91</sup> An independent License Administrator selects the essential patents.<sup>92</sup> The Administrator solicited over 8,000 patent abstracts, studied over 800 patents belonging to over 100 different assignees, and originally

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80 OVERVIEW OF MPEG LA, *supra* note 78.

81 The licensor list is available at OVERVIEW OF MPEG LA, *supra* note 78.

82 See Klein MPEG Letter, *supra* note 56.

83 See MPEG HOME PAGE, *supra* note 77.

84 See Strauss, *supra* note 77.

85 MPEG HOME PAGE, *supra* note 77.

86 See MPEG-2 Patent Portfolio License § 1.21 (unpublished document, on file with author).

87 Specific implementations include “butterfly DCT circuits, telescopic motion vector search, smart encoding techniques, such as using the output of the motion compensation or motion estimation to control the quantizer, intra-slice refresh, etc.” OVERVIEW OF MPEG LA, *supra* note 78.

88 See Klein MPEG Letter, *supra* note 56 (quoting Licensing Administrator Agreement § 3.2); see also OVERVIEW OF MPEG LA, *supra* note 78.

89 See OVERVIEW OF MPEG LA, *supra* note 78.

90 See Dana J. Parker, *Standard Deviations: Everybody into the (Patent) Pool!*, EMEDIA PROF. (Sept. 1998) <<http://www.emediapro.net/EM1998/standard9.html>>.

91 MPEG-2 Patent Portfolio License, *supra* note 86, § 1.18. For a more technical definition, see OVERVIEW OF MPEG LA, *supra* note 78.

92 See Klein MPEG Letter, *supra* note 56.

selected twenty-seven patents to be included in the pool.<sup>93</sup> The DOJ described these twenty-seven patents as “most, but not all, of the Essential Patents,” thus leaving open the possibility that newly discovered or newly issued patents could be incorporated.<sup>94</sup> The Department of Justice does not directly analyze the characteristics of the selected patents, but rather evaluates the lawfulness of the pool based on the representations of the License Administrator.<sup>95</sup>

MPEG LA is an important means for facilitating the development of technology. The patent pool provides a single license to most, if not all, patents that are essential to implementing the MPEG standard.<sup>96</sup> The pool also helps eliminate patent disputes between holders of essential patents, since such disputes would chill the willingness of any prospective licensee to proceed with product development.<sup>97</sup> The procompetitive benefits of patent pools will be discussed in more detail in Part III.

Nevertheless, the anticompetitive potential of the MPEG LA patent pool is enormous. The DOJ’s approval of the pool validates a collectively enforced monopoly over a fundamental communications standard. Whereas many such standards are established as open protocols, digital audio and video transmission over the Internet will be heretofore governed by a proprietary protocol.<sup>98</sup> The pool, moreover, is growing rapidly. In less than two years, the pool has nearly doubled—from twenty-seven patents in June 1997 (when the pool was originally approved)<sup>99</sup> to forty-six U.S. patents in March 1999.<sup>100</sup> The monopoly power enjoyed by MPEG LA is likely to be particularly strong and durable because its patents cover a new standard expected to become ubiquitous as DTV and the Internet take hold.<sup>101</sup> Some of the biggest risks of the pool are that it might suppress the development of competing technologies<sup>102</sup> and shelter invalid patents from litigation.<sup>103</sup> Although this danger should be mitigated by the requirement of essentiality of the pool’s patents, the rapid growth of the pool heightens these risks. The anticompetitive risks of patent pools will be discussed in more detail in Part IV.

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93 See *id.* at 4-5.

94 *Id.* at 3.

95 See *id.* at 9.

96 See OVERVIEW OF MPEG LA, *supra* note 78.

97 See *Crypto Pool*, *supra* note 24 (“There is nothing like a heated patent dispute to chill the waters of commerce in an emerging industry.”).

98 See *infra* notes 259-277 and accompanying text.

99 See Klein MPEG Letter, *supra* note 56.

100 See *supra* note 79 and accompanying text.

101 See Mark A. Lemley, *Antitrust and the Internet Standardization Problem*, 28 CONN. L. REV. 1041, 1067, 1074 (1996).

102 See Klein MPEG Letter, *supra* note 56.

103 See *id.* This is precisely the theory of the FTC in its investigation of the Pillar Point Partners patent pool for laser eye surgery techniques. See Summit Technology Complaint, *supra* note 55, ¶¶ 14-21.

## II. Antitrust Regulation of Patent Pools: From *National Harrow* to the 1995 Guidelines

Patent pools have played a prominent part in the legal and industrial history of the United States. Federal antitrust regulation of patent pools has shifted dramatically over the past century. In the early 1900s, authorities granted broad deference to the licensing practices of patentees. By mid-century, however, courts and regulators had established strict per se rules against many patent licensing practices, and had generally condemned pooling behavior. Currently, a return to more permissive standards has begun under the 1995 Federal Antitrust Intellectual Property Licensing Guidelines.<sup>104</sup>

### A. *The Start of the Antitrust Era: Patents Pools as a Shelter for Collusion*

Patents pools served as an unconditional shelter for collusion in the first two decades of the Sherman Act. The doctrine of freedom of contract gave expansive power to patentees and other holders of industrial property,<sup>105</sup> and common law antitrust jurisprudence offered little precedent for the Sherman Act to limit the powers of patentees.<sup>106</sup> In the 1902 case of *E. Bement & Sons v. National Harrow Co.*,<sup>107</sup> the Supreme Court ratified the dominance of patent law over federal antitrust law. Confronted with a patent pool over float-spring tooth harrows that fixed uniform price schedules, the Court refused to find a violation of the Sherman Act.<sup>108</sup> Instead, it accorded patentees an unfettered right to pursue collusive dealings under the protection of the patent laws. The Court ruled that patents grant “absolute freedom” to the patentee to sell his invention, notwithstanding that his licensing practices serve to “keep up the monopoly or fix prices.”<sup>109</sup> The Court reasoned that although the pool

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104 See IP LICENSING GUIDELINES, *supra* note 4.

105 See Tom & Newberg, *supra* note 1, at 169 (providing citations).

106 See HANS B. THORELLI, THE FEDERAL ANTITRUST POLICY: ORGANIZATION OF AN AMERICAN TRADITION 47 (1954) (“[T]he common law background [of antitrust law] could furnish but little guidance when the courts were to be faced with the problem of drawing a reasonable borderline between the scope of the patent monopoly, on the one hand, and the scope of the antitrust law, on the other.”); VAUGHAN, *supra* note 1, at 40-41 (describing the sewing machine patent pool of the mid-nineteenth-century, its anticompetitive effects, and the fact that no legal action was taken against it); Tom & Newberg, *supra* note 1, at 168-69 (describing the relative strength of patent law in early years of antitrust era).

107 186 U.S. 70 (1902).

108 See *id.* at 72-75, 92.

109 *Id.* at 91 (stating, in full, that “the general rule is absolute freedom in the use or sale of rights under the patent laws of the United States. The very object of these laws is monopoly, and the rule is, with few exceptions, that any conditions which are not in their very nature illegal with regard to this kind of property, imposed by the patentee and agreed to by the licensee for the right to manufacture or use or sell the article, will be upheld by the courts. The fact that the conditions in the



perpetuated monopoly pricing, such a result was justified by "the nature of the property dealt in."<sup>110</sup> Appellate courts echoed the view that patent law surrendered not "one iota" to the Sherman Act.<sup>111</sup>

#### B. *Post-National Harrow Restrictions on Patent Licensing*

The "absolute freedom" of patentees to collude through patent pools ended in 1912. In *Standard Sanitary Manufacturing Co. v. United States*,<sup>112</sup> the Supreme Court upheld the breakup of a pool of patents relating to an enameling process for sanitary ironware. The pool in question, although based upon a set of patents that covered but a minor part of the manufacturing process, brought 85% of enamelware manufacturers and 90% of their jobbers into alliance.<sup>113</sup> The patent licenses that bound the firms mandated that participants agree "to adhere to a minimum sales price, to enforce resale prices, to refuse to sell to jobbers dealing with unlicensed manufacturers, and to halt the sale of seconds."<sup>114</sup> The Court ruled that the rights of the patentees had been pushed "to evil consequences," and that the Sherman Act imposed appropriate limits on such abuses.<sup>115</sup>

Courts continued to target patent pools as shelters of collusive activity throughout the 1900s.<sup>116</sup> One of the most notorious pools was dismantled by the Supreme Court in *Hartford-Empire Co. v. United States*.<sup>117</sup> The glass manufacturing cartel implicated in the case prompted Justice Hugo Black to write: "The history of this country has perhaps never witnessed a more completely successful economic tyranny over any field of industry than that accomplished by these appellants."<sup>118</sup> The cartel was created through successive pooling and cross-licensing arrangements between all the major glassware manufacturers, culminating in a horizontal and vertical integration of most aspects of the glass industry.<sup>119</sup> First, the

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contracts keep up the monopoly or fix prices does not render them illegal.").

110 *Id.* at 93.

111 *Rubber Tire Wheel Co. v. Milwaukee Rubber Works Co.*, 154 F. 358, 362 (7th Cir. 1907) ("The Sherman law contains no reference to the patent law. Each was passed under a separate and distinct constitutional grant of power; each was passed professedly to advantage the public; the necessary implication is not that one iota was taken away from the patent law; the necessary implication is that patented articles, unless or until they are released by the owner of the patent from the dominion of his monopoly, are not articles of trade or commerce among the several states.").

112 226 U.S. 20 (1912).

113 See VAUGHAN, *supra* note 1, at 44-45.

114 Priest, *supra* note 70, at 334.

115 *Standard Sanitary*, 226 U.S. at 49.

116 See generally CARL KAYSER & DONALD F. TURNER, ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS 164 (1965).

117 323 U.S. 386 (1945). The story of the Hartford-Empire/Owens cartel is told in detail in VAUGHAN, *supra* note 1, at 78-84.

118 *Hartford-Empire*, 323 U.S. at 436-37 (Black, J., dissenting in part).

119 See VAUGHAN, *supra* note 1, at 78-84.

patents covering the gob-fed glass-blowing process were pooled into the Hartford-Empire patent pool.<sup>120</sup> These patents were then cross-licensed with the patents to the rival glass-blowing process—the suction process.<sup>121</sup> Once the glass-blowing patents were consolidated, the cartel acquired essentially all patents over gob feeding, forming machines, stackers, and lehrs.<sup>122</sup> At its peak, Hartford-Empire/Owens had amassed over 600 patents.<sup>123</sup> The cartel used its massive patent portfolio to sue competitors and coerce them to sell out to the pool.<sup>124</sup> As a result, 94% of all glass manufactured in America was produced under license from Hartford-Empire/Owens, and prices were sustained at high levels despite improved technology and the onset of the Great Depression.<sup>125</sup> The Court compelled the members of the cartel to license their patents at standard royalties without discrimination or restriction.<sup>126</sup>

By the late 1960s, the DOJ's attitude toward patent licensing was hostile.<sup>127</sup> The Department applied a presumption of market power to the grant of a patent, and therefore gave no consideration to the structural characteristics of the markets in which patented products competed.<sup>128</sup> Moreover, it afforded little weight to efficiency considerations of licensing restrictions.<sup>129</sup> The Department's opposition to patent licensing culminated in a list of nine practices, referred to as the "Nine No-Nos," that were considered per se violations of the antitrust laws.<sup>130</sup>

Since the announcement of the "Nine No-Nos," patent pools have

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120 See *id.* at 79.

121 See *id.*

122 See *id.* at 80.

123 See *Hartford-Empire*, 323 U.S. at 400.

124 See VAUGHAN, *supra* note 118, at 80.

125 See *id.* at 82.

126 See *Hartford-Empire*, 323 U.S. at 417-35.

127 See IP LICENSING GUIDELINES, *supra* note 4, at 4.

128 See *id.* at 5.

129 See *id.*

130 The Nine No-Nos are:

- (i) Requiring a licensee to buy unpatented materials from the licensor;
- (ii) Requiring a licensee to assign to the patentee any patent which may be issued to the licensee after the license agreement is executed;
- (iii) Attempting to restrict the purchaser of a patented product in the resale of that product;
- (iv) Restricting the licensee's freedom to deal in products or services not within the scope of the patent;
- (v) Agreeing with the licensee that the licensor will not, without the licensee's consent, grant further licenses to any other person;
- (vi) Requiring the licensee to take a package license;
- (vii) Requiring the licensee to pay royalties, including total sales royalties, in an amount not reasonably related to the licensee's sales of products covered by the patent;
- (viii) Attempting to restrict a process patent licensee's sales of products made by the patented process; and
- (ix) Requiring a licensee to adhere to any specified or minimum price in its sale of licensed products.

See Wilson, *supra* note 5, ¶ 50,146.

been markedly less prevalent in the courts and in other reports. The number of patent pools cannot be determined with precision because they are private agreements not typically visible to the public eye. The number of reported cases involving patent pools has declined precipitously since the late 1960s.<sup>131</sup> The DOJ's aggressive enforcement policy appears to have chilled the willingness of patentees to collaborate through pooling and cross-licensing arrangements.<sup>132</sup>

### C. *A Resurgence of Patent Pools*

The rise in the prominence of patents has brought renewed focus on patent pools by federal antitrust authorities. In 1995, the DOJ and the FTC jointly published the first set of guidelines directed expressly to the antitrust implications of intellectual property licensing arrangements.<sup>133</sup> Additionally, since 1997, both the DOJ and the FTC have ruled upon cases directly concerning the lawfulness of patent pools.<sup>134</sup> Pooling cases have resurfaced in Article III courts, as well.<sup>135</sup> Through the guidelines and the cases coming before them, the DOJ and the FTC are actively designing standards to evaluate the legality of patent pools. The agencies have a difficult task of balancing the procompetitive and anticompetitive effects of these arrangements.

### D. *The 1995 DOJ/FTC Antitrust Guidelines for Intellectual Property Licensing*

In 1995, the DOJ and the FTC jointly published the Federal Antitrust Guidelines for the Licensing of Intellectual Property (the "Guidelines").<sup>136</sup>

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131 The present study identified only a handful of such cases between that time and the early 1990s, and none reached a final verdict on the lawfulness of the challenged pool. *See, e.g.*, *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100 (1969) (affirming injunction against American patentee alleged to have conspired with Canadian patent pool to foreclose rival from Canadian market); *Carpet Seaming Tape Licensing Corp. v. Best Seam, Inc.*, 616 F.2d 1133 (9th Cir. 1980) (remanding case to trial court for failure of judge to have considered whether patents implicated in patent pool were blocking).

132 *See Merges, supra* note 3, at 1355 ("[F]ederal antitrust policy is the most likely explanation for the small number of patent pools existing today.").

133 *See* IP LICENSING GUIDELINES, *supra* note 4. Prior policies were announced in publications of more general application and in addresses by members of the DOJ. *See, e.g.*, DEPARTMENT OF JUSTICE, 1988 INTERNATIONAL GUIDELINES (1988), reprinted in JOSEPH P. GRIFFIN, U.S. INTERNATIONAL ANTITRUST ENFORCEMENT: A PRACTICAL GUIDE TO THE JUSTICE DEPARTMENT GUIDELINES 101, 101-200 (BNA Corp. Prac. Series Special Rep. 1989); Wilson, *supra* note 5, ¶ 50,146.

134 *See* Summit Technology Complaint, *supra* note 55; Klein DVD Letter, *supra* note 66; Klein MPEG Letter, *supra* note 56.

135 *See* *Boston Scientific Corp. v. Schneider*, 983 F. Supp. 245 (D. Mass. 1997) (ruling that existence of cross-licensing arrangement was insufficient to sustain state antitrust claim).

136 *See* IP LICENSING GUIDELINES, *supra* note 4.

The Guidelines advance general principles regarding the interface of antitrust and intellectual property law, and discuss the antitrust implications of various licensing practices, such as patent pooling.

### 1. General Principles

The Guidelines advance three general principles upon which the remainder of the agencies' discussion is based. In short, these principles are:

- 1) for the purposes of antitrust analysis, intellectual property is regarded as essentially comparable to any other form of property;<sup>137</sup>
- 2) intellectual property is not presumed to create market power in the antitrust context;<sup>138</sup> and,
- 3) intellectual property licensing is recognized to allow firms to combine complementary factors of production, and is generally procompetitive.<sup>139</sup>

### 2. Discussion of Cross-Licensing and Pooling Arrangements

The Guidelines expressly recognize that patent pools and cross-licensing arrangements can have important procompetitive benefits.<sup>140</sup> The Guidelines caution, however, that four primary licensing practices warrant antitrust scrutiny.<sup>141</sup>

- 1) collective price or output restraints in pooling arrangements that do not contribute to an efficient integration of economic activity;<sup>142</sup>

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<sup>137</sup> See *id.* at 73-74.

<sup>138</sup> See *id.* at 74-76.

<sup>139</sup> See *id.* at 76-77.

<sup>140</sup> See *id.* at 105 (stating that patent pools and cross-licensing arrangements "may provide procompetitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation. By promoting the dissemination of technology, cross-licensing and pooling arrangements are often procompetitive.").

<sup>141</sup> These suspect practices have been recognized by the courts. See generally Susan A. Creighton & Perry J. Narancic, *Antitrust Counseling in Intellectual Property Transactions Involving Competitors*, 524 PLI/PAT 489, 503-05 (Pat., Copyright, Trademark & Literary Prop. Course Handbook Series 1998).

<sup>142</sup> See IP LICENSING GUIDELINES, *supra* note 4, at 105.

- 2) settlement agreements that combine intellectual property assets of horizontal competitors and that have the effect of diminishing competition;<sup>143</sup>
- 3) exclusion of competitors from a patent pool when the excluded firms cannot effectively compete in the relevant market, and when the pool participants collectively possess market power;<sup>144</sup> and,
- 4) pooling arrangements that deter research and development.<sup>145</sup>

The Guidelines advance one additional proposition not stated directly in the text. One of the Guideline's examples asserts that patent pools, and associated licensing practices, are lawful when they comprise blocking patents.<sup>146</sup> Patentees may engage in otherwise prohibited practices, such as joint setting of royalty rates and package licensing, when the patents involved in the transaction are blocking.<sup>147</sup> This rule will heretofore be referred to as "the blocking patents exception."

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<sup>143</sup> See *id.*

<sup>144</sup> See *id.* at 106.

<sup>145</sup> See *id.*

<sup>146</sup> Example 10 of the Guidelines provides, in full:

Situation: [T]wo of the leading manufacturers of a consumer electronic product hold patents that cover alternative circuit designs for the product. The manufacturers assign several of their patents to a separate corporation wholly owned by the two firms. That corporation licenses the right to use the circuit designs to other consumer product manufacturers and establishes the license royalties. [In contrast to the previous example,] the manufacturers assign to the separate corporation only patents that are blocking. None of the patents assigned to the corporation can be used without infringing a patent owned by the other firm.

Discussion: Unlike the previous example, the joint assignment of patent rights to the wholly owned corporation in this example does not adversely affect competition in the licensed technology among entities that would have been actual or likely potential competitors in the absence of the licensing arrangement. Moreover, the licensing arrangement is likely to have procompetitive benefits in the use of the technology. Because the manufacturers' patents are blocking, the manufacturers are not in a horizontal relationship with respect to those patents. None of the patents can be used without the right to a patent owned by the other firm, so the patents are not substitutable. As in Example 9, the firms are horizontal competitors in the relevant goods market. In the absence of collateral restraints that would likely raise price or reduce output in the relevant goods market or in any other relevant antitrust market and that are not reasonably related to an efficiency-enhancing integration of economic activity, the evaluating Agency would be unlikely to challenge this arrangement.

*Id.* at 107 ex.10.

<sup>147</sup> See *id.*; Telephone Interview with Willard Tom, Deputy Director of Bureau of Competition, Federal Trade Commission (Dec. 9, 1998) [hereinafter Tom Interview] (stating that pooled blocking patents may be licensed as a package, and moreover that licensees would not want to take a license to less than the full package of blocking patents).

### III. Procompetitive Effects of Patent Pools

It is undisputed that patent pools have procompetitive benefits. This Part summarizes the positive effects associated with patent pools.

#### A. *Clearing Blocking Patents*

A primary justification for pooling patents is to clear blocking patents.<sup>148</sup> As discussed above, blocking patents can suppress the development of technology by giving rival patentees the right to exclude each other from making, using, or selling the patented technology.<sup>149</sup> Important technologies become blocked under overlapping patent rights and cannot be freed absent some form of cooperative agreement between the patentees. The blocking patents problem has long been recognized by the courts as a justification for the pooling of patents.<sup>150</sup>

This situation has been described by Michael Heller and Rebecca Eisenberg as the “tragedy of the anticommons.”<sup>151</sup> In an anticommons, a number of rightholders each have the power to exclude others from the commons, resulting in underutilization of the resource.<sup>152</sup> Heller and Eisenberg point to biotechnology as an example, and assert that the broad diffusion of exclusionary rights among patentees has created a situation in which scientific resources are being fenced off under a growing thicket of intellectual property rights.<sup>153</sup> Patent pools and cross-licensing arrangements allow the blocking intellectual property rights to be combined and licensed jointly.<sup>154</sup>

#### B. *Facilitating the Rapid Development of Technology*

Patent pools are a means of promoting the rapid development of technologies that are otherwise blocked by patent disputes. For example, on the eve of World War I, the U.S. government ordered competing firms to form a pool for those patents relating to aircraft technology in order to resolve patent disputes that hindered aircraft production.<sup>155</sup> And currently, the recording industries are pressuring the formation of a pool for MPEG-4 patents to achieve rapid standardization of a protocol for protecting

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148 See IP LICENSING GUIDELINES, *supra* note 4, at 105.

149 See *supra* Part I.A.1.

150 See *Standard Oil (Indiana) v. United States*, 283 U.S. 163, 171 (1931); *International Mfg. Co. v. Landon, Inc.*, 336 F.2d 723, 730 (9th Cir. 1964).

151 Heller & Eisenberg, *supra* note 3, at 698.

152 See *id.* at 698.

153 See *id.* at 699.

154 See *id.* at 700.

155 See Bittlingmayer, *supra* note 14, at 230-32.

copyrighted works on the Internet.<sup>156</sup>

### C. *Reducing Litigation Costs*

Patent litigation is frequently settled through the creation of a patent pool or cross-licensing arrangement.<sup>157</sup> Patent litigation is extremely costly and uncertain. Roughly \$1 billion is spent annually in the United States on patent litigation,<sup>158</sup> and patent cases have produced some of the largest damages awards in history.<sup>159</sup> The inherent uncertainty of patent litigation compounds these costs, as judges and juries are frequently ill equipped to handle complex technical disputes.<sup>160</sup> Patent litigation is also a risky prospect because the judge may invalidate the patents of both parties.<sup>161</sup> Rather than risk the time, cost, and uncertainty of patent litigation, firms frequently choose to settle their disputes through the creation of patent pools or cross-licensing arrangements.<sup>162</sup> This option may be especially attractive for smaller firms that do not have the resources to litigate an infringement trial,<sup>163</sup> and for patentees who fear that their patents may be invalidated in court.<sup>164</sup>

### D. *Promoting Network Externalities*

Network effects govern many technologies, especially those related to communications.<sup>165</sup> Rival developers of communication technology vie to have their own technology adopted as an industry standard.<sup>166</sup> If the various technologies can be pooled, the members can settle upon an embodiment of the technology and each share in its development. The

156 See Strauss, *supra* note 77. Strategic plans for creation of the MPEG-4 patent pool for multimedia applications are found at OVERVIEW OF MPEG LA, *supra* note 78.

157 See ELLIS, *supra* note 67, § 530. The diaper industry is currently dominated by two firms that settled lengthy patent litigation through a cross-licensing arrangement. See Parker-Pope, *supra* note 71.

158 See Josh Lerner, *Patenting in the Shadow of Competitors*, 38 J.L. & ECON. 463, 470 (1995).

159 Kodak, for example, paid \$925 million in damages to Polaroid in settlement fees. See *Kodak Settles with Polaroid*, N.Y. TIMES, July 16, 1991, at D8.

160 See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-89 (1996) (questioning capability of jury to interpret patent claims properly).

161 Cf. *United States v. Singer Mfg. Co.*, 374 U.S. 174, 177 n.2 (1963) (citing internal memo discussing strategy of avoiding litigation for fear of cancellation of patents).

162 See *id.*

163 See *Crypto Pool*, *supra* note 24.

164 See WARD S. BOWMAN, JR., *PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL* 201 (1973). One example of a patent pool that incorporated an allegedly invalid patent and sheltered it from litigation is the Pillar Point Partners pool over laser eye surgery techniques. See *Summit Technology Complaint*, *supra* note 55.

165 See generally Lemley, *supra* note 101.

166 See Kelly Flaherty, *Standard Operating Procedure*, RECORDER, Dec. 17, 1997, at 1.

MPEG-2 patent pool over digital compression technology,<sup>167</sup> and the Public Key Partners pool over public key encryption technology<sup>168</sup> are two such examples.

E. *Resolving Uncertainties in the Scope of Patent Claims*

Patent claims are notoriously difficult to interpret. Claim construction (i.e., a court's interpretation of patent claims) is an especially problematic area of law.<sup>169</sup> In *Markman v. Westview Instruments, Inc.*,<sup>170</sup> the Supreme Court removed this task from the province of the jury, making claim construction a matter of law for the judge alone to decide. Nonetheless, it is "astounding how many things are still unsettled."<sup>171</sup> Trial judges have little guidance on the degree of specificity for interpreting the patent's claims.<sup>172</sup> And new classes of patents—such as those for algorithms, data structures, and genetic materials—present novel issues of claim construction.<sup>173</sup> By resolving patent disputes through a patent pool or cross-licensing arrangement, patentees can avoid the guesswork related to the scope of their intellectual property rights.

F. *Distributing Risks Among Members of a Pool*

Patent pools provide an incentive to innovate by creating a mechanism for participants to share the risks and benefits of technology ventures. Pooling spreads royalties among the various firms that invest to produce a successful invention.<sup>174</sup> The pools increase the probability that each participant will recoup investments made in the development of its respective technologies.<sup>175</sup> This theory of pool formation suggests that patent pools would be observed with greatest frequency in fields such as

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167 See Klein MPEG Letter, *supra* note 56.

168 The two early firms in the public key encryption market, RSA and Cylink, each held blocking patents over this technology. They entered into a patent infringement suit, but resolved their dispute through formation of a patent pool, Public Key Partners. See *Crypto Pool*, *supra* note 24. Having settled their own infringement claim, they were able to unite against, and defeat, the development of an inferior standard being advanced by the federal government. See *Digital Signature*, *supra* note 22.

169 See Michel, *supra* note 44, ¶¶ 5-10.

170 517 U.S. 370 (1996).

171 Michel, *supra* note 44, ¶ 5.

172 See *id.*

173 See Richard H. Stern, *On Defining the Concept of Infringement of Intellectual Property Rights in Algorithms and Other Abstract Computer-Related Ideas*, 23 AM. INTELL. PROP. L. ASS'N Q.J. 401, 412-13 (1995) ("The concept of infringement of legal rights in abstract ideas deserves study, therefore, because protecting such rights raises issues neither previously addressed nor thought through.").

174 See Maria Luisa Petit & Boleslaw Tolwinski, *Technology Sharing Cartels and Industrial Structure*, 15 INT'L J. INDUS. ORG. 77, 80 (1996); Priest, *supra* note 70, at 359-60.

175 See Petit & Tolwinski, *supra* note 174, at 78.



biotechnology, where risks of failure and potential payoffs are high.<sup>176</sup> The fact that patent pools are observed more frequently in the electronics market suggests that risk reduction is a secondary motivation of pool formation.<sup>177</sup>

### G. *Promoting the Success of Smaller Firms*

Litigation costs are generally higher for smaller firms.<sup>178</sup> Patent pools and cross-licensing arrangements provide settlement options that increase smaller firms' chances of survival alongside larger firms.<sup>179</sup> The MPEG LA patent pool, for example, incorporates patents from fourteen different licensors.<sup>180</sup> Dominant firms conceivably would have driven smaller firms from the MPEG market if a patent pool did not present an alternative to litigation.

### H. *Countering Spillover Effects*

Spillover effects are a disincentive to innovation.<sup>181</sup> When a firm invests in research and development, a certain amount of knowledge "spills out" of the firm into the public domain, benefiting competitors.<sup>182</sup> Since a firm cannot internalize all its research and development investments, firms are less likely to engage in such activities.<sup>183</sup> Patent pools, however, mitigate spillover effects by ensuring that each member is both a producer and recipient of each others' information.<sup>184</sup>

### I. *Conclusion*

Antitrust authorities are justified in approving the formation of patent pools where procompetitive benefits are compelling. It is undeniable that patent rights are formidable obstacles to the development of technology,

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176 See Ralph T. King, *What Bull Market? A Biotech Investor Never Quits Trying*, WALL ST. J., Jan. 5, 1999, at A1.

177 This study identified four patent pools, three of which relate to the electronics/communications industry. These pools include the following: the MPEG LA patent pool for technology relating to the MPEG protocol, see Klein MPEG Letter, *supra* note 56; the Public Key Partners patent pool for technology relating to technology for public key encryption, see *Crypto Pool*, *supra* note 24; and the DVD patent pool for technology relating to Digital Versatile Discs (DVDs), see Klein DVD Letter, *supra* note 66. The fourth patent pool identified by this study collects patents relating to laser eye surgery. See Summit Technology Complaint, *supra* note 55.

178 See Lerner, *supra* note 158, at 472.

179 See, e.g., *United States v. E.I. du Pont de Nemours*, 351 U.S. 377, 420 (1956) (Warren, C.J., dissenting).

180 See OVERVIEW OF MPEG LA, *supra* note 78.

181 See Petit & Tolwinski, *supra* note 174, at 81.

182 See *id.* at 78.

183 See *id.*

184 See *id.* at 81.

and that an accommodating regulatory policy toward patent pools is justified. The DOJ and the FTC, however, risk reviving the anticompetitive abuses of the past if they give undue deference to patents.

#### IV. Social Costs of Patent Pools

While patent pools and cross-licensing agreements do have procompetitive benefits, overly permissive treatment of these arrangements would invite a resurgence of the patent cartels that dominated American industry for much of this century. Even blocking patents, the kind of patents most worthy of pooling arrangements, pose the risk of substantial harm to consumers if allowed to be pooled without qualification. This Part discusses the anticompetitive hazards of patent pools. The question of blocking patents is discussed first to challenge the accepted notion that pools of blocking patents are necessarily procompetitive. It then discusses the more complicated anticompetitive effects of broader pools, such as the MPEG LA patent pool. Finally, this Part argues that the DOJ and the FTC should not adopt a per se rule of legality for the pooling of blocking patents, and that they must carefully stipulate the permissible bounds of those pools deemed procompetitive.

##### A. *Anticompetitive Effects of Pools of Blocking Patents*

Judges, regulators, and academics have widely endorsed the proposition that pools of blocking patents are procompetitive.<sup>185</sup> Most recently, this position was expressly adopted by the DOJ and the FTC in the 1995 Federal Antitrust Guidelines for the Licensing of Intellectual Property.<sup>186</sup> The Guidelines condone the pooling of blocking patents under the theory that such pools “do[] not adversely affect competition.”<sup>187</sup> According to the Guidelines, blocked patents cannot be used without infringing another patent, and they are not substitutable assets. The patentees, then, are “not in a horizontal relationship with respect to those patents.”<sup>188</sup> The Guidelines state that even when the patentees are horizontal competitors in the relevant goods market, the DOJ and the FTC would be unlikely to challenge a pooling or cross-licensing arrangement involving these patents, because the patents could not otherwise be lawfully utilized.<sup>189</sup> The Guidelines, moreover, would permit joint setting

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185 See, e.g., *Standard Oil (Indiana) v. United States*, 283 U.S. 163, 171 (1931); *International Mfg. Co. v. Landon*, 336 F.2d 723, 730 (9th Cir. 1964); IP LICENSING GUIDELINES, *supra* note 4, at 107 ex.10; Bittlingmayer, *supra* note 14, at 229.

186 See IP LICENSING GUIDELINES, *supra* note 4, at 107 ex.10.

187 *Id.*

188 *Id.*

189 See *id.*

of royalty rates in the case of pools of blocking patents.<sup>190</sup>

The intellectual history of the Guidelines' policy toward blocking patents traces back to Ward Bowman and his frequently cited comment that pools of blocking patents are "indistinguishable from a vertical merger."<sup>191</sup> In full, Bowman wrote:

If . . . one patent was subservient to the other, an improvement patent unusable without infringing the basic patent, then combining or pooling them eliminates no user alternative. In terms of possible trade restraint, this case is indistinguishable from a vertical merger. The two patents combined . . . could not restrict output or raise price any more than if the two were exploited separately.<sup>192</sup>

The claim that this combination is essentially vertical does hold in perfect markets. In the Bowman model, the improvement patent must be "unusable without infringing the basic patent."<sup>193</sup> The holder of the improvement patent is foreclosed from marketing his technology absent some licensing agreement with the pioneer.<sup>194</sup> The improver may license the full value of his invention to the pioneer, or the pioneer may license the full value of her invention to the improver, or the two patentees may cross-license or pool their patents and award a certain sum of money to the party with the better invention.<sup>195</sup> In the Bowman model, the improver cannot market his invention without some form of permission from the pioneer, and barring such an agreement, the consumer has no choice but to purchase the unimproved version from the pioneer.<sup>196</sup> The consumer loses no alternatives if the improver's and pioneer's patents are pooled.<sup>197</sup>

Bowman's model depends upon two key assumptions: (1) the improver refrains from marketing his invention absent proper legal rights; and (2) the bargaining process between the parties is perfect. Unfortunately, neither of these suppositions holds outside a perfect market.

First, holders of blocked patents frequently do market their

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190 *See id.*

191 BOWMAN, *supra* note 164, at 201.

192 *Id.*

193 *Id.*

194 *See id.*

195 *See* Priest, *supra* note 70, at 356-58 (stating that the proper royalty in a cross-licensing scheme would be equal to the "net relative advantage of one of the patents over the other").

196 *See* BOWMAN, *supra* note 164, at 201.

197 *See* IP LICENSING GUIDELINES, *supra* note 4, at 107 ex.10.

products.<sup>198</sup> Firms may openly produce goods that infringe others' patents, either because infringement suits are not brought,<sup>199</sup> or because production of the accused product continues while litigation is pending.<sup>200</sup> Most infringed patents are not worth defending in court, as they earn their holders no profits above competitive levels.<sup>201</sup> Even in the pharmaceutical industry, where patents are most valuable, eight out of ten patents typically produce no value for their holders.<sup>202</sup> Thus, goods covered by valid patents are commonly sold at competitive prices and legitimate legal claims are frequently not litigated.

Second, the bargaining process between an improver and a pioneer is rife with friction. Transaction costs are rooted in the notion that patents are extremely hard to value, and that it is difficult to determine the respective contributions of the two patentees to the production of the underlying technology.<sup>203</sup> Furthermore, the problems of bilateral monopoly further complicate any bargaining situation, as each patentee has the unilateral power to prevent the other party from marketing its products.<sup>204</sup> Bargaining difficulties may be particularly acute in the widespread instances where firms procure patents for the purpose of blocking the patenting strategies of their competitors.<sup>205</sup>

The upshot is that patentees who are blocked in a legal sense are not necessarily blocked as a matter of fact. They frequently sell their products, and often do so at competitive prices. The landmark case of *Standard Oil (Indiana) v. United States*<sup>206</sup> supports the three key propositions that (1) holders of blocked patents do market their goods; (2) patented goods do sell at competitive levels; and (3) pools are an effective mechanism for

198 See *infra* notes 206-208 and accompanying text.

199 Patentees often will not bring infringement suits unless at least \$2 million is at stake for damages. See Dennis M. Ritchie et al., *The Continued Debate on Software Patents*, COMM. OF THE ACM, June 1992, at 13.

200 The Standard Oil litigation over blocking patents covering processes related to petroleum cracking, for example, lasted fifteen years, during which time the respective parties continued to use their processes. See John S. McGee, *Patent Exploitation: Some Economic and Legal Problems*, 9 J.L. & ECON. 135, 153 (1966).

201 See *FTC Testimony*, *supra* note 74, at 7 (statement of F.M. Scherer).

202 See *id.*

203 See Merges, *supra* note 61, at 75.

204 See *id.* at 83. Merges cites the example of well documented bargaining breakdowns in the area of oil field unitization, showing that "despite the sizable gains that could be realized from this efficient contractual solution, private unitization contracting was generally ineffective." *Id.* at 83-84 (citing Steven N. Wiggins & Gary D. Libecap, *Oil Field Unitization: Contractual Failure in the Presence of Imperfect Information*, 75 AM. ECON. REV. 368 (1985)). From the domain of patent history, Merges recites the bargaining impasse reached by Marconi and De Forest over blocking patents in the early radio industry. See *id.* at 84-87.

205 See Cohen et al., *supra* note 50, at 21.

206 283 U.S. 163 (1931).

restoring monopoly prices.<sup>207</sup> If, as in *Standard Oil*, patents covering competitively priced goods are allowed to be brought under unitary control, monopoly profits can be restored.<sup>208</sup>

The principles articulated in the 1995 Guidelines raise the prospect that pools of blocking patents will inflate the cost of competitively priced goods. Blocked patents are common throughout industry.<sup>209</sup> The goods they cover, moreover, are frequently competitively priced.<sup>210</sup> The Guidelines state that holders of blocked patents are free to pool their intellectual property.<sup>211</sup> The Guidelines thus open a broad shelter for firms to pool their patents and jointly to set the licensing rate for their patents. When patents have been blocked both in a legal and in a factual sense, the Guidelines' rule is procompetitive by definition. But where patents that are legally blocking, but factually competitive, are pooled, the pool provides a direct means for restoring monopoly prices to a competitive market. Therefore, the DOJ and the FTC should not adopt a per se rule of legality for the pooling of blocking patents.

#### B. *Shielding Invalid Patents from Litigation*

One of the greatest dangers of patent pools is that they shelter invalid patents from litigation. Patentees have strong incentives to settle when they fear that their patents will be invalidated through litigation. Such settlements are commonly effectuated by creating patent pools or cross-licensing arrangements.<sup>212</sup> These arrangements may be especially effective at preserving invalid patents when the settlement partner is one of the few parties sufficiently interested to challenge the patent, as is the case in

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207 In that case, the patented Burton process for cracking petroleum had accounted for 100% of cracked gasoline output from 1913 through 1919, drawing in approximately \$90 million for that period. See McGee, *supra* note 200, at 151; Priest, *supra* note 70, at 365. As rival patented processes arose, the market share of the Burton process slipped to 90% by 1922, and to 9% by 1929. See McGee, *supra* note 200, at 151. Patent litigation ensued between the various processes, with the four dominant firms resolving the litigation in the early 1920s through the execution of cross-licensing agreements. See *id.* at 153. The Supreme Court condoned the agreements as a legitimate means to clear the blocking positions created by the patents and to reduce litigation costs. See *Standard Oil (Indiana)*, 283 U.S. at 171 n.5. Scholars have subsequently reviewed the case and concluded that the agreements possibly disguised a cartel that permitted the firms to fix royalty rates. See McGee, *supra* note 204, at 158; see also Priest, *supra* note 70, at 364-76.

208 See McGee, *supra* note 200, at 144.

209 See Cohen et al., *supra* note 50, at 16 (providing empirical evidence that American patents are often procured to block the patenting strategies of competitors); Gilbert & Newbery, *supra* note 50, at 514-15.

210 See *FTC Testimony*, *supra* note 74, at 7.

211 See IP LICENSING GUIDELINES, *supra* note 4, at 107 ex.10.

212 See, e.g., *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 419-20 (1956); see also *United States v. Singer Mfg. Co.*, 374 U.S. 174, 177 n.2 (1963) (citing internal communications of sewing machine manufacturer stating that, as alternative to risky litigation whereby patents may be invalidated, it would be preferable to pool patents by mutual agreement with rival); *Parker-Pope*, *supra* note 71 (discussing cross-licensing strategies of diaper industry).

oligopoly markets.<sup>213</sup> Once invalid patents are pooled with those of rival industries, the other members of the pool lose the incentive to challenge the patent and to preserve “an open fight over validity.”<sup>214</sup> Moreover, licensees will be less likely to attempt to invalidate a suspect patent once it is incorporated into a larger pool, either due to the heightened costs of litigation or due to the deterioration of their long-term relationship with the pool.<sup>215</sup> Therefore, patent pools are likely to contain invalid and/or unenforceable patents that licensees will be compelled to accept. The Supreme Court as early as 1892 rebuffed the practice of licensing invalid patents, proclaiming: “It is as important to the public that competition should not be repressed by worthless patents, as that the patentee of a really valuable invention should be protected in his monopoly.”<sup>216</sup>

In 1998, the FTC challenged a patent pool for sheltering a bogus patent.<sup>217</sup> The Summit Technology complaint involved a patent pool, Pillar Points Partners, containing twenty-five patents relating to laser eye surgery techniques.<sup>218</sup> The members of the pool—Summit Technology, Inc. and VISX, Inc.—would have sued each other for patent litigation but for the creation of the pool.<sup>219</sup> VISX had been involved in patent interference proceedings prior to the pooling arrangement, wherein it was alleged that VISX had obtained its patents through fraud and inequitable conduct on the Patent and Trademark Office.<sup>220</sup> VISX and Summit Technology contended that they pooled their patents in order to reduce the uncertainty

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213 For example, the two firms with patents over a novel laser eye surgery technique pooled their patents in 1992. See Summit Technology Complaint, *supra* note 55. The firms would probably have sued one another for patent infringement, but for the formation of the patent pool. See FEDERAL TRADE COMM’N, ANALYSIS OF PROPOSED CONSENT ORDER TO AID PUBLIC COMMENT: SUMMIT TECHNOLOGY, INC. (visited Mar. 10, 1999) <<http://www.ftc.gov/os/1998/9808/d09286ana.htm>> [hereinafter SUMMIT TECHNOLOGY ANALYSIS]. Because they were the only two suppliers of this technique, the creation of the pool effectively neutralized the most proper plaintiffs for challenging the validity of the patents. In the end, the FTC brought suit. See *id.*

214 *United States v. Singer Mfg. Co.*, 374 U.S. 174, 199 (1963) (White, J., concurring) (“Singer and Gegauf agreed to settle an interference, at least in part, to prevent an open fight over validity. There is a public interest here which the parties have subordinated to their private ends.”) (citations omitted); Creighton & Naransic, *supra* note 141, at 508-09 (quoting Joel Klein); see also BOWMAN, *supra* note 164, at 201 (“Not litigating . . . can be cost-saving to the parties but costly to the community if invalid claims are established.”). One example of a patent pool that incorporated an allegedly invalid patent and sheltered it from litigation is the Pillar Point Partners pool over laser eye surgery techniques. See SUMMIT TECHNOLOGY ANALYSIS, *supra* note 213.

215 As a pool grows, litigation costs decline making it more likely that a pool will enter into sustained litigation against an outside firm over a patent dispute. See Lerner, *supra* note 158, at 472 (asserting that large firms have smaller litigation costs than small firms).

216 *Pope Mfg. Co. v. Gormully*, 144 U.S. 224, 234 (1892).

217 See Summit Technology Complaint, *supra* note 55.

218 See *id.* ¶ 8.

219 See SUMMIT TECHNOLOGY ANALYSIS, *supra* note 213.

220 See Summit Technology Complaint, *supra* note 55, ¶¶14-21. VISX had allegedly fabricated, back-dated, and falsified its scientific records in order to earn an earlier priority date for its patents. See *id.* ¶ 18.

and expense of litigation that would have inevitably followed.<sup>221</sup> Rejecting this defense, the FTC proposed a consent order dissolving the pool and compelling the firms to cross-license their patents royalty-free.<sup>222</sup> The FTC continued to prosecute VISX for fraud on the PTO, with litigation still pending as of March 1999.

### C. *Elimination of Competition*

Patent pools also harm the market by bringing horizontal competitors into collusion. This risk is particularly pronounced when firms hold patents to competing processes or products.<sup>223</sup> The pool effectuates a horizontal merger of the two firms and allows them jointly to set royalty rates for their patents. This mechanism allows firms to restore monopoly prices to an otherwise competitive market.<sup>224</sup>

This potential for monopoly provided the FTC an additional ground for attacking the Pillar Point Partners patent pool over laser eye surgery techniques.<sup>225</sup> The two participants in the patent pool were the only firms in the United States that had received marketing approval by the Food and Drug Administration for performing their patented techniques.<sup>226</sup> As a result, the firms were horizontal competitors in this duopoly market.<sup>227</sup> This arrangement, as alleged by the FTC, permitted the participants to "raise, fix, stabilize and maintain the price that physicians must pay to perform [laser eye surgery] procedures."<sup>228</sup>

### D. *Package Licensing*

Pools of blocking patents also raise the problem of package licensing. The DOJ and the FTC state that they would permit members of a pool of blocking patents to bundle their patents and to license them as a package.<sup>229</sup> The agencies justify this policy under the understanding that if the pool comprises only blocking patents, then a licensee would want no less than the full complement of licenses, lest he be liable for infringement under any patents to which he does not take a license.<sup>230</sup> By permitting the

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221 See SUMMIT TECHNOLOGY ANALYSIS, *supra* note 213.

222 See *id.*

223 See Klein DVD Letter, *supra* note 66; McGee, *supra* note 200, at 144-45.

224 See McGee, *supra* note 200, at 144-45.

225 See Summit Technology Complaint, *supra* note 55, ¶¶ 8-13.

226 See *id.* ¶ 6.

227 See SUMMIT TECHNOLOGY ANALYSIS, *supra* note 219.

228 Summit Technology Complaint, *supra* note 55, Count 1.

229 See IP Licensing Guidelines, *supra* note 4, at 107 ex.10; Tom Interview, *supra* note 147.

230 This scenario played out in the case of the pool of the patents to public key encryption. RSA, the holder of a subservient patent on public key encryption technology, licensed its products widely and later pooled its patents with those of the dominant patentee, Cylink. RSA's licensees did not acquire licensees to Cylink's patents, despite their blocking nature. When the pool dissolved,

bundling of blocking patents into a single package, the policy assures that the licensee will acquire the rights to all patents that cover his technology. The policy echoes the holding of the Ninth Circuit in the case of *International Manufacturing Co. v. Landon*.<sup>231</sup> When considering the legality of package licensing of blocking patents, the *Landon* Court stated: "In such a case, the prospective licensee is being compelled to accept no more than he would, in any event, have to obtain in order to make worthwhile a license under any of the patents."<sup>232</sup>

The consumer will not be harmed under this arrangement so long as three conditions are met regarding the nature of the pool: (1) that all the patents in the pool are mutually blocking; (2) that all the patents contained in the package are essential for every prospective licensee; and (3) that all the patents are valid and enforceable. However, if these conditions are not met, then consumer harm may result from the requirement to purchase all the pool's patents in a bundle.

First, the model assumes that all patents in the pool are mutually blocking. If so, then a licensee would be required to accept rights to all of the pool's patents in order to develop underlying technology. The phrase "a pool of blocking patents," however, is ambiguous. Is this label limited to instances in which all the patents are mutually blocking, or does it refer to situations in which all the patents in the pool are blocked by one or more of the other patents, but not by *all* the other patents? Patent pools are likely to resemble the latter scenario. Consider a simple pool comprised of a single dominant patent, X, and two subservient improvement patents, Y and Z. By definition, X is mutually blocked by both Y and Z. But a consumer developing technology covered by Y, for example, may not require a license to Z. Although the pool in this case is comprised solely of blocking patents (i.e., each patent is blocked by at least one other patent in the pool), licensees may not require rights to all the patents. If compelled to accept a package license for all the patents in the pool, the licensee is required to take title to patents for which he has no use.

Second, the model assumes that all prospective licensees will seek rights to the same patents. Accordingly, a single pool of patents can be licensed in a bundle to all licensees. Different licensees, however, will have different demands. In the above example, some licensees may be developing products covered by both improvement patents Y and Z, while

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Cylink threatened to sue all RSA's licensees. Had the licensees of RSA acquired licenses to all blocking patents, the subsequent disruption would have been precluded. See *Crypto Pool*, *supra* note 24 ("Until the fight [between Cylink and RSA] began, the RSA algorithm was fast becoming the de facto industry standard for encryption. Companies like Microsoft, Apple, Novell, and Lotus all employ RSA technology in their products. Now, all bets are off on the pace of paperless transactions. There is nothing like a heated patent dispute to chill the waters of commerce in an emerging industry.").

231 336 F.2d 723 (9th Cir. 1964).

232 *Id.* at 730.



other licensees' technologies are covered by only Y or Z. By permitting pools to bundle their patents and license them in a one-size-fits-all package, licensees will be required to accept extraneous patents.

Third, the model assumes that all patents are valid and enforceable. As such, prospective licensees would require rights to all the pool's patents. As described above, this assumption is dangerous.<sup>233</sup> If patent pools are permitted to bundle their patents and license them as a package, invalid patents increasingly will be permitted to extract rents from licensees.

### 1. An Example of Package Licensing—The MPEG LA Patent Pool

Each of the concerns discussed above is present in the MPEG LA patent pool. MPEG LA gained DOJ approval under its pledge to limit the pool to essential patents covering the core technology of MPEG-2.<sup>234</sup> However, the bounds of this pool are indeterminate. When the pool was originally formed, twenty-seven patents were deemed to be "most, but not all, of the Essential Patents."<sup>235</sup> Within less than two years, the number of U.S. patents nearly doubled to forty-six, with hundreds of foreign patents incorporated as well.<sup>236</sup> As the patent pool expands, the relation between the patents becomes more attenuated. The twenty-seven original patents might have been readily categorized as blocking and/or complementary. The rapid growth of the pool, however, suggests that patents being incorporated may be blocking or complementary to certain of the pool's patents, but not blocking or complementary to the pool as a whole. As the patent pool grows, it runs the risk of losing cohesion and incorporating patents over products that would compete with the pooled technologies.

Patent pools are especially difficult to define in areas of rapid technological advance, such as the MPEG protocol. The MPEG LA patent pool contains patents limited to the MPEG-2 protocol for digital broadcast television technology.<sup>237</sup> The MPEG-4 protocol is now being developed for multimedia applications on the Internet.<sup>238</sup> As digital television and the Internet become competing media formats, these two sets of patents can themselves be classified as competing.<sup>239</sup> Many of the patents essential to

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233 See *supra* notes 212-222 and accompanying text.

234 See Klein MPEG Letter, *supra* note 56.

235 *Id.* at 2.

236 See OVERVIEW OF MPEG LA, *supra* note 78 (counting U.S. patents and reissue patents, and excluding expired patents).

237 See MPEG HOME PAGE, *supra* note 77.

238 See *id.*

239 Studies show that the Internet is competing with television for viewership. America Online, for example, is competing successfully with MTV and CNN for prime time audiences. See Richard Tedesco, *Audience Will Be Well Dispersed by 2000: TV Viewers Will Increasingly Migrate to Online Attractions*, BROAD. & CABLE, Sept. 29, 1997, at 30.

the MPEG-2 protocol, however, are also essential to the MPEG-4 protocol.<sup>240</sup> This suggests that developers of Internet-based applications requiring licenses to MPEG-4 patents will be required to take license to some, if not all, of the MPEG-2 patents. The result is that the advance of technology blurs the cohesion of a closely related patent pool and introduces competing patents into the fold.

As the pool expands, licensees will be required to accept rights to unwanted patents. The MPEG-4 protocol provides a powerful example of this problem.<sup>241</sup> The MPEG-4 protocol will underpin numerous different applications on the Internet, with each application requiring licenses to a distinct set of patents.<sup>242</sup> If a global MPEG-4 patent portfolio is formed, such as that for MPEG-2 patents, then licensees will be required to take title to extraneous patents. MPEG LA has advanced three proposals for dealing with this problem, but each raises difficult pricing issues.<sup>243</sup>

Bogus patents further complicate the MPEG LA package licensing scheme. The Licensing Administrator does not evaluate the validity of patents prior to their inclusion in the pool.<sup>244</sup> The DOJ, in addressing the concern of invalid patents, stated only that the provisions of the pooling agreement "seem designed to reduce the likelihood that the Licensors might act concertedly to keep invalid or non-essential patents in the Portfolio."<sup>245</sup> The Licensing Administrator, moreover, will only eliminate a patent from the pool when one of the patentees contributing patents to the pool declares the patent to be invalid, or upon a final court adjudication.<sup>246</sup> Striking a patent from the pool, then, requires a member of the pool to profess to the invalidity of the patent, or requires a court to enter final judgment, striking the patent as invalid or unenforceable. It can be expected that licensees of the pool will be reluctant to sue to invalidate

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240 See M. Miyanaga, *Establishing Joint Licensing of MPEG-4 Essential Patents* (visited Apr. 4, 1999) <<http://www.mpegla.com/mpeg4/meetings.html>> ("It should be also noted that some of MPEG-2 patents which have been successfully licensed by MPEG LA should be also essential for MPEG-4 because of its common basis in principal.").

241 There currently is no MPEG-4 analogue to the MPEG LA patent pool for the MPEG-2 protocol. This pool is expected to be formed soon. See Miyanaga, *supra* note 240; Strauss, *supra* note 77.

242 See Miyanaga, *supra* note 240 ("In MPEG-4, there seems to appear many types of product that use various combination profiles. Namely, it is possible that the MPEG-4 product on the market uses different combinations of essential patents product by product.").

243 Miyanaga explained three potential royalty schemes for MPEG-4 patents: (1) creation of a menu of royalty schemes for each possible tool, or application, that could implement the MPEG protocol; (2) pricing of the royalties based on the number of patents actually used; or (3) establishment of a fixed royalty for licensees, to be divided up between licensors according to the value of each licensor's patents. See *id.* Miyanaga states that each approach creates either high transaction costs, inequities to the licensees, or inequities to the licensors. See *id.*

244 The duties of the Licensing Administrator are limited to determining the essentiality of the patents to be included in the pool. See Klein MPEG Letter, *supra* note 56.

245 Klein MPEG Letter, *supra* note 56.

246 See MPEG-2 Patent Portfolio License, *supra* note 86, § 7.6.2.

individual patents held by the pool, given the likely litigation resources of the pool and the long-term contractual relations between the licensees and the pool. The result is that the patent pool is likely to shelter defective patents from adversarial scrutiny, and to require licensees to pay royalties for patents that would otherwise be declared invalid.

## 2. An Efficient Pricing Mechanism?

Package licensing has been justified in other contexts as an efficient pricing mechanism.<sup>247</sup> Particularly when dealing with products whose value is uncertain and when parties lack information on the quality of the products, package licensing is seen as an efficient way of setting an average price.<sup>248</sup> This approach has been endorsed, for example, in the movie distribution market.<sup>249</sup> Rather than expending resources to price each item exactly, sellers can aggregate the goods into a package and set one price for the entire package. Although some goods in the package will be overpriced, others will be underpriced. This approach suggests an efficient pricing mechanism for a pool of blocking patents. Patents are notoriously difficult assets to price, and a large information gap separates the buyer and seller.<sup>250</sup> Faced with the impossibility of determining the exact price of each patent, a reasonable solution is to estimate the average value of the patents and to set one price for the pool of patents.

The problem with package licensing of patents is that prospective licensees may have no alternative but to transact with the patent pool. When there are competing processes, with each covered by different sets of patents, licensees may shop between technologies.<sup>251</sup> However, in standard-dependent technologies, such as the MPEG protocol, there is essentially no choice but to deal with the patent pool. A prospective licensee cannot forego dealings with one patent pool in order to trade with a second. The essential patents, in the rubric of *Jefferson Parish Hospital District No. 2 v. Hyde*,<sup>252</sup> confer market power upon the pool.<sup>253</sup> If a pool

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247 See Roy W. Kenney & Benjamin Klein, *The Economics of Block Booking*, 26 J.L. & ECON. 497, 497 (1983).

248 See *id.* at 500.

249 See THOMAS D. MORGAN, CASES AND MATERIALS ON MODERN ANTITRUST LAW AND ITS ORIGINS 361 (1994); see also Kenny & Klein, *supra* note 247, at 500.

250 See A.W. Beggs, *The Licensing of Patents Under Asymmetric Information*, 10 INT'L J. INDUS. ORG. 171, 171-72 (1992); Nancy T. Gallini & Brian D. Wright, *Technology Transfer Under Asymmetric Information*, 21 RAND J. ECON. 147, 147-49 (1990).

251 In the glass manufacturing industry, for example, glass could be blown through the suction process or the gob-fed process. Patent pools covered each of these processes. These two processes remained in competition until they merged through a cross-licensing arrangement. See VAUGHAN, *supra* note 1, at 78-80; see also *Hartford-Empire Co. v. United States*, 323 U.S. 386, 393-401 (1945).

252 466 U.S. 2 (1984).

253 See *id.* at 13-14 ("[W]e have condemned tying arrangements when the seller has some

has market power and includes unwanted patents, then the pool could likely be found to be in violation of the Sherman Act by “restrain[ing] competition on the merits by forcing purchases that would not otherwise be made.”<sup>254</sup>

Pools should be allowed to sell package licenses to patents that are truly blocking.<sup>255</sup> If the patents are found not to be blocking, then package licensing constitutes misuse of the patent. As the Third Circuit stated in *American Security Co. v. Shatterproof Glass Corp.*:<sup>256</sup>

Mandatory package licensing is no more than the exercise of the power created by a particular patent monopoly to condition the licensing of that patent upon the acceptance of another patent but that is too much. The protection, or monopoly, which is given to the first patent stops where the monopoly of the second begins.<sup>257</sup>

The fact-specific nature of patents, however, complicates any attempt to create a blanket rule towards package licensing. As described above, creating a pool of blocking patents becomes impossible when the number of relevant patents is relatively large.

#### E. *Establishing Proprietary Standards*

Patent pools pose particular problems in standard-dependent industries. There is tremendous debate today over whether Internet standards should be proprietary or open.<sup>258</sup> When a technology is covered by intellectual property rights, standard setting organizations will often reject that technology from consideration for the standardization process, even if that technology is superior.<sup>259</sup> It is argued that standards should be free, and that standard setting organizations should not be in the business

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special ability—usually called ‘market power’—to force a purchaser to do something that he would not do in a competitive market.”).

<sup>254</sup> *Id.* at 27.

<sup>255</sup> See *International Mfg. Co. v. Landon*, 336 F.2d 723, 730 (9th Cir. 1964) (rejecting the argument that “mandatory package licensing of blocking patents should not be condoned because it may result in a prospective licensee being compelled to accept an entire license package”).

<sup>256</sup> 268 F.2d 769 (3rd Cir. 1959).

<sup>257</sup> *Id.* at 777.

<sup>258</sup> See generally Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998); Lawrence Lessig, *Open Code and Open Societies: Values of Internet Governance*, 1999 Sibley Lecture at the University of Georgia (Feb. 16, 1999) (visited Apr. 15, 1999) <<http://cyber.harvard.edu/works/lessig/kent.pdf>>.

<sup>259</sup> A director of the Internet Engineering Task Force (IETF), a prominent standard setting organization, reportedly said that “no protocol that depends on proprietary technology would ever become a standard endorsed by the IETF.” Jim Kerstetter, *RSA Opens Up S/MIME*, PC WK., Sept. 1, 1997, at 8 (citing Jeff Schiller, IETF Security Director).

of validating monopolies.<sup>260</sup>

Patent pools permit patentees to dominate a technology and to develop de facto standards absent the approval of standard setting organizations.<sup>261</sup> By pooling their patents and settling their legal differences, patentees can collectively promote a single proprietary standard. The public key encryption industry provides a good example. Patentees RSA and Cylink each held early patents to public key cryptography.<sup>262</sup> They sued each other for patent infringement, but settled the dispute by pooling their patents into a common entity, Public Key Partners.<sup>263</sup> As the two private firms were commercializing their proprietary protocol, the federal government was developing a related protocol to be released to the public domain.<sup>264</sup> RSA and Cylink, having settled their mutual disputes, focused their litigation on the federal government.<sup>265</sup> The government relinquished, and the RSA proprietary standard became the de facto standard for industry, with over two-thirds of the computer industry, as measured by revenue, licensing the proprietary standard by 1992.<sup>266</sup>

Standard setting organizations, nonetheless, continued to refuse to adopt a proprietary standard for public key encryption. In the late 1990s, the Internet Engineering Task Force (IETF) attempted to set an encryption standard for email communications.<sup>267</sup> The RSA protocol was the de facto standard, but the IETF refused to embrace it because of its proprietary nature.<sup>268</sup> Pressured by the IETF, RSA agreed to surrender many of its intellectual property rights to its technology.<sup>269</sup> Unconvinced that all its

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260 See Kelly Jackson Higgins, *The Squeeze Is On at IETF*, INTERNETWK., Nov. 3, 1997, at 67 (quoting Charles Breed, co-chair of the OpenPGP working group and director of technology at Pretty Good Privacy).

261 The Public Key Partners patent pool, for example, allowed two rival firms to settle their legal disputes and to jointly establish their public key cryptography method as an industry standard, absent endorsement from a standard setting organization. See *supra* notes 21-30 and accompanying text.

262 For a description of public key cryptography, see *supra* notes 21-30 and accompanying text.

263 See *Crypto Pool*, *supra* note 24.

264 See *Digital Signature*, *supra* note 22.

265 See Ellen Messmer, *Gov't Backs Off on DSS Patent Battle*, NETWORK WORLD, July 19, 1993, at 9; Taft, *supra* note 27.

266 See Taft, *supra* note 27.

267 See Higgins, *supra* note 264; *IETF Meets to Establish S/MIME Group; RSA Shunned*, COMPUTERGRAM INT'L, Nov. 6, 1997.

268 See *Secure E-Mail Standards Face Off*, COMPUTER SHOPPER, Jan. 1998, at 365 ("[T]he group has all but ruled out S/MIME [RSA's protocol] as a candidate for approval."); see also Kelly Flaherty, *Standard Operating Procedure*, THE RECORDER, Dec. 17, 1997, at 1; *RSA Pushes S/MIME Standardization: 'Not So Fast' Says IETF Committee*, ELEC. MESSAGING NEWS, Nov. 12, 1997.

269 See Flaherty, *supra* note 268 ("In order to hold on to the standard, RSA was forced to write a formal letter to the IETF agreeing to make public its proprietary 'RC2' algorithm. The company also relinquished its trademark rights to S/MIME and agreed not to dominate the working group in charge of developing the standard."); Kerstetter, *supra* note 259.

intellectual property rights were abandoned, the IETF rebuffed RSA.<sup>270</sup> When Cylink's pioneer patent lapsed into the public domain in 1997, the IETF adopted this technique for its secure email standard, dropping the RSA standard.<sup>271</sup> RSA has faced further difficulties due to the emergence of novel, competing technologies.<sup>272</sup> The history of RSA shows that the standard setting process is a powerful mechanism for forcing firms to abandon their intellectual property and for promoting the establishment of open standards for network protocols.

Patent pools, however, permit holders of intellectual property to establish their technology as proprietary standards.<sup>273</sup> Concerted action under a pool allows patentees to establish a single standard.<sup>274</sup> If this pool is limited in scope, competitors may emerge to challenge the proprietary standard, as was the case in public key encryption.<sup>275</sup> The difficulty, however, is that patent pools unite would-be rivals who would otherwise compete for acceptance by standard setting organizations.<sup>276</sup> This concern is particularly acute where technologies are rapidly evolving and where patent pools grow with the advance of technology.<sup>277</sup> The pools shield patentees from the pressures that have forced firms like RSA to abandon their intellectual property, leaving proprietary standards in place.

#### F. *Price Maintenance in the Absence of Express Agreements*

The DOJ and the FTC could conceivably adopt rules prohibiting certain express practices, such as joint royalty setting and package licensing, in response to the anticompetitive potential of these acts. Such

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<sup>270</sup> See Flaherty, *supra* note 268.

<sup>271</sup> See Jim Kerstetter, *S/MIME Spec Drops RSA Key; Internet Engineering Task Force Working Group for Secure MIME Decides to Use Less-Expensive Diffie-Hellman Encryption Algorithm*, PC WK., Dec. 22, 1997, at 6.

<sup>272</sup> See Sean Silcoff, *Dr. Strangebucks*, CANADIAN BUS., Nov. 28, 1997, at 72 (describing the elliptical curve cryptosystem); Peter Smith, *LUC Public-Key Encryption: A Secure Alternative to RSA*, DR. DOBB'S J. OF SOFTWARE TOOLS, Jan. 1993, at 44 (describing LUC cryptosystem).

<sup>273</sup> The Public Key Partners patent pool, for example, allowed two rival firms to settle their legal disputes and to jointly establish their public key cryptography method as an industry standard, absent endorsement from a standard setting organization. See *supra* notes 21-30 and accompanying text.

<sup>274</sup> See *id.*; see also G. Pascal Zachary, *Big Business: Let's Play Oligopoly!: Why Giants Like Having Other Giants Around*, WALL ST. J., Mar. 8, 1999, at B1.

<sup>275</sup> See *supra* notes 271-272 and accompanying text.

<sup>276</sup> RSA and Cylink dominated the public key encryption industry through their patent pool up until its breakup in 1994. See *Crypto Pool*, *supra* note 24. In 1997, the former partners competed with one another for IETF approval as a standard, resulting in the adoption of the non-proprietary Cylink standard. See Kerstetter, *supra* note 271. Had the patent pool remained intact, the IETF would likely have been forced into adopting the proprietary RSA protocol.

<sup>277</sup> This concern is apparent with the MPEG LA patent pool. The MPEG-2 patent pool nearly doubled in size from 27 to 46 patents in less than two years. Technological advance has blurred the distinction between the MPEG-2 protocol and the MPEG-4 protocol, with the boundaries between these sets of patents unclear. See *supra* notes 76-103 and accompanying text.

express agreements are not necessary, however, to perpetuate price maintenance. Once patents are pooled, several mechanisms permit patentees to raise the price of patented goods that had sold at lower levels prior to formation of the pool.

### 1. Royalty Rebate Schemes

A royalty rebate scheme, for example, provides one mechanism for patentees to maintain an appearance of free competition while raising prices. As George Priest observes, patentees can assign their patents to the pool, which, in turn, licenses the use of the patents back to the members at a fixed royalty rate.<sup>278</sup> The cost to the pool members of using their own technology thus increases by a certain amount, which is then passed on to their licensees in the price of patented goods. The pool members each compete individually in the market, without mutual agreement as to the prices they exact from licensees. The prices set by the members and their licensees are thus competitively priced, but, because the input price of the licensor has been raised by the total prices paid to the pool, the end price to the licensee is elevated. It remains, then, for the pool members to recapture the prices paid into the pool. The royalty rebate can be disguised in various ways, such as through equipment sales.<sup>279</sup>

### 2. Hostage Theory

Pools of blocking patents provide a subtle means for enforcing tacit collusive agreements between rival patentees. The establishment of a pool and the prospect of its dissolution create a mechanism for imposing discipline on members who violate collusive agreements. The assets of each member are held "hostage" by the other members of the pool, subject to harm if covenants of the pool are breached.<sup>280</sup>

Pool members hold each others' licenses hostage. If the pool is comprised of blocking patents, then a licensee of any member of the pool can be sued by all the other members. The members may tacitly agree to maintain prices, to restrict output, or to divide territories. If one member of the pool licenses a customer at terms that violate the levels established through the tacit agreements, then the other members may decide to dissolve the pool and to sue the breaching member's licensees.

Such threats cause substantial damage. In the case of public key

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278 See Priest, *supra* note 70, at 315.

279 See *id.* at 314-15.

280 See Mukesh Eswaran, *Cross-Licensing of Competing Patents as a Facilitating Device*, 27 CANADIAN J. ECON. 689, 691 (1993). Hostage theory was first advanced by Oliver Williamson. See Oliver E. Williamson, *Credible Commitments: Using Hostages to Support Exchange*, 73 AM. ECON. REV. 519 (1983).

encryption, for example, the dissolution of the pool formed by two blocking patentees caused major disruption in the market for this important technology.<sup>281</sup> RSA, the improver patentee, had licensed its patents broadly.<sup>282</sup> Many of the pool's licensees held licenses only to RSA's technology, without right to Cylink's patents.<sup>283</sup> When the pool dissolved in the wake of various disagreements between the partners,<sup>284</sup> Cylink waged a campaign against RSA's licensees, threatening them with infringement of Cylink's patents.<sup>285</sup> Cylink demanded from RSA's customers a one-time payment of between \$50,000 and \$75,000.<sup>286</sup> Cylink also exacerbated the breakup by disrupting a standardization process in the financial community that would have led to the adoption of RSA's technology.<sup>287</sup> The effects of the breakup of the patent pool were reported as such:

Until the fight [between Cylink and RSA] began, the RSA algorithm was fast becoming the de facto industry standard for encryption. Companies like Microsoft, Apple, Novell, and Lotus all employ RSA technology in their products. Now, all bets are off on the pace of paperless transactions. There is nothing like a heated patent dispute to chill the waters of commerce in an emerging industry.<sup>288</sup>

The example of public key encryption shows that patentees stand to lose substantially from the breakup of patent pools. The downside risk imposes discipline on patentees to respect mutual agreements, whatever their nature, and to ensure the long-term viability of the pool.

#### G. *Favorable Antitrust Standards in Patent Pools*

Patent pools pose further threats to the competitive market by entitling members to more favorable standards in antitrust litigation. For an antitrust case to succeed, complainants must first cross the threshold determination of whether the challenged patents are blocking or competing. As stated above, federal law permits patentees to escape

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281 See *Crypto Pool*, *supra* note 24.

282 See Taft, *supra* note 27 (quoting D. James Bidzos, President of RSA, who stated that as of 1992, RSA had licensed more than two-thirds of the computer industry, as measured by revenue).

283 See *Crypto Pool*, *supra* note 24.

284 See *RSA Data Sec., Inc. v. Cylink Corp.*, No. 96-20094 SW, 1996 WL 107272, at \*3 (N.D. Cal. Mar. 4, 1996); *With Partners Like This . . . RSA, PKP Spat: It's Really Getting Fun*, INFO. L. ALERT: A VOORHEES REP., Mar. 10, 1995 [hereinafter *RSA, PKP Spat*].

285 See *At War Over Crypto*, INFO. L. ALERT: A VOORHEES REP., Oct. 13, 1995.

286 See *id.*

287 See *RSA, PKP Spat*, *supra* note 284.

288 *Crypto Pool*, *supra* note 24.



liability for challenged licensing practices when it is shown that the pool comprises blocking, rather than competing, patents.<sup>289</sup> There is a fine distinction between these two sets of patents, requiring extensive fact finding and uncertain litigation.<sup>290</sup> Complainants face a protracted trial when patentees can assert that the motivation to pool the challenged patents was predicated on the clearing of blocking patents.

Furthermore, where patents are not concerned, courts prohibit inter-firm agreements containing price fixing agreements and territorial restrictions.<sup>291</sup> Such restrictions are not subject to per se rules, however, when patents are involved. The patent statute explicitly prevents courts from establishing a per se rule against territorial restrictions in such arrangements, providing that a patentee or licensor may "grant and convey an exclusive right under his [patent] . . . to the whole or any specified part of the United States."<sup>292</sup> Abuse of this right may subject a patentee to the strictures of the antitrust laws, but mere exercise of this right cannot be forbidden in a per se rule.<sup>293</sup> Prosecutions for abuse of price fixing agreements or territorial restrictions in patent cases must proceed under the rule of reason, requiring a full trial.<sup>294</sup> Given limited enforcement resources, the DOJ and the FTC will be less likely to commence proceedings against a suspect patent pool than against firms dealing in unpatented goods.

## Conclusion

The DOJ and the FTC have opened a new era in the regulation of patent pools. The 1995 IP Licensing Guidelines are a landmark, and the MPEG LA approval is "definitely a first in recent history, and likely a first on patent pooling."<sup>295</sup> The Guidelines and the approval of the MPEG pool

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289 See *Carpet Seaming Tape Licensing Corp. v. Best Seam, Inc.*, 616 F.2d 1133, 1142-43 (9th Cir. 1980) (reversing finding of patent misuse for failure of trial court to determine if challenged patents were blocking, rather than competing); *International Mfg. Co. v. Landon, Inc.*, 336 F.2d 723, 729 (9th Cir. 1964) (distinguishing between pools of blocking and competing patents, and denying a finding of antitrust violations and patent misuse for pooling of blocking patents); IP LICENSING GUIDELINES, *supra* note 4, at 107 ex.10 (distinguishing blocking patents from competing patents and suggesting that the DOJ will not challenge combinations of blocking patents).

290 See Goller, *supra* note 31, at 726 ("[O]ne of the purposes of this paper is to show that the lines of demarcation among the three categories [blocking, competing, and complementary patents] are very narrow and that in many instances, a mere shift of focus or frame of reference will result in a different categorization for the same patents.").

291 See, e.g., *United States v. Trenton Potteries Co.*, 273 U.S. 392 (1927) (prohibiting price fixing); *United States v. Addyston Pipe & Steel Co.*, 85 F. 271 (6th Cir. 1898) (prohibiting territorial allocations).

292 35 U.S.C. § 261 (1994).

293 See Priest, *supra* note 70, at 315.

294 See *id.*

295 Sabra Chartrand, *Patents: The Federal Government Will Allow a Group of Companies to Unify Administration of 27 Patents*, N.Y. TIMES, June 30, 1997, at D8 (quoting Bill Brooks, DOJ

are remarkable for their explicit recognition of the procompetitive benefits of patent pools. The Guidelines, especially as read through the MPEG LA business review letter, are especially important for their adoption of the blocking patents exception to the antitrust laws. This exception, it is reasoned, is essential to free up technology that would be suppressed absent relief from the strictures of antitrust law.

There are a number of problems with this approach, however. First, it is not clear how thoroughly technology is suppressed by overlapping patent claims. There certainly are high-profile instances where patent rights do block the development of important technologies. Often, however, patented goods are sold competitively, notwithstanding the legal entanglements created by blocking patents. The DOJ and the FTC have announced a broad shelter for the pooling of patents that, if unconstrained, may invite a revival of the abusive patent pools that dominated American industry throughout much of this century.

The enforcement agencies' acceptance of pools of blocking patents is particularly troublesome given the difficulty of delineating such pools, especially when the number of relevant patents is large. The notion of a pool of blocking patents does not have clear limits. The MPEG LA pool illustrates this difficulty. Whereas the DOJ first understood that twenty-seven patents were "most" of the protocol's essential patents, that number has nearly doubled, in less than two years, to forty-six. Once a pool is created, its outer boundaries are prone to expand. The danger is that the pool will continue to evolve and incorporate competing technologies and invalid patents.

Patent pools have been used as a tool throughout the twentieth century to cartelize industry and to circumvent the antitrust laws. Technological advance can justify some restraints on trade. But the DOJ and the FTC must carefully assess whether proposed pools would cover valid patents that are blocked both in law and in fact. The authorities must also impose limits upon the future growth of patent pools in order to prevent the incorporation of evolving technologies and invalid patents into yesterday's pools. Although patent pools can be an important means of promoting technology, undue deference to the interests of patentees risks sacrificing core principles of antitrust law.

