

Intellectual Property Pools and Aggregation

SUMMARY CONTENTS

26.1	Theories of IP Pooling: Efficiency and Enablement	887
26.2	Antitrust Analysis of Patent Pools	891
26.3	Patent Pools for Standards	898
26.4	Complementarity and Essentiality in Patent Pools	911

As we saw in [Chapter 25](#), agreements among competitors that restrain trade can violate Section 1 of the Sherman Act. Such anticompetitive agreements can involve trademarks, copyrights, patents and other intellectual property (IP) rights. If they seek to fix prices, allocate markets or impose similar restraints on competition, such agreements are *per se* illegal; otherwise they are evaluated under the rule of reason, balancing their procompetitive and anticompetitive effects.

In this chapter we will consider an important category of agreements among competitors – those in which IP rights are combined or “pooled” for various purposes. The first documented patent pool in the United States was formed in 1856 by three leading manufacturers of sewing machines.¹ Since then, IP pools have evolved and grown in complexity. Though the specifics vary from pool to pool, at the most general level, IP pools involve the aggregation and centralized licensing of IP rights held by different parties. In some cases, this centralized licensing function is carried out by one of the pool members, and in others it is performed by an independent pool administrator. Some pools grant licenses only to pool members, while others make licenses available to members and nonmembers alike. The crux of an IP pooling arrangement today is typically the aggregation of the pool members’ rights for licensing to users in a single transaction, with the proceeds of that transaction allocated among the pool members according to some predetermined formula. Such pooling arrangements can have numerous procompetitive effects, but without certain precautions, they can also harm or reduce competition.

The crux of an IP pooling arrangement is the aggregation of the pool members’ rights for more convenient licensing.

¹ For an informative history of the Singer Combination, see Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine War of the 1850s*, 53 *Ariz. L. Rev.* 165 (2011).

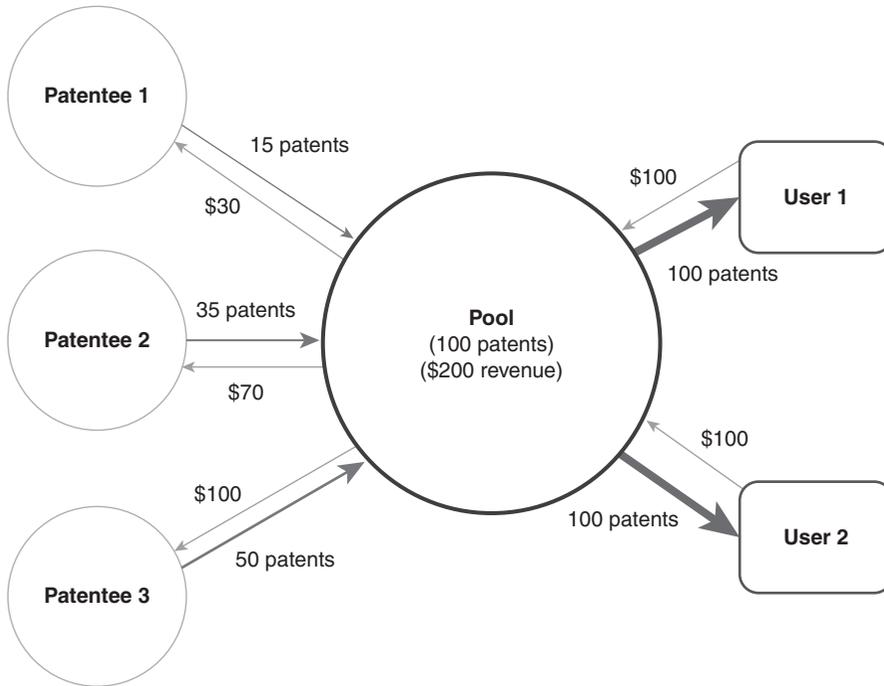


FIGURE 26.1 Basic structure of a patent pool with per-patent allocation of royalties and no pool administration charges.

As we will discuss in the remainder of this chapter, IP pools vary in a number of important respects, but they often share a number of key features, including the following:

- Rights are licensed (or assigned) by the members to a centralized pool administrator (one of the members or an independent third party).
- The administrator grants licenses of the pooled rights to third-party licensees/users.
- The pooled rights are licensed as a bundle, not separately.
- Any interested party may obtain a license.
- Royalties are charged to all licensees on a consistent basis.
- Licenses are granted using relatively simple, standardized form agreements.
- Licenses are nonexclusive.
- Income received by the pool is allocated to the pool members according to a predetermined formula, usually after the deduction of administrative fees and charges.

As you review the materials in this chapter, bear in mind that IP pools have impacted a broad range of industries over the past century, from motion pictures and recorded music to aviation and automobiles to semiconductors and telecommunications.² Pools have enabled transactions involving dozens, hundreds or thousands of individual IP rights that otherwise might have been impossible to effect, but some have crossed the line into anticompetitive territory. The complexity in structuring, forming and operating effective IP pools arises to a large degree from walking the tightrope between procompetitive and anticompetitive features.

² For an informative catalog of patent pools from the early twentieth century to today, see Michael Mattioli, *Power and Governance in Patent Pools*, 27 Harv. J. L. Tech. 421, 446–47, 463–65, Appendix (2014).

26.1 THEORIES OF IP POOLING: EFFICIENCY AND ENABLEMENT

There are two fundamental motivating forces behind IP pooling, which I refer to as *efficiency* and *enablement*. Efficiency is relatively easy to grasp. If a firm holds twelve patents covering different aspects of an electric motor, it is more efficient for a motor manufacturer to license all twelve in a single transaction than to license them one by one. The manufacturer can thus pay a single royalty for each motor that it sells, and does not have to determine which motors practice which patents and account for each separately. As we saw in [Section 24.4](#), parties to a licensing transaction may find the convenience of licensing a bundle of patents to be mutually beneficial, even if the royalty remains constant as some of the patents in the bundle expire (*Automatic Radio v. Hazeltine* (U.S. 1950)). Such package licensing runs afoul of the antitrust and patent misuse laws only when it becomes coercive (*Zenith v. Hazeltine* (U.S. 1969)).

So, if efficiencies can be gained by licensing a single holder's patents in a bundle, then it stands to reason that bundling patents held by *multiple* patent holders should create even greater efficiencies. Thus, in the example above, instead of one firm holding twelve patents covering electric motors, suppose that twelve different firms each held one such patent. Then, in order to make electric motors, a manufacturer would have to negotiate successfully with twelve different parties – a substantially more costly and time-consuming proposition. But aggregating the twelve firms' patents into a single pool and licensing them together, as a single bundle, would enable the manufacturer, again, to acquire the necessary rights in a single transaction: a substantial gain in efficiency.

The efficiency justification for IP pools is even more pronounced with respect to copyrights. As discussed in [Chapter 16](#), every composer, lyricist and musician holds a copyright interest in the songs that he or she creates, and the public broadcast and performance of music potentially involves thousands of copyright licenses. The aggregation and pooling of these rights is thus essential to distribution of music, film and other copyrighted works. Performing rights organizations such as ASCAP, BMI and SEASAC, discussed in [Section 16.2](#), have aggregated and pooled copyrights in musical works for more than a century, thereby enabling the broad dissemination of musical works through radio broadcast, live performance and online distribution channels. As we saw in [Section 25.5](#) (Note 5), the Hollywood studios of the mid-twentieth century sought to package their films into bundles that they licensed to movie theaters and television stations for public viewing. By and large, these “block booking” arrangements, in which popular films like *Casablanca* were bundled with B-movies like *The Gorilla Man*, and in which the distributor had no choice but to pay for them all, have been held to constitute illegal tying arrangements. Even so, it is not hard to see the transactional efficiencies that studios, as well as theaters and television networks, would enjoy by conducting business with large bundles of content, rather than individual titles. When a few licensors each control a large number of copyrighted works, pooling is a natural inclination.

But pooling is useful not only to reduce the number of individual licenses that must be negotiated. It also serves the important, and related, function of *enabling* market activity by assembling complementary rights. In an influential 1998 paper,³ Michael Heller and Rebecca Eisenberg identify a phenomenon known as an “anticommons,” a situation in which the rights necessary to accomplish a particular task (e.g., building a motor, developing a drug) are held by dispersed parties that are difficult to assemble. This phenomenon is also known as a patent

³ Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 *Science* 698 (1998).

or IP “thicket.” Heller and Eisenberg observe that “a [scarce] resource is prone to underuse in a ‘tragedy of the anticommons’ when multiple owners each have a right to exclude others ... and no one has an effective privilege of use.” In other words, if a set of IP rights is required to manufacture a particular product, and a potential manufacturer is unable to acquire the necessary permissions from each of the different rights holders, then it will not be legally permitted to produce the product.

Heller and Eisenberg analogize the anticommons that developed among retail operators in the Soviet Union to patents covering biomedical innovations, theorizing that a large number of patents held by different parties could stifle lifesaving innovations. One potential solution to the anticommons problem is pooling: “When the background legal rules threaten to waste resources, people often rearrange rights sensibly and create order through private arrangements.” Pooling of necessary or blocking IP rights, then, enables the production of goods that would otherwise be absent from the market. Or, as economist Carl Shapiro has written, patent pooling is a “natural and effective method[] used by market participants to cut through the patent thicket.”⁴

IP pooling thus accomplishes two related but distinct functions: increasing transactional *efficiency* by reducing the number of license negotiations in which any given licensee must engage, and clearing blocking IP positions to *enable* the broader creation of goods covered by IP.

Notes and Questions

1. *Nonexclusivity*. Almost all IP pools license their pooled assets on a nonexclusive basis. Why do you think this is? What would be the disadvantage of licensing pooled assets on an exclusive basis?
2. *Allocation systems*. When a pool grants a license, the licensee typically pays a royalty to the pool for all of the rights contained in the pool. It is up to the pool administrator to allocate that royalty among the individual pool members. The method by which royalties are allocated among pool members is often a closely guarded secret. In some cases, royalties may be simply split evenly among pool members, as they were in *Standard Oil (Indiana)* (see [Section 26.3](#), footnote 8) (a *per capita* system). In other cases, royalties may be allocated to members based on the number of IP rights that each has contributed (e.g., if a member contributed 5 of 100 patents to the pool, then it would be entitled to 5 percent of the royalties received by the pool) (*patent counting*).⁵ Hybrids of per capita and per patent allocation systems also exist, as illustrated by the RFID patent pool, in which “half of the royalties are allocated to participants based on the number of patents contributed by each participant, and the other half are allocated substantially equally among participants.”⁶ Finally, royalties may be allocated to a member based on the *value* of the IP that it has contributed (*value-based allocation*). This system is sometimes used to allocate larger shares of a pool’s revenue to early or “founder” members of the pool.⁷ What advantages and disadvantages do you see with respect to each of these allocation methodologies?

⁴ Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting in Innovation Policy and the Economy*, Volume 1, 119, 119 (Adam B. Jaffe, Josh Lerner & Scott Stern, ed., MIT Press, 2001).

⁵ See Mattioli, *supra* note 2, at 446–47 (describing the per-patent allocation system in the MPEG-2 patent pool).

⁶ Letter from Thomas O. Barnett, Assistant Attorney Gen., Antitrust Div. of the Dep’t of Justice, to William F. Dolan and Geoffrey Oliver, Jones Day (October 21, 2008).

⁷ See Mattioli, *supra* note 2, at 441–42 (describing percentage-based allocation system of the early-twentieth-century raisin patent pool).

3. *When pools compete.* Most IP pooling arrangements are voluntary, meaning that rights holders may elect to participate or not. In some cases, multiple pools cover the same product, so that a would-be manufacturer must obtain a license from each pool in order to manufacture the product. An example can be found in DVD technology:

In late 1995, it was reported that four “core” DVD developers of a ten-member DVD consortium would enter into a patent pooling agreement to administer the licensing of DVD patents. The core members, Philips, Sony, Matsushita and Toshiba, reportedly extended an open invitation to secondary patent holders claiming rights to DVD-related patents.

In August, 1996, after a period of failed negotiations among the core consortium members, Sony and Philips announced that they would form their own DVD pool, with Philips to be the licensor. Philips stated that “[t]here were so many differences of opinion that we could not wait for these to be settled.” Pioneer Electronics subsequently joined this three-firm pool. Six months later, Hitachi, Matsushita, Mitsubishi, Time Warner, Toshiba and JVC formed their own patent pool. Industry analysts warned that without a single, unitary pool, the price of DVD technology would increase since a piecemeal licensing system would push the cost of the technology higher.⁸

Notwithstanding the split among the principal DVD patent holders, the two DVD patent pools (which became known as the DVD3C and DVD6C pools) operated side by side for years and reduced the number of licenses required by manufacturers of DVD players and discs from ten to two. The DVD format became one of the most broadly adopted standards in the world. Yet time has overtaken even the DVD. The DVD6C pool announced that it would stop offering new patent licenses on January 1, 2020.⁹

4. *Pooling holdouts.* Given the voluntary nature of IP pools, it is also possible that some IP holders will elect not to join any pool. Research by Anne Layne-Farrar and Josh Lerner¹⁰ suggests that most patent pools today are incomplete. They found that nine major patent pools directed at significant technology standards (e.g., DVD, 3G, Bluetooth) had coverage rates of between 10 and 89 percent of the total patents believed to be necessary to practice the standards. Why might an IP holder “hold out” and decline to join a pool?¹¹ If pools enhance the overall efficiency of markets, how might IP holders be encouraged to join pools rather than licensing and asserting their rights independently?
5. *Royalty stacking and Cournot complements.* Commentators have also suggested that pooling complementary IP can reduce the overall *cost* of obtaining licenses to that IP. The theory of complementary production inputs originated with French mathematician Antoine Augustin Cournot in 1838. Carl Shapiro explains Cournot’s insight and its application to modern technology markets as follows:

Cournot considered the problem faced by a manufacturer of brass who had to purchase two key inputs, copper and zinc, each controlled by a monopolist. As Cournot demonstrated, the resulting price of brass was higher than would arise if a single firm controlled trade in both copper and zinc, and sold these inputs to a competitive brass industry (or made the brass itself). Worse yet, the combined profits of the producers were lower as well in the presence

⁸ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools* 32 (August, 1999 revision), www.law.berkeley.edu/files/pools.pdf.

⁹ DVD6C Licensing Group, Information, www.dvd6cla.com/index.html.

¹⁰ Anne Layne-Farrar & Josh Lerner, *To Join or Not to Join: Examining Patent Pool Participation and Rent Sharing Rules*, 29 Int’l J. Indus. Org. 294, 299 (2011).

¹¹ For thorough discussions of the business motivations for holding out in the context of patent pools, see Layne-Farrar and Lerner, *supra* note 10, at 296–97; Michael Mattioli, *Patent Pool Outsiders*, 33 Berkeley Tech. L.J. 225, 239–46 (2018).

of complementary monopolies. So, the sad result of the balkanized rights to copper and zinc was to harm both consumers and producers. The same applies today when multiple companies control blocking patents for a particular product, process, or business method.

How can the inefficiency associated with multiple blocking patents be eliminated? One natural and attractive solution is for the copper and zinc suppliers to join forces and offer their inputs for a single, package price to the brass industry. The two monopolist suppliers will find it in their joint interest to offer a package price that is less than these two components sold for when priced separately. The blocking patent version of this principle is that the rights holders will find it attractive to create a package license or patent pool.

[I]f the two patent holders see benefits from enabling many others to make products that utilize their intellectual property rights, a patent pool, under which all the blocking patents are licensed in a coordinated fashion as a package, can be an ideal outcome. [This] simple theory ... suggests that coordinating such licensing can lead to *lower* royalty rates than would independent pricing (licensing) of the two companies' patents.¹²

Do you see why combining patents (or other IP rights) in a pool might lower the overall cost of licensing these rights? How do you think this concept affects the likelihood that certain patent holders will hold out and refuse to join a pool (see Note 4)?

6. *The mystery of the missing biotech patent pools.* Despite cautionary predictions by scholars like Heller and Eisenberg, few patent pools – and none of commercial significance – have emerged in the biotechnology sector. Even in 1998, Heller and Eisenberg recognized that a number of structural and institutional factors might work against the formation of pools in the biotech sector, including transaction costs associated with accumulating sufficient rights to practice biotechnology inventions, the divergent interests of biotech patent holders and cognitive biases causing researchers to overestimate the value of their own discoveries. Other factors may also be at work, including “the need for at least some market exclusivity in an environment with extremely high costs of product development, clinical trials and regulatory approval; patent holders' desire to retain control over their assets; and concerns over compromising commercial secrecy by collaborating with others.”¹³ What do you make of the lack of patent pools in the biotechnology sector, when pooling activity in areas such as electronics and telecommunications has only increased?
7. *New forms of fragmentation.* Heller and Eisenberg identified the potential of patents to fragment markets for innovation in biotechnology, yet that anticommons and the accompanying stifling of innovation does not seem to have occurred for a variety of reasons. Nevertheless, concerns have been raised regarding other trends toward fragmentation of rights that could cause similar or even greater hurdles to innovation. Consider the following:

A spate of recent legal disputes in the U.S. ha[s] led to increasing calls for personal ownership of genetic and other health information. [D]espite the good intentions behind many of these proposals, granting individuals an enforceable property interest in information about themselves ... could pose significant impediments to data-driven research, particularly in the coming era of mega-cohort studies involving a million and more individuals.

Thus, while Heller and Eisenberg worried that fragmented interests held by a few dozen or hundred patent owners could severely impede biomedical research, the possibility that millions of individual data subjects could demand clearance, oversight or payment in order to use their data ... has far more dramatic ramifications for biomedical research.¹⁴

¹² Shapiro, *supra* note 4, at 123 (emphasis in original).

¹³ Jorge L. Contreras, *The Anticommons at Twenty: Concerns for Research Continue*, 361 *Science* 335, 336 (2018).

¹⁴ *Id.* at 336–37.

Is the type of rights fragmentation identified in the above excerpt similar to the fragmentation that could arise due to dispersed patent ownership? Could this type of data ownership fragmentation effectively be addressed by pooling solutions?

26.2 ANTITRUST ANALYSIS OF PATENT POOLS

The earliest patent pools emerged prior to the enactment of the Sherman Antitrust Act of 1890. But almost as soon as the Sherman Act became law, antitrust enforcers turned an eye toward the pooling arrangements that large industrial concerns created using patents. In the following case, the Supreme Court considered such an arrangement led by John D. Rockefeller's infamous Standard Oil Trust.

Standard Oil Co. (Indiana) v. United States

283 U.S. 163 (1931)

BRANDEIS, JUSTICE

This suit was brought by the United States in June, 1924, in the federal court for northern Illinois, to enjoin further violation of section 1 and section 2 of the Sherman Anti-Trust Act. The violation charged is an illegal combination to create a monopoly and to restrain interstate commerce by controlling that part of the supply of gasoline which is produced by the process of cracking. Control is alleged to be exerted by means of seventy-nine contracts concerning patents relating to the cracking art. The parties to the several contracts are named as defendants. Four of them own patents covering their respective cracking processes, and are called the primary defendants. Three of these, the Standard Oil Company of Indiana, the Texas Company, and the Standard Oil Company of New Jersey, are themselves large producers of cracked gasoline. The fourth, Gasoline Products Company, is merely a licensing concern. The remaining forty-six defendants manufacture cracked gasoline under licenses from one or more of the primary defendants. They are called secondary defendants.

The violation of the Sherman Act now complained of rests substantially on the making and effect of three contracts entered into by the primary defendants. The history of these agreements may be briefly stated. For about half a century before 1910, gasoline had been manufactured from crude oil exclusively by distillation and condensation at atmospheric pressure. When the demand for gasoline grew rapidly with the widespread use of the automobile, methods for increasing the yield of gasoline from the available crude oil were sought. It had long been known that from a given quantity of crude, additional oils of high volatility could be produced by "cracking"; that is, by applying heat and pressure to the residuum after ordinary distillation. But a commercially profitable cracking method and apparatus for manufacturing additional gasoline had not yet been developed. The first such process was perfected by the Indiana Company in 1913; and for more than seven years this was the only one practiced in America. During that period the Indiana Company not only manufactured cracked gasoline on a large scale, but also had licensed fifteen independent concerns to use its process and had collected, prior to January 1, 1921, royalties aggregating \$15,057,432.46.

Meanwhile, since the phenomenon of cracking was not controlled by any fundamental patent, other concerns had been working independently to develop commercial processes of their own. Most prominent among these were the three other primary defendants, the Texas Company, the New Jersey Company, and the Gasoline Products Company. Each of these secured numerous patents covering its particular cracking process. Beginning in 1920, conflict developed among the four companies concerning the validity, scope, and ownership of issued patents. One infringement suit was begun; cross-notice of infringement, antecedent to other suits, were given; and interferences were declared on pending applications in the Patent Office. The primary defendants assert that it was these difficulties which led to their executing the three principal agreements which the United States attacks; and that their sole object was to avoid litigation and losses incident to conflicting patents.

The three agreements differ from one another only slightly in scope and terms. Each primary defendant was released thereby from liability for any past infringement of patents of the others. Each acquired the right to use these patents thereafter in its own process. Each was empowered to extend to independent concerns, licensed under its process, releases from past, and immunity from future claims of infringement of patents controlled by the other primary defendants. And each was to share in some fixed proportion the fees received under these multiple licenses. The royalties to be charged were definitely fixed in the first contract; and minimum sums per barrel, to be divided between the Texas and Indiana companies, were specified in the second and third.

[P]ooling arrangements may obviously result in restricting competition. The limited monopolies granted to patent owners do not exempt them from the prohibitions of the Sherman Act and supplementary legislation. Hence the necessary effect of patent interchange agreements, and the operations under them, must be carefully examined in order to determine whether violations of the Act result.

The Government contends that the three agreements constitute a pooling by the primary defendants of the royalties from their several patents; that thereby competition between them in the commercial exercise of their respective rights to issue licenses is eliminated; that this tends to maintain or increase the royalty charged secondary defendants and hence to increase the manufacturing cost of cracked gasoline; that thus the primary defendants exclude from interstate commerce gasoline which would, under lower competitive royalty rates, be produced; and that interstate commerce is thereby unlawfully restrained. There is no provision in any of the agreements which restricts the freedom of the primary defendants individually to issue licenses under their own patents alone or under the patents of all the others; and no contract between any of them, and no license agreement with a secondary defendant executed pursuant thereto, now imposes any restriction upon the quantity of gasoline to be produced, or upon the price, terms, or conditions of sale, or upon the territory in which sales may be made. The only restraint thus charged is that necessarily arising out of the making and effect of the provisions for cross-licensing and for division of royalties.

The Government concedes that it is not illegal for the primary defendants to cross-license each other and the respective licensees; and that adequate consideration can legally be demanded for such grants. But it contends that the insertion of certain additional provisions in these agreements renders them illegal. It urges, first, that the mere inclusion of the provisions for the division of royalties, constitutes an unlawful combination under the Sherman Act because it evidences an intent to obtain a monopoly. This contention

is unsound. Such provisions for the division of royalties are not in themselves conclusive evidence of illegality. Where there are legitimately conflicting claims or threatened interferences, a settlement by agreement, rather than litigation, is not precluded by the Act. An interchange of patent rights and a division of royalties according to the value attributed by the parties to their respective patent claims is frequently necessary if technical advancement is not to be blocked by threatened litigation. If the available advantages are upon on reasonable terms to all manufacturers desiring to participate, such interchange may promote rather than restrain competition.¹⁵

The Government next contends that the agreements to maintain royalties violate the Sherman [Act] because the fees charged are onerous. The argument is that the competitive advantage which the three primary defendants enjoy of manufacturing cracked gasoline free of royalty, while licensees must pay to them a heavy tribute in fees, enables these primary defendants to exclude from interstate commerce cracked gasoline which would, under lower competitive royalty rates, be produced by possible rivals. This argument ignores the privileges incident to ownership of patents. Unless the industry is dominated, or interstate commerce directly restrained, the Sherman Act does not require cross-licensing patentees to license at reasonable rates others engaged in interstate commerce. The allegation that the royalties charged are onerous is, standing alone, without legal significance; and, as will be shown, neither the alleged domination, nor restraint of commerce, has been proved.

The main contention of the Government is that even if the exchange of patent rights and division of royalties are not necessarily improper and the royalties are not oppressive, the three contracts are still obnoxious to the Sherman Act because specific clauses enable the primary defendants to maintain existing royalties and thereby to restrain interstate commerce. The provisions which constitute the basis for this charge are these. The first contract specifies that the Texas Company shall get from the Indiana Company one-fourth of all royalties thereafter collected under the latter's existing license agreements; and that all royalties received under licenses thereafter issued by either company shall be equally divided. Licenses granting rights under the patents of both are to be issued at a fixed royalty – approximately that charged by the Indiana Company when its process was alone in the field. By the second contract, the Texas Company is entitled to receive one-half of the royalties thereafter collected by the Gasoline Products Company from its existing licensees, and a minimum sum per barrel for all oil cracked by its future licensees. The third contract gives to the Indiana Company one-half of all royalties thereafter paid by existing licensees of the New Jersey Company, and a similar minimum sum for each barrel treated by its future licensees, subject in the latter case to reduction if the royalties charged by the Indiana and Texas companies for their processes should be reduced.¹⁶ The alleged effect of these provisions is to enable the primary defendants, because of their monopoly

¹⁵ [n.6] Such agreements, varying in purpose, scope, and validity, are not uncommon. Conflict of patents in the automobile industry, and the early difficulties encountered with an alleged basic patent, led to an agreement in 1915, by which the members of the National Automobile Chamber of Commerce cross-licensed each other without royalty for the use of all patent improvements. Interchange of basic aviation patents was made during the [first] world war, at the suggestion of the National Advisory Committee for Aeronautics. Various patent exchanges existing in the radio industry are detailed in the Report of the Federal Trade Commission on the Radio Industry (1923).

¹⁶ [n.8] Payments received by the Texas and Indiana companies under the second and third contracts are divided equally by these companies pursuant to the terms of the first. That contract further provides that all royalties received after January 1, 1937, even from existing licensees, are to be divided equally between the two companies.

of patented cracking processes, to maintain royalty rates at the level established originally for the Indiana process.

The rate of royalties may, of course be a decisive factor in the cost of production. If combining patent owners effectively dominate an industry, the power to fix and maintain royalties is tantamount to the power to fix prices. Where domination exists, a pooling of competing process patents, or an exchange of licenses for the purpose of curtailing the manufacture and supply of an unpatented product, is beyond the privileges conferred by the patents and constitutes a violation of the Sherman Act. The lawful individual monopolies granted by the patent statutes cannot be unitedly exercised to restrain competition. But an agreement for cross-licensing and division of royalties violates the Act only when used to effect a monopoly, or to fix prices, or to impose otherwise an unreasonable restraint upon interstate commerce. In the case at bar, the primary defendants own competing patented processes for manufacturing an unpatented product which is sold in interstate commerce; and agreements concerning such processes are likely to engender the evils to which the Sherman Act was directed. We must, therefore, examine the evidence to ascertain the operation and effect of the challenged contracts.

“an agreement for cross-licensing and division of royalties violates the [Sherman] Act only when used to effect a monopoly, or to fix prices, or to impose otherwise an unreasonable restraint upon interstate commerce”

No monopoly, or restriction of competition, in the business of licensing patented cracking processes resulted from the execution of these agreements. Up to 1920 all cracking plants in the United States were either owned by the Indiana Company alone, or were operated under licenses from it. In 1924 and 1925, after the cross-licensing arrangements were in effect, the four primary defendants owned or licensed, in the aggregate, only 55 percent of the total cracking capacity, and the remainder was distributed among twenty-one independently owned cracking processes. This development and commercial expansion of competing processes is clear evidence that the contracts did not concentrate in the hands of the four primary defendants the licensing of patented processes for the production of cracked gasoline. Moreover, the record does not show that after the execution of the agreements there was a decrease of competition among them in licensing other refiners to use their respective processes.

No monopoly, or restriction of competition, in the production of either ordinary or cracked gasoline has been proved. The output of cracked gasoline in the years in question was about 26 percent of the total gasoline production. Ordinary or straight run gasoline is indistinguishable from cracked gasoline and the two are either mixed or sold interchangeably. Under these circumstances the primary defendants could not effectively control the supply or fix the price of cracked gasoline by virtue of their alleged monopoly of the cracking processes, unless they could control, through some means, the remainder of the total gasoline production from all sources. Proof of such control is lacking. Evidence of the total gasoline production by all methods, of each of the primary defendants and their licensees is either missing or unsatisfactory in character. The record does not accurately show even the total amount of cracked gasoline produced, or the production of each of the licensees, or competing refiners.

No monopoly, or restriction of competition, in the sale of gasoline has been proved. On the basis of testimony relating to the marketing of both cracked and ordinary gasoline, the master found that the defendants were in active competition among themselves and with other refiners; that both kinds of gasoline were refined and sold in large quantities by other companies; and that the primary defendants and their licensees neither individually or collectively controlled the market price or supply of any gasoline moving in interstate commerce. There is ample evidence to support these findings.

Thus it appears that no monopoly of any kind, or restraint of interstate commerce, has been effected either by means of the contracts or in some other way. In the absence of proof that the primary defendants had such control of the entire industry as would make effective the alleged domination of a part, it is difficult to see how they could by agreeing upon royalty rates control either the price or the supply of gasoline, or otherwise restrain competition. By virtue of their patents they had individually the right to determine who should use their respective processes or inventions and what the royalties for such use should be. To warrant an injunction which would invalidate the contracts here in question, and require either new arrangements or settlement of the conflicting claims by litigation, there must be a definite factual showing of illegality.



FIGURE 26.2 In this iconic 1904 illustration from *Puck*, the Standard Oil Company is depicted as a malignant octopus wrapping its tentacles around state and federal legislatures, the White House and representatives of the steel, copper and shipping industries.

Notes and Questions

1. *Elimination of blocking positions.* One of the major procompetitive benefits that the Supreme Court finds in the oil cracking pool is the elimination of blocking positions imposed by competitors' patents. That is, the four members of the cracking pool each held patents that could block the others from practicing the technology to its fullest potential, thus depriving the market of the most beneficial gasoline products. As the Court notes, "An interchange

of patent rights and a division of royalties according to the value attributed by the parties to their respective patent claims is frequently necessary if technical advancement is not to be blocked by threatened litigation.” Then, in footnote 8, the Court notes several other instances in which patent pools have facilitated the progress of technical advancement in industries such as automobiles, aviation and radio. How does a patent pool enable competitors to avoid each other’s “blocking” patents?¹⁷

2. *Onerous royalties and exclusion.* The government’s principal objection to the cracking pool revolved around the parties’ royalty arrangements, which it claimed to be onerous. Who was allegedly harmed by these royalty arrangements, and what effect did the government claim that they had on the market? How did the court respond to these allegations? Under what circumstances does the Court suggest that members of a patent pool might be required to limit the royalties that they charge?
3. *Price fixing by pooling.* Even if the pooling parties had no obligation to limit the royalties that they charged to others, the government still maintained that the parties’ royalty arrangement

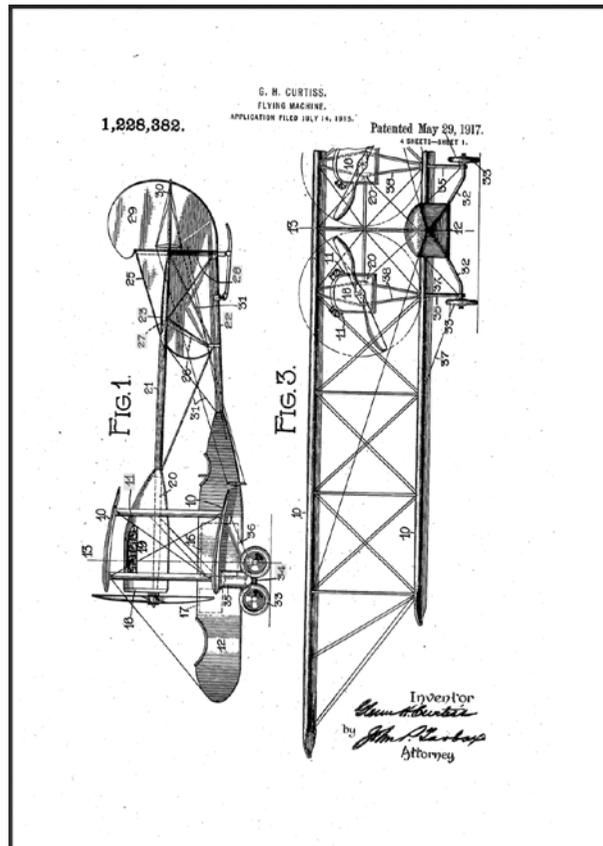


FIGURE 26.3 The US Navy pressured feuding aircraft manufacturers Curtiss and Wright to form an early aviation patent pool prior to US entry into World War I. The Manufacturers Aircraft Association (MAA) pool continued until it was disbanded by the Department of Justice in the 1970s.

¹⁷ See Richard J. Gilbert, *Antitrust for Patent Pools: A Century of Policy Evolution*, 2004 Stan. Tech. L. Rev. 3, § II.C (2004) (discussing *Standard Oil (Indiana)*).

was anticompetitive because it allowed them to maintain royalty rates at their original levels without the reductions that might result from competition. How did the court respond to this argument?

4. *The courts crack down on pools.* Despite the favorable view of patent pools offered by the Supreme Court in *Standard Oil (Indiana)*, judicial attitudes toward patent pools soured soon thereafter, following a general trend toward stricter application of the antitrust laws from the 1940s through 1970s.¹⁸ In cases from *Hartford-Empire Co. v. United States*, 323 U.S. 386 (1945) through *United States v. Mfrs. Aircraft Ass'n*, 1975 WL 405109 (S.D.N.Y. Nov. 12, 1975), arrangements among competitors involving patent pools were found to reduce competition and were ordered dissolved.¹⁹ Nevertheless, patent pools increased in popularity again beginning in the 1980s, as antitrust law again adopted a more lenient approach to IP arrangements.

Antitrust Guidelines for the Licensing of Intellectual Property US Department of Justice and Federal Trade Commission, 2017

5.5 Cross-Licensing and Pooling Arrangements²⁰

[Pooling] 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 ... pooling arrangements are often procompetitive.

[P]ooling arrangements can have anticompetitive effects in certain circumstances. For example, collective price or output restraints in pooling arrangements, such as the joint marketing of pooled intellectual property rights with collective price setting or coordinated output restrictions, may be deemed unlawful if they do not contribute to an efficiency-enhancing integration of economic activity among the participants. When ... pooling arrangements are mechanisms to accomplish naked price-fixing or market division, they are subject to challenge under the per se rule.

Pooling arrangements generally need not be open to all who would like to join. However, exclusion from ... pooling arrangements among parties that collectively possess market power may, under some circumstances, harm competition. In general, exclusion from a pooling ... arrangement among competing technologies is unlikely to have anticompetitive effects unless (1) excluded firms cannot effectively compete in the relevant market for the good incorporating the licensed technologies and (2) the pool participants collectively possess market power in the relevant market. If these circumstances exist, the Agencies will evaluate whether the arrangement's limitations on participation are reasonably related to the efficient development and exploitation of the pooled technologies and will assess the net effect of those limitations in the relevant market.

Another possible anticompetitive effect of pooling arrangements may occur if the arrangement deters or discourages participants from engaging in research and development, thus

¹⁸ This trend is also discussed in [Section 25.1](#).

¹⁹ See Gilbert, *supra* note 17, at § II.D, and Jorge L. Contreras, *A Brief History of FRAND: Analyzing Current Debates in Standard Setting and Antitrust Through a Historical Lens*, 80 *Antitrust L.J.* 39, 51–72 (2015).

²⁰ In this section the agencies also discuss cross-licensing arrangements, which are omitted from this excerpt for the sake of clarity. The 2017 Guidelines update an earlier set of Guidelines issued in 1995, with few amendments.

retarding innovation. For example, a pooling arrangement that requires members to grant licenses to each other for current and future technology at minimal cost may reduce the incentives of its members to engage in research and development because members of the pool have to share their successful research and development and each of the members can free ride on the accomplishments of other pool members. However, such an arrangement can have procompetitive benefits, for example, by exploiting economies of scale and integrating complementary capabilities of the pool members, (including the clearing of blocking positions), and is likely to cause competitive problems only when the arrangement includes a large fraction of the potential research and development in a research and development market.

Notes and Questions

1. *Members-only pools.* The DOJ and FTC are careful to say that “[p]ooling arrangements generally need not be open to all who would like to join.” That is, closed or members-only pools are permitted. But this concept has significant caveats. When might it be anticompetitive for a pool to exclude those who would like to join?
2. *Innovation effects.* The agencies are particularly concerned with pools that discourage future R&D and innovation. How might pooling IP rights discourage the members from pursuing R&D activities? How might pooling IP increase R&D activity among the members? How should an agency draw the line between pooling activity that promotes and harms innovation?

26.3 PATENT POOLS FOR STANDARDS

As discussed in [Chapter 20](#), many industry standards are developed through the collaboration of different parties, whether through a commercial agreement, a joint venture or a standards-development organization (SDO). Parties that contribute technology to a standardization effort sometimes obtain patents covering those technical contributions. In addition to licensing requirements imposed by SDOs and private licensing arrangements among standards developers, some standards have become the subject of patent pools.

MPEG-2 Business Review Letter

US Department of Justice Antitrust Division, June 26, 1997

Gerrard R. Beeney, Esq.
Sullivan & Cromwell
125 Broad Street
New York, NY 10004-2498

Dear Mr. Beeney:

This is in response to your request on behalf of the Trustees of Columbia University, Fujitsu Limited, General Instrument Corp., Lucent Technologies Inc., Matsushita Electric Industrial Co., Ltd., Mitsubishi Electric Corp., Philips Electronics N.V.,

Scientific-Atlanta, Inc., and Sony Corp. (collectively the “Licensors”), Cable Television Laboratories, Inc. (“CableLabs”), MPEG LA, L.L.C. (“MPEG LA”), and their affiliates for the issuance of a business review letter pursuant to the Department of Justice’s Business Review Procedure, 28 C.F.R. § 50.6. You have requested a statement of the Department of Justice’s antitrust enforcement intentions with respect to a proposed arrangement pursuant to which MPEG LA will offer a package license under the Licensors’ patents that are essential to compliance with the MPEG-2 compression technology standard, and distribute royalty income among the Licensors.

I. The Proposed Arrangement

A. The MPEG-2 Standard

The MPEG-2 standard has been approved as an international standard by the [Moving] Picture Experts Group of the International Organization for Standards (ISO) and the International Electrotechnical Commission (IEC) and by the International Telecommunication Union Telecommunication Standardization Sector (ITU-T).

The video and systems parts of the MPEG-2 standard will be applied in many different products and services in which video information is stored and/or transmitted, including cable, satellite and broadcast television, digital video disks, and telecommunications. However, compliance with the standards will infringe on numerous patents owned by many different entities. Consequently, a number of firms that participated in the development of the standard formed the MPEG-2 Intellectual Property Working Group (“IP Working Group”) to address intellectual property issues raised by the proposed standard. Among other things, the IP Working Group sponsored a search for the patents that covered the technology essential to compliance with the proposed standard and explored the creation of a mechanism to convey those essential intellectual property rights to MPEG-2 users. That exploration led ultimately to an agreement among the Licensors, CableLabs and Baryn S. Futa establishing MPEG LA as a Delaware Limited Liability Company.

Each of the Licensors owns at least one patent that the IP Working Group’s patent search identified as essential to compliance with the video and/or systems parts of the MPEG-2 standard (hereinafter “MPEG-2 Essential Patent” or “Essential Patent”). Among them, they account for a total of 27 Essential Patents, which are most, but not all, of the Essential Patents. Pursuant to a series of four proposed agreements, the Licensors will combine their Essential Patents into a single portfolio (the “Portfolio”) in the hands of a common licensing administrator that would grant licenses under the Portfolio on a non-discriminatory basis, collect royalties, and distribute them among the Licensors pursuant to a pro-rata allocation based on each Licensor’s proportionate share of the total number of Portfolio patents in the countries in which a particular royalty-bearing product is made and sold.

This arrangement is embodied in a network of four proposed agreements: (1) an Agreement Among Licensors, in which the Licensors commit to license their MPEG-2 Essential Patents jointly through a common License Administrator and agree on basic items including the Portfolio license’s authorized fields of use, the amount and allocation of royalties, and procedures for adding patents to, and deleting them from, the Portfolio;

(2) a Licensing Administrator Agreement between the Licensors and MPEG LA, pursuant to which MPEG LA assumes the tasks of licensing the Portfolio to MPEG-2 users and collecting and distributing royalty income; (3) a license from each Licensor to MPEG LA for the purpose of granting the Portfolio License; and (4) the Portfolio license itself.

B. MPEG LA

Pursuant to the Licensing Administrator Agreement, MPEG LA will: (1) grant a worldwide, nonexclusive sublicense under the Portfolio to make, use and sell MPEG-2 products “to each and every potential Licensee who requests an MPEG-2 Patent Portfolio License and shall not discriminate among potential licensees”; (2) solicit Portfolio licensees; (3) enforce and terminate Portfolio license agreements; and (4) collect and distribute royalties. For this purpose, each MPEG-2 Licensor will grant MPEG LA a nonexclusive license under its Essential Patents, while retaining the right to license them independently for any purpose, including for making MPEG-2-compliant products.

The Licensing Administrator Agreement places the day-to-day conduct of MPEG LA’s business, including its licensing activities, under the sole control of Futa and his staff. The other owners retain some control, however, over “major decisions,” including approval of budgets and annual financial statements, extraordinary expenditures, entry into new businesses, mergers and acquisitions, and the sale or dissolution of the corporation.

C. The MPEG-2 Portfolio

As noted above, the Portfolio initially will consist of 27 patents, which constitute most, but not all, Essential Patents. These 27 patents were identified in a search carried out by an independent patent expert under the sponsorship of the IP Working Group. Once the MPEG-2 standard was largely in place, the IP Working Group issued a public call for the submission of patents that might be infringed by compliance with the MPEG-2 standard. CableLabs, whose COO Futa was an active participant in the IP Working Group, retained an independent patent expert familiar with the standard and the relevant technology to review the submissions. In all, the expert and his assistant reviewed approximately 8,000 United States patent abstracts and studied about 800 patents belonging to over 100 different patentees or assignees. No submission was refused, and no entity or person that was identified as having an essential patent was in any way excluded from the effort in forming the proposed joint licensing program.

The proposed agreement among the Licensors creates a continuing role for an independent expert as an arbiter of essentiality. It requires the retention of an independent expert to review patents submitted to any of the Licensors for inclusion in the Portfolio and to review any Portfolio patent which an MPEG-2 Licensor has concluded is not essential or as to which anyone has claimed a good-faith belief of non-essentiality. In both cases, the Licensors are bound by the expert’s opinion.

The Portfolio’s composition may also change for other reasons. A patent will be deleted promptly from the Portfolio upon a final adjudication of invalidity or unenforceability by a tribunal of competent jurisdiction in the country of its issuance. The expiration of a Licensor’s last-to-expire Portfolio patent, or a final adjudication of invalidity or unenforceability of its last remaining Portfolio patent, terminates the Licensor’s participation in the Portfolio and the Agreement Among Licensors. Each MPEG-2 Licensor may terminate

its participation in the Portfolio license on 30 days' notice; however, all existing Portfolio licenses will remain intact.

D. The Portfolio License

The planned license from MPEG LA to users of the MPEG-2 standards is a worldwide, nonexclusive, nonsublicensable license under the Portfolio patents for the manufacture, sale, and in most cases, use of: (1) products and software designed to encode and/or decode video information in accordance with the MPEG-2 standard; (2) products and software designed to generate MPEG-2 program and transport bitstreams; and (3) so-called "intermediate products," such as integrated circuit chips, used in the aforementioned products and software.

The Portfolio license expires January 1, 2000, but is renewable at the licensee's option for a period of not less than five years, subject to "reasonable amendment of its terms and conditions." That "reasonable amendment" may not, however, increase royalties by more than 25%. Each Portfolio licensee may terminate its license on 30 days' written notice. The per-unit royalties are those agreed upon in the Agreement Among Licensors, but they are subject to reduction pursuant to a "most-favored-nation" clause. The royalty obligations are predicated on actual use of one or more of the licensed patents in the unit for which the royalty is assessed. The Portfolio license imposes no obligation on the licensee to use only the licensed patents and explicitly leaves the licensee free independently to develop "competitive video products or video services which do not comply with the MPEG-2 Standard."

The Portfolio license will list the Portfolio patents in an attachment. It also explicitly addresses the licensee's ability, and possible need, to obtain Essential Patent rights elsewhere. The Portfolio license states that each Portfolio patent is also available for licensing independently from the MPEG-2 Licensor that had licensed it to MPEG LA and that the license may not convey rights to all Essential Patents.

The license's grantback provision requires the licensee to grant any of the Licensors and other Portfolio licensees a nonexclusive worldwide license or sublicense, on fair and reasonable terms and conditions, on any Essential Patent that it has the right to license or sublicense. The Licensors' per-patent share of royalties is the basis for determining a fair and reasonable royalty for the grantback. Alternatively, a licensee that controls an Essential Patent may choose to become an MPEG-2 licensor and add its patent to the Portfolio. Failure to honor the grantback requirement constitutes a material breach of the license, giving MPEG LA the right to terminate the license unless the licensee has cured the breach within 60 days after MPEG LA sends it notice of the breach.

A separate provision allows for partial termination of a licensee's Portfolio license as to a particular MPEG-2 Licensor's patents. Pursuant to [Section 6.3](#), an MPEG-2 Licensor may direct MPEG LA to withdraw its patents from the Portfolio license if the licensee has (a) brought a lawsuit or other proceeding against the MPEG-2 Licensor for infringement of an Essential Patent or an MPEG-2 Related Patent ("Related Patent") and (b) refused to grant the MPEG-2 Licensor a license under the Essential Patent or MPEG-2 Related Patent on fair and reasonable terms and conditions. As with the grantback, the per-patent share of Portfolio license royalties is the basis for determining a fair and reasonable royalty for the licensee's patent. Upon the withdrawal of the MPEG-2 Licensor's patents from the licensee's Portfolio license, the licensee may seek a license on the withdrawn patents directly



FIGURE 26.4 Patents covering many important standards today are licensed through patent pools.

from the MPEG-2 Licensor, which remains subject to its undertaking to the ISO and/or the ITU-T to license on fair and reasonable terms and conditions.

II. Analysis

A. The Patent Pool in General

An aggregation of patent rights for the purpose of joint package licensing, commonly called a patent pool, may provide competitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation. By promoting the dissemination of technology, patent pools can be procompetitive. Nevertheless, some patent pools can restrict competition, whether among intellectual property rights within the pool or downstream products incorporating the pooled patents or in innovation among parties to the pool.

A starting point for an antitrust analysis of any patent pool is an inquiry into the validity of the patents and their relationship to each other. A licensing scheme premised on invalid or expired intellectual property rights will not withstand antitrust scrutiny. And a patent pool that aggregates competitive technologies and sets a single price for them would raise serious competitive concerns. On the other hand, a combination of complementary intellectual property rights, especially ones that block the application for which they are jointly licensed, can be an efficient and procompetitive method of disseminating those rights to would-be users.

Based on your representations to us about the complementary nature of the patents to be included in the Portfolio, it appears that the Portfolio is a procompetitive aggregation of intellectual property. The Portfolio combines patents that an independent expert has determined to be essential to compliance with the MPEG-2 standard; there is no technical alternative to any of the Portfolio patents within the standard. Moreover, each Portfolio patent is useful for MPEG-2 products only in conjunction with the others. The limitation of the Portfolio to technically essential patents, as opposed to merely advantageous ones, helps ensure that the Portfolio patents are not competitive with each other and that the Portfolio license does not, by bundling in non-essential patents, foreclose the competitive implementation options that the MPEG-2 standard has expressly left open.

The continuing role of an independent expert to assess essentiality is an especially effective guarantor that the Portfolio patents are complements, not substitutes. The relevant provisions of the Agreement Among Licensors appear well designed to ensure that the expert will be called in whenever a legitimate question is raised about whether or not a particular patent belongs in the Portfolio; in particular, they seem designed to reduce the likelihood that the Licensors might act concertedly to keep invalid or non-essential patents in the Portfolio or to exclude other essential patents from admission to the Portfolio.

B. Specific Terms of the Agreements

Despite the potential procompetitive effects of the Portfolio license, we would be concerned if any specific terms of any of the contemplated agreements seemed likely to restrain competition. Such possible concerns might include the likelihood that the Licensors could use the Portfolio license as a vehicle to disadvantage competitors in downstream product markets; to collude on prices outside the scope of the Portfolio license, such as downstream MPEG-2 products; or to impair technology or innovation competition, either within the MPEG-2 standard or from rival compression technologies. It appears, however, that the proposed arrangement will not raise any significant competitive concerns.

1. EFFECT ON RIVALS

There does not appear to be any potential for use of the Portfolio license to disadvantage particular licensees. The Agreement Among Licensors commits the Licensors to nondiscriminatory Portfolio licensing, and the Licensing Administrator agreement both vests sole licensing authority in MPEG LA and explicitly requires MPEG LA to offer the Portfolio license on the same terms and conditions to all would-be licensees. Thus, maverick competitors and upstart industries will have access to the Portfolio on the same terms as all other licensees. The Portfolio license's "most-favored-nation" clause ensures further against any attempt to discriminate on royalty rates.

Although it offers the Portfolio patents only as a package, the Portfolio license does not appear to be an illegal tying agreement. The conditioning of a license for one intellectual property right on the license of a second such right could be a concern where its effect was to foreclose competition from technological alternatives to the second. In this instance, however, the essentiality of the patents – determined by the independent expert – means that there is no technological alternative to any of them and that the Portfolio license will not require licensees to accept or use any patent that is merely one way of implementing the MPEG-2 standard, to the detriment of competition. Moreover, although a licensee cannot obtain fewer than all the Portfolio patents from MPEG LA, the Portfolio license informs potential licensees that licenses on all the Portfolio patents are available individually from their owners or assignees. While the independent expert mechanism should ensure that the Portfolio will never contain any unnecessary patents, the independent availability of each Portfolio patent is a valuable failsafe. The list of Portfolio patents attached to the Portfolio license will provide licensees with information they need to assess the merits of the Portfolio license.

2. FACILITATION OF COLLUSION

From what you have told us, there does not appear to be anything in the proposed agreements that is likely to facilitate collusion among Licensors or licensees in any market. Although

MPEG LA is authorized to audit licensees, confidentiality provisions prohibit it from transmitting competitively sensitive information among the Licensors or other licensees. Further, since the contemplated royalty rates are likely to constitute a tiny fraction of MPEG-2 products' prices, at least in the near term, it appears highly unlikely that the royalty rate could be used during that period as a device to coordinate the prices of downstream products.

3. EFFECT ON INNOVATION

It further appears that nothing in the arrangement imposes any anticompetitive restraint, either explicitly or implicitly, on the development of rival products and technologies. Nothing in the Agreement Among Licensors discourages, either through outright prohibition or economic incentives, any Licensor from developing or supporting a rival standard. As noted above, the Portfolio license explicitly leaves licensees free independently to make products that do not comply with the MPEG-2 standard and premises royalty obligations on actual use of at least one Portfolio patent. Since the Portfolio includes only Essential Patents, the licensee's manufacture, use or sale of MPEG-2 products will necessarily infringe the Portfolio patents. By weeding out non-essential patents from the Portfolio, the independent-expert mechanism helps ensure that the licensees will not have to pay royalties for making MPEG-2 products that do not employ the licensed patents.

The license's initial duration, to January 1, 2000, does not present any competitive concern. While the open-ended renewal term of "no less than five years" holds open the possibility of a perpetual license, its competitive impact will depend substantially on whether any of the "reasonable amendments" made at that time increase the license's exclusionary impact. While the term "reasonable" is the Portfolio license's only limitation on the Licensors' ability to impose onerous non-royalty terms on licensees at renewal time, the 25% cap on royalty increases and the "most-favored-nation" clause appear to constrain the Licensors' ability to use royalties to exploit any locked-in installed base among its licensees.

Nor does the Portfolio license's grantback clause appear anticompetitive. Its scope, like that of the license itself, is limited to Essential Patents. It does not extend to mere implementations of the standard or even to improvements on the essential patents. Rather, the grantback simply obliges licensees that control an Essential Patent to make it available to all, on a nonexclusive basis, at a fair and reasonable royalty, just like the Portfolio patents. This will mean that any firm that wishes to take advantage of the cost savings afforded by the Portfolio license cannot hold its own essential patents back from other would-be manufacturers of MPEG-2 products. While easing, though not altogether clearing up, the holdout problem, the grantback should not create any disincentive among licensees to innovate. Since the grantback extends only to MPEG-2 Essential Patents, it is unlikely that there is any significant innovation left to be done that the grantback could discourage. The grantback provision is likely simply to bring other Essential Patents into the Portfolio, thereby limiting holdouts' ability to exact a supracompetitive toll from Portfolio licensees and further lowering licensees' costs in assembling the patent rights essential to their compliance with the MPEG-2 standard.

In different circumstances, the right of partial termination set forth in [Section 6.3](#) of the Portfolio license could raise difficult competition issues. That section provides that, on instruction from any Licensor, MPEG LA ... shall withdraw from a particular licensee's portfolio license that Licensor's patent or patents if the licensee has sued the Licensor for infringement of an Essential Patent or a Related Patent and refused to grant a license on the allegedly infringed patent on "fair and reasonable terms."

The partial termination right may enable Licensors to obtain licenses on Related Patents at royalty levels below what they would have been in a competitive market. Consequently, the partial termination right may dampen licensees' incentives to invest in research and development of MPEG-2 implementations, undercutting somewhat the benefits of the openness of the MPEG-2 standard and the prospects for improvements on the Essential Patents.

This impact on the incentive to innovate within the MPEG-2 standard would be of particular concern were the partial termination right designed to benefit all portfolio licensees. In that event, the partial termination right would function much like a compulsory grantback into the Portfolio. Licensees that owned Related Patents would not be able to choose among and negotiate freely with potential users of their inventions. The licensees' potential return from their R&D investments could be curtailed drastically, and the corresponding impact on their incentive to innovate could be significant.

Here, however, the partial termination right, unlike the grantback, protects only the Licensors. Other portfolio licensees have no right under the pool license to practice fellow licensees' inventions. And the Licensors are likely to be restrained in exercising their partial termination rights because the development of Related Patents will enhance MPEG-2 and, thus, the value of the Portfolio. The long-term interest of the Licensors is generally to encourage innovation in Related Patents, not to stifle it.

Moreover, the partial termination right may have procompetitive effects to the extent that it functions as a nonexclusive grantback requirement on licensees' Related Patents. It could allow Licensors and licensees to share the risk and rewards of supporting and improving the MPEG-2 standard by enabling Licensors to capture some of the value they have added to licensees' Related Patents by creating and licensing the Portfolio. In effect, the partial termination right may enable Licensors to realize greater returns on the Portfolio license from the licensees that enjoy greater benefits from the license, while maintaining the Portfolio royalty at a level low enough to attract licensees that may value it less. This in turn could lead to more efficient exploitation of the Portfolio technology.

Therefore, in light of both its potentially significant procompetitive effects and the limited potential harm it poses to Portfolio licensees' incentives to innovate, the partial-termination clause appears on balance unlikely to be anticompetitive.

III. Conclusion

Like many joint licensing arrangements, the agreements you have described for the licensing of MPEG-2 Essential Patents are likely to provide significant cost savings to Licensors and licensees alike, substantially reducing the time and expense that would otherwise be required to disseminate the rights to each MPEG-2 Essential Patent to each would-be licensee. Moreover, the proposed agreements that will govern the licensing arrangement have features designed to enhance the usual procompetitive effects and mitigate potential anticompetitive dangers. The limitation of the Portfolio to technically essential patents and the use of an independent expert to be the arbiter of that limitation reduces the risk that the patent pool will be used to eliminate rivalry between potentially competing technologies. Potential licensees will be aided by the provision of a clear list of the Portfolio patents, the availability of the Portfolio patents independent of the Portfolio, and the warning that the Portfolio may not contain all Essential Patents. The conditioning of licensee royalty liability on actual use of the Portfolio patents, the clearly stated freedom of licensees to

develop and use alternative technologies, and the imposition of obligations on licensees' own patent rights that do not vitiate licensees' incentives to innovate, all serve to protect competition in the development and use of both improvements on, and alternatives to, MPEG-2 technology.

For these reasons, the Department is not presently inclined to initiate antitrust enforcement action against the conduct you have described. This letter, however, expresses the Department's current enforcement intention. In accordance with our normal practices, the Department reserves the right to bring an enforcement action in the future if the actual operation of the proposed conduct proves to be anticompetitive in purpose or effect.

Sincerely,
Joel I. Klein, Assistant Attorney General

KEY DESIGN FEATURES FOR STANDARDS PATENT POOLS

The DOJ's MPEG-2 letter formalized a list of features that has come to be viewed as an industry best practice for the design of patent pools. While, strictly speaking, these features are not legally required, they appear to have influenced the DOJ's favorable evaluation of the MPEG-2 pool and several other pools that it has evaluated since. These features include the following:

1. **Transparency** – the pool's royalty rates and terms are publicly disclosed.
2. **Nondiscrimination** – the pool offers the same rates and terms to all similarly situated licensees, and will grant a license to any applicant that accepts those terms.
3. **Independence** – pool members are permitted to license their patents independently of the pool.
4. **Voluntariness** – pool members and licensees are not required to use the standard(s) covered by the pool in their products.
5. **Essentiality** – the pool will assess each pooled patent for essentiality to the standard.
6. **Complementarity** – the pool will not cover technologies that compete with or can be viewed as substitutes for one another.

Notes and Questions

1. *MPEG grew*. When the DOJ issued its business review letter on the MPEG-2 pool, the pool contained twenty-seven patents. At its peak in the early 2010s, the MPEG-2 pool contained over 1,000 patents.²¹ Do you think that the guidelines outlined by the DOJ in its business review letter apply equally to a pool of twenty-seven versus 1,000+ patents? Why or why not?
2. *Fair and reasonable royalties*. Recall the Supreme Court's conclusion in *Standard Oil (Indiana)* that "Unless the industry is dominated, or interstate commerce directly restrained, the Sherman Act does not require cross-licensing patentees to license at reasonable rates others engaged in interstate commerce." How does this holding square with the FRAND obligations that are often imposed by SDOs on participants in standards development?

²¹ The last of the MPEG-2 pooled patents is believed to have expired in 2018.

When a pool is formed around patents that are essential to a particular standard that is subject to a FRAND commitment, should that commitment bind the pool?

3. *Nondiscrimination.* The DOJ notes that the MPEG-2 pool will license its patents on a “non-discriminatory” basis and “explicitly requires MPEG LA to offer the Portfolio license on the same terms and conditions to all would-be licensees.” Why is this requirement important from a competition standpoint? How does the pool’s “most-favored-nation” clause further prevent any attempt to discriminate on royalty rates? The most-favored and nondiscrimination provisions of the pool agreement ensure that all licensees are treated in a consistent manner, but what if everyone is treated equally unfairly?

Nondiscriminatory licensing does not mean, of course, that every licensee must pay exactly the same amount to a pool. Many patent royalties are based on a percentage of the licensee’s revenue, meaning that licensees who sell more licensed products pay more. Some pools charge different rates based on the type of product that the licensee produces. For example, in 2016, for a DVD video player, the DVD6C pool charged the greater of (1) 4 percent of the net selling price (up to a maximum of \$8 per player) or (2) \$4 per player; while for a DVD disc, the pool charged \$0.05 per disc.²² Do you see any competitive risks in a patent pool charging different rates based on the types of products to be manufactured? What about differences based on the size or sales volume of the licensee?

DVD players and DVD discs are fundamentally different products, even if they are intended to work together. Maybe this difference justifies differential pricing of pooled patents. But can differential pricing be justified when the same product (e.g., a wireless communications chip) is sold for use in different applications (e.g., an electric meter versus a smartphone versus an automobile versus a passenger airplane)? On one hand, a chip is a chip. But on the other hand, the value that such a chip brings to different applications may differ appreciably. Is it nondiscriminatory to charge users of a patented article different prices based on the value of the larger product in which they will incorporate the article?

4. *Independent licensing.* The DOJ notes that in the MPEG-2 pool, “each Portfolio patent is also available for licensing independently from the MPEG-2 Licensor that ... licensed it to MPEG LA.” The DOJ has consistently emphasized the procompetitive benefits of allowing pool members to license their patents independently of the pool. It explained in 2013,

Having the option to license independently of a pool can mitigate the effects of potential market power. For example, independent licensing can encourage competition and create incentives for innovators to invent around some of the patents in a pool. Efficiencies from licensing outside of a pool are more likely when the transaction costs of negotiating with multiple licensors are not prohibitive.²³

As noted by Layne-Farrar and Lerner, “most modern pool agreements allow for independent licensing by pool members outside of the pool.”²⁴ Nevertheless, not all pools have followed this pattern. In 1998, the FTC issued a complaint against two suppliers of patented photorefractive keratectomy (PRK) (eye surgery) equipment. In 1992, the suppliers, VISX, Inc. and Summit Technology, Inc., formed a partnership called Pillar Point Partners (PPP), in

²² DVD6C Licensing Group, Royalty Rates under DVD6C Licensing Program, www.dvd6cla.com/royaltyrate.html.

²³ Letter from William J. Baer, Assistant Attorney General to Garrard R. Beene, Sullivan & Cromwell, LLP, dated March 26, 2013 [IPXI Letter].

²⁴ Layne-Farrar & Lerner, *supra* note 10, at 296.



FIGURE 26.5 Two manufacturers of PRK equipment for laser eye surgery pooled their patents in an arrangement challenged by the FTC.

which they pooled their PRK patents. The agreement provided that PPP would have the exclusive right to license the parties' respective PRK patents to third parties, and that either party could veto the decision to grant such a license. Between 1992 and 1998, PPP granted no licenses to third parties. The FTC alleged that the pooling arrangement had the effect of eliminating competition between VISX and Summit in the market for PRK technology licensing. In settling the FTC's claims, the parties agreed to dissolve PPP and not to interfere with one another's licensing of their PRK technology.²⁵

5. *Voluntary adoption.* In its MPEG-2 letter, the DOJ notes that the pool "explicitly leaves licensees free independently to make products that do not comply with the MPEG-2 standard." In other words, licensees are free to make products that comply with MPEG-2 standards or not, and are also free to adopt and use standards that compete with MPEG-2. Why is this freedom important?
6. *Grantback.* The MPEG-2 pool requires licensees to grant any of the pool licensors a non-exclusive worldwide license to any essential patent that it has the right to license on fair and reasonable terms. In their 2017 *Antitrust Guidelines for the Licensing of IP*, the DOJ and FTC analyze grantback clauses as follows:

The Agencies will evaluate a grantback provision under the rule of reason, considering its likely effects in light of the overall structure of the licensing arrangement and conditions in the relevant markets. An important factor in the Agencies' analysis of a grantback will be whether the licensor has market power in a relevant technology or research and development market. If the Agencies determine that a particular grantback provision is likely to reduce significantly licensees' incentives to invest in improving the licensed technology, the Agencies will consider the extent to which the grantback provision has offsetting procompetitive effects, such as (1) promoting dissemination of licensees' improvements to the licensed technology, (2) increasing the licensors' incentives to disseminate the licensed technology,

²⁵ *In Re Summit Tech. Inc. and VISX, Inc.*, FTC Docket No. 9286, Complaint (filed Mar. 24, 1998).

or (3) otherwise increasing competition and output in a relevant technology or research and development market. In addition, the Agencies will consider the extent to which grantback provisions in the relevant markets generally increase licensors' incentives to innovate in the first place.²⁶

How would these considerations affect the agencies' evaluation of the MPEG-2 pool? Do you think that the pool had market power in 1997? What about in 2013? How important is it that the pool permits licensees to charge a reasonable royalty for their essential patents, rather than requiring grantback licenses to be free of charge? Why does the DOJ conclude that "the grantback should not create any disincentive among licensees to innovate"?

7. *Defensive termination.* Another feature of the MPEG-2 license agreement is a "partial termination" right, which enables a pool member to cause the pool to terminate a licensee's license under any of the member's patents if that licensee has sued the licensor for infringement of an essential patent and has refused to grant the pool member a license on fair and reasonable terms. In effect, the partial termination right is a backstop to the licensee's grantback obligation. If it fails to grant a FRAND license to a pool member, that member may withdraw those patents that the pool has licensed to the intransigent licensee. For this reason, clauses of this nature are often referred to as "defensive" termination clauses. Why do you think that a defensive termination clause is needed in addition to the grantback clause discussed above? Would a defensive termination clause be sufficient without the grantback?

In assessing the MPEG-2 pool, the DOJ reasons that "[i]n different circumstances, the right of partial termination ... could raise difficult competition issues." In particular, the DOJ expresses concern that "[t]he partial termination right may enable Licensors to obtain licenses on Related Patents at royalty levels below what they would have been in a competitive market. Consequently, the partial termination right may dampen licensees' incentives to invest in research and development of MPEG-2 implementations." Why are these concerns alleviated under the licensing framework proposed by the MPEG-2 pool? Would the number of market participants in the pool matter to this analysis?

8. *Essentiality.* One of the key features of the MPEG-2 pool, and most patent pools today, is that "The Portfolio combines patents that an independent expert has determined to be essential to compliance with the MPEG-2 standard." In effect, only "essential" patents may be included in the pool. Why is it important that non-essential patents be excluded from the pool? Why is an independent-expert evaluation desirable?

Of course, independent patent evaluation does not come cheap. Professors Robert Merges and Michael Mattioli determined that the organizer of the MPEG Audio pool (unrelated to the MPEG-2 pool) paid attorney fees of approximately \$7,500 per patent evaluated for essentiality. With around 700 patents, this resulted in a price tag of approximately \$5,250,000.²⁷ Is this cost worth it? Is there a less expensive way to determine essentiality of patents covering complex technology standards?

Compare the approach taken by SDOs as described in [Section 20.1](#) (Notes 1 and 3). SDOs permit their participants to self-declare which patents are essential to their standards. There

²⁶ US DOJ & FTC, *Antitrust Guidelines for the Licensing of Intellectual Property*, § 5.6, 33–34 (2017).

²⁷ Robert P. Merges & Michael Mattioli, *Measuring the Costs and Benefits of Patent Pools*, 78 *Ohio St. L.J.* 281, 306 (2017). See also Jorge L. Contreras, *Essentiality and Standards-Essential Patents* in *Cambridge Handbook of Technical Standardization Law: Competition, Antitrust, and Patents* 209, 215–16 (Jorge L. Contreras, ed., Cambridge Univ. Press, 2017) (discussing costs and benefits of validating essentiality).

is no cost to the SDO, but there is also no verification whether those patents are essential or not. Independent studies have estimated that so-called over-declaration is rampant at SDOs, as patent holders have little incentive *not* to declare any particular patent as essential to a standard.²⁸ Which approach to patent essentiality do you think is better: that of patent pools, which spend large sums independently evaluating each patent, or of SDOs, which spend nothing, but get a less accurate view of whether or not patents are essential to their standards?

9. *Complementarity*. Closely related to the issue of essentiality is that of complementarity. From an antitrust perspective, patents included in a pool should be essential to practice one *particular* standard, not a variety of different standards that could act as substitutes for one another. In other words, patents within a pool should be complementary, but not substitutes. The theory behind this important requirement is the subject of [Section 26.4](#).
10. *Beyond standards*. While many of the recent DOJ business review letters concerning patent pools have revolved around technical standards, pools continue to be formed and planned around other technologies with fragmented IP ownership. Returning to the world of biotechnology, one of these areas is CRISPR gene-editing technology. Foundational patents relating to CRISPR are held by the University of California and the Broad Institute (a joint venture of Harvard and MIT), as well as several foreign universities. In 2017, MPEG LA, the creator of the MPEG-2 patent pool, proposed a pool relating to CRISPR patents. So far, the Broad Institute has indicated its interest in joining:

[J]ust as MPEG LA's pioneering pool license model helped assure the success of digital video in the consumer electronics industry with convenient one-stop access to relevant intellectual property, now CRISPR can benefit from MPEG LA's patent pool approach with an impact far more profound.

MPEG LA's CRISPR Cas-9 Joint Licensing Platform will give technology owners the opportunity to share in mass-market royalties from their CRISPR technology while enjoying, with other developers, broad access to other important CRISPR technologies. As a voluntary market-based business solution to the patent access problem tailored to balance, incentivize and resolve competing market and public interests, an independently managed patent pool is the best hope for unleashing CRISPR's full potential for the benefit of humanity.²⁹

Some commentators have questioned the viability of a CRISPR patent pool as proposed by MPEG LA:

We believe that the lack of commercial patent pooling and FRAND licensing in the biopharma sector is due to the high cost of product development, clinical trials, and regulatory approval required to market new drugs and treatments. In many cases, private-sector firms that incur these costs will be profitable (and viable) only if they can leverage the market exclusivity afforded by patent rights for a limited period. Indeed, this is an animating concern behind much of the lengthy and costly development of cancer therapeutics today. Because patent pools do not lend themselves to exclusive licensing, even when commercially desirable in narrow fields, we question whether patent pooling for CRISPR would ultimately be successful.³⁰

Which view do you find to be more persuasive?

²⁸ See Contreras, *Essentiality*, *supra* note 27, at 222–25.

²⁹ MPEG LA, CRISPR, www.mpegla.com/crispr/initiative.

³⁰ Jorge L. Contreras & Jacob S. Sherkow, *Patent Pools for CRISPR Technology: Response*, 355 *Science* 1274 (2017).

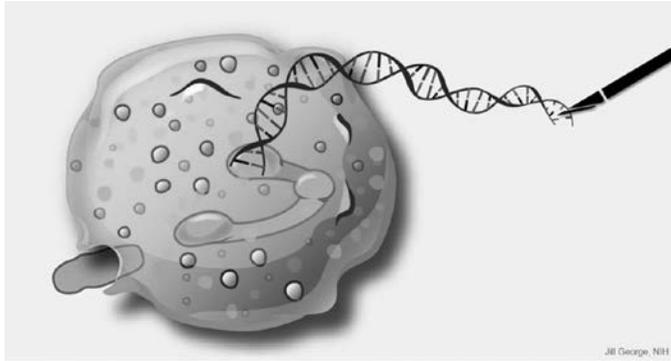


FIGURE 26.6 Can patent pools promote the broad accessibility of CRISPR gene-editing technology?

26.4 COMPLEMENTARITY AND ESSENTIALITY IN PATENT POOLS

As noted in the DOJ's MPEG-2 letter, the limitation of the MPEG-2 pool to patents essential to the MPEG-2 standard, and excluding patents that covered substitute technologies, was an important factor in finding that the pool would not result in anticompetitive effects. This rationale has been adopted in every subsequent pool that has been reviewed by the DOJ,³¹ and was taken to its most extreme point in the Third Generation Patent Platform Partnership (3GPP) pooling structure, which involved five different competing standards for third-generation wireless communications.

3GPP Business Review Letter

US Department of Justice Antitrust Division, November 12, 2002

Ky P. Ewing, Esq.
 Vinson & Elkins L.L.P.
 1455 Pennsylvania Avenue, N.W.
 Washington, D.C. 20004-1008

Dear Mr. Ewing:

This letter responds to your request on behalf of the 3G Patent Platform Partnership ("Partnership") for the issuance of a business review letter pursuant to the Department of Justice Business Review Procedure, 28 C.F.R. § 50.6.

I. The IMT-2000 Family of 3G Standards

There are two generations of wireless communications systems in use today in the United States and other nations. The first uses analog transmission technology, while the second generation ("2G") uses various digital transmission technologies and makes possible the provision of some additional services along with voice telephony. The third generation

³¹ European competition law authorities take an even stronger view of this principle, stating that "The creation of a technology pool ... composed solely or predominantly of substitute technologies amounts to a price fixing cartel." Guidelines on the Application of Article 101 of the Treaty on the Functioning of the European Union to Technology Transfer Agreements (2014/C 89/03) of Mar. 28, 2014, ¶ 245.

("3G") of wireless communication systems, also involving the use of digital transmission technologies, will enable not only wireless voice telephony, but also the transmission of data at rates much higher than those of the second generation systems, making additional applications possible.

As with the second generation, there will not be a single global 3G radio interface technology. Pursuant to its International Mobile Telephony-2000 ("IMT-2000") project, the International Telecommunication Union ("ITU") has approved five different radio interface technologies for use in 3G systems, which determine how a signal travels over the air from a user's handset to an operator's terrestrial network:

- IMT-Multicarrier ("IMT-MC"), also known as CDMA-2000
- IMT-Direct Spread ("IMT-DS"), also known as Wideband-CDMA ("W-CDMA")
- IMT-Time Code ("IMT-TC"), also known as TD-CDMA₄
- IMT-Single Carrier ("IMT-SC"), also known as UWC-136 or TDMA-EDGE
- IMT-Frequency Time ("IMT-FT"), also known as Digital Enhanced Cordless Telecommunications ("DECT")

Each 3G radio interface technology has evolved from one or more of the 2G technologies. W-CDMA, for example, is a descendant of the Global Standard for Mobile Communications ("GSM"), the 2G technology mandated throughout Europe and used in some other areas in the world as well. CDMA-2000, in contrast, has evolved out of IS-95 Code Division Multiple Access ("CDMA"), one of the two most widely used 2G technologies in the U.S., while TDMAEDGE builds on IS-136 Time Division Multiple Access ("TDMA"), the other most widely used 2G technology in the U.S. By design, each 3G technology will afford a degree of backwards compatibility with networks employing the 2G technology from which it evolved. While an operator's choice of 2G technology is likely to be a significant factor in its choice of 3G technology, it does not appear to be determinative. Several substantial wireless operators in various countries, including the United States, have indicated that they are considering a 3G radio interface technology other than the one evolving most directly from the technology in the operator's 2G installed base. Moreover, since many nations are awarding more licenses for 3G service than they had for 2G or are making additional spectrum available that could be acquired by other operators, there will likely be new entrants into 3G service unconstrained by installed base considerations. The alternatives available to an operator for its 3G radio interface standard could constrain prices or other terms offered by the owners of 3G patents, to the extent that individual patents are not essential for all five standards.

As with most standardized technology, utilization of any of the interface standards may implicate the patent rights of numerous entities. As of June 2000, a total of 45 firms had claimed ownership of at least one patent essential to compliance with one or more of the 3G radio interface standards to at least one standards-related body. Consequently, it appears likely that any operator of a 3G wireless system and any manufacturer of 3G equipment, whether handsets or network infrastructure, regardless of the particular radio interface technology it adopts, will need to acquire licenses from multiple patent holders, and for some standards may need licenses for a large number of patents. Each such patent owner could exclude an operator or manufacturer from the use of a 3G technology by denying it a license.

II. The Proposed 3G Patent Platform Arrangement

The 3G Patent Platform serves several distinct functions, including identifying, evaluating and certifying patents essential to compliance with one or more of the five distinct 3G standards in the IMT-2000 “family,” and providing a mechanism by which licensors and licensees can enter into a Standard License Agreement for each 3G patent applicable to a technology ... As the Platform Specification makes clear, there will not actually be a single 3G Patent Platform entity, but rather a number of entities created with distinct personnel and responsibilities to carry out the various functions identified in the Platform Specification, and to ensure that where such functions may implicate competitive considerations among the five technologies, competitive choices are made independently for each technology rather than on a common basis.

The Platform will carry out licensing functions through five separate and independent Platform Companies (“PlatformCos”), one for each of the five 3G radio interface technologies, with a separate Licensing Administrator (“LA”) and a separate board of directors for each PlatformCo. The members of each PlatformCo will be the two subscribers initially chosen by the Partnership from firms likely to hold essential patents, and all licensors that thereafter submit patents for evaluation and are certified as holding essential patents applicable to that 3G technology. Each PlatformCo is to be managed by its board of directors, consisting of one representative of each licensor member, which will be responsible for decisions on royalty rates and license terms, while decisions on any changes to PlatformCo governing documents are made by PlatformCo members. The licensing functions assigned to each PlatformCo are to be conducted by its LA, recognizing the potentially competitively sensitive nature of these functions, but the LA generally does not act as a licensor and the LA’s responsibilities do not include the actual collection or distribution of royalties for licensors.

The five PlatformCos can have a limited number of shared functions, coordinated through a Management Company (“ManCo”) with which the PlatformCos are initially expected to enter into a service agreement, and a Common Administrator (“CA”) and an Evaluation Service Provider (“ESP”) to whom specific ManCo responsibilities will be assigned or outsourced. The functions of ManCo are defined as: (1) patent evaluation service outsourced to the ESP; (2) evaluation-related services most likely outsourced to the CA; (3) education of third parties about the 3G Platform concept; and (4) industry-wide market research and analysis, as opposed to research and analysis for or regarding a specific company. The CA, whose responsibilities are focused on assisting the evaluation process and providing general information about 3G, will initially be selected by the Partnership but thereafter the five PlatformCos will be responsible collectively for appointing a CA. The members of ManCo are not limited to licensors, unlike the PlatformCos, but can include licensees and other interested parties in the industry. ManCo will be managed by a board of directors chosen by the members, and will also have non-voting representatives of each of the five PlatformCos on its board committees.

Once a licensor or licensee participates in any of the evaluation or-licensing processes established for a PlatformCo, it becomes subject to that PlatformCo’s licensing obligations. Licensors who submit any of their patents for evaluation are required to make all of their essential patents related to that specific 3G technology available under the relevant

PlatformCo's standard licensing terms to licensees that want to avail themselves of those terms. In turn, licensees who accept either a Standard License or an Interim License agreement from a licensor are required to submit all of their 3G-related patents for evaluation of essentiality, and to make such patents available under the platform terms if they are found to be essential. This "grant-back" obligation extends to third parties who receive sub-licenses or make products using licensed technology on behalf of a licensee. However, this obligation is specific to the individual PlatformCos associated with a 3G technology, "and shall not be across PlatformCos," so that submitting patents for evaluation or accepting a Standard or Interim License with respect to one 3G technology does not oblige a patent holder to submit its essential patents for review, to become a PlatformCo member, or to accept the platform licensing terms with respect to any of the other four 3G technologies. Patent holders and licensees can avoid the grant-back obligation entirely by negotiating bilateral licenses outside the Platform without using an Interim License. Licensors may also leave their PlatformCo on one year's notice, though they remain obligated to license essential patents under the PlatformCo's licensing requirements during that year and existing licenses remain in place after the resignation takes effect.

[Description of how the PlatformCos will evaluate essentiality of patents and license them to third parties is omitted.]

III. Analysis

It is reasonably likely that essential patents associated with a single 3G technology, as defined in the Platform Specification, will be complements rather than substitutes. Essential patents by definition have no substitutes; one needs licenses to each of them in order to comply with the standard. The arrangements proposed in connection with the Platform, including (1) the limitation of patents to those "technically" essential to compliance, (2) the provisions for review of essentiality by competent experts without conflicts of interest and payment of the costs of evaluation through fees assessed on applicants, (3) retention of the experts by the ESP rather than directly by licensors, and (4) the financial incentives of licensors to object to the inclusion of others' non-essential patents that could lower per-patent compensation under the royalty formula, provide reasonable assurance that patents combined in a single PlatformCo for a 3G radio interface technology will not be substitutes for one another. In the future, patent holders for a specific 3G technology are free to develop new mechanisms to reduce costs of identification and licensing of essential patents which could further enhance competition, without affecting differences between technologies based on market forces.

There is however, publicly available evidence that several of the five 3G radio interface technologies have been competing with each other for adoption by wireless system operators and could continue to be the basis for competition among operators once 3G wireless services are on the market. There is a reasonable possibility that the five 3G radio interface technologies will continue to be substitutes for each other, and we would expect the owners of intellectual property rights essential to these technologies to compete, including through price, to persuade operators to adopt their technology. The actual Platform arrangements have been structured to take into account substitutability between 3G technologies by creating an independent PlatformCo to handle all licensing matters, including setting of actual royalty rates, with respect to each individual 3G technology. Though the five PlatformCos will operate under a standard Platform Specification, including a common methodology for calculating royalties due, and at least at the outset will make use of

standard license terms, each PlatformCo will have the ability to modify license terms over time, and from the outset each PlatformCo will independently determine the key values used to calculate royalties.

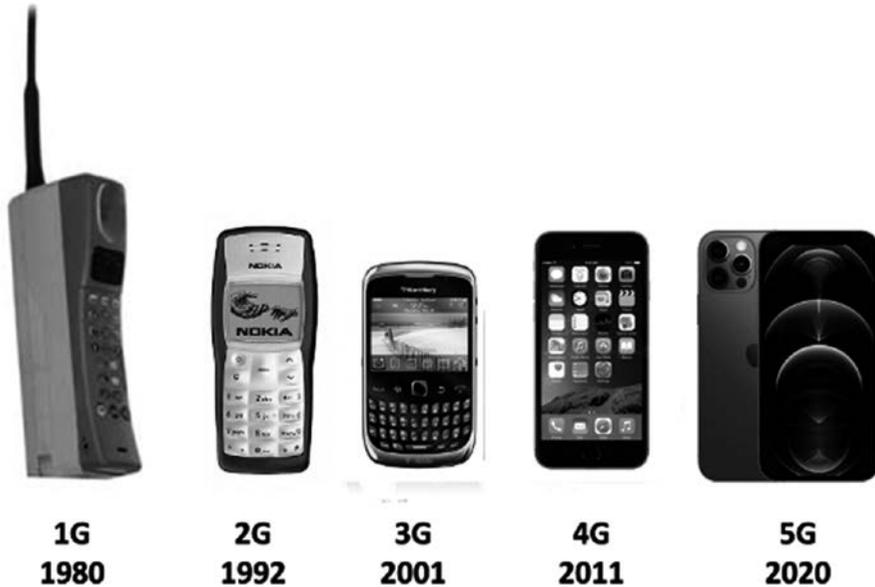


FIGURE 26.7 Cellular communication protocols have evolved to enable better, faster and higher bandwidth connections and voice, data and video content transmission.

Notes and Questions

1. *And the winner is?* Though the 3GPP pool included patents for five 3G standards, it soon became apparent that only one of the five contenders would emerge as the victor. The W-CDMA standard known as UMTS (Universal Mobile Telecommunications Standard), based on the European GSM 2G standard, was quickly adopted and rolled out in Europe and Japan. In South Korea, both major telecommunications carriers adopted the Qualcomm-backed CDMA-2000 standard, as did Verizon Wireless in the United States. AT&T and T-Mobile (an offshoot of Deutsche Telekom), however, opted for the European-style UMTS. US carriers remained split through the 2000s, causing incompatibility among their networks (i.e., an AT&T phone could not connect to Verizon's network). However, with the advent of the 4G LTE standard in 2010, all major carriers around the world have moved to a single compatible standard. Are there any benefits to having a diversity of communications standards, or is the world better off with a single standard?
2. *Five standards, five pools.* As described in the DOJ's 3GPP letter, each 3G standard had its own patent pool with separate administration and licensing. This structure was necessary to ensure that only patents essential to the individual 3GPP standards would be included in each pool, and that the standards would be able to compete with one another. Was this degree of patent segregation really necessary?
3. *Nonessential patents.* Sometimes, parties to a patent pool may inadvertently include a non-essential patent in the pool, or a standard may change so that a patent originally included

in the pool becomes nonessential. Is this a problem? The Federal Circuit considered the question in *Princo Corp. v. International Trade Com'n*, 616 F.3d 1318 (Fed. Cir. 2010). There, Philips and Sony collaborated to create a standard for recordable and writable compact discs (CD-R/RW). While the standard was under development, each of Philips and Sony (as well as other companies) committed to pool their patents required to implement the standard. But by the time the final standard was agreed, it no longer contained technology covered by one of Sony's patents (referred to as the Lagadec patent). Princo, a Taiwanese disc manufacturer, entered into a license for the pooled patents, but then stopped paying royalties after it realized that the Lagadec patent was not essential to practice the CD-R/RW standard. Princo argued that including the Lagadec patent in the pool constituted anticompetitive conduct by Sony and Philips.³² The Federal Circuit rejected Princo's arguments, reasoning that Philips' and Sony's engineers determined that the Lagadec technology was not a viable solution for recordable CDs. As a result, the Lagadec technology could not compete with or substitute for the final CD-R/RW standard. Therefore, its inclusion in the pool was not a violation of the antitrust laws. Do you agree? Why or why not?

4. *Defensive patent aggregation.* In response to perceived litigation threats from patent assertion entities, a new breed of firm called a "defensive patent aggregator" has emerged. The most prominent of these is RPX Corp. RPX claims that since its inception in 2008, it has acquired more than 60,000 patents in industries including automotive, electronics, computers, e-commerce, financial services, software, media, communications, networking and semiconductors.³³ As a result, RPX may represent the largest aggregation of patents ever assembled. Yet, as the Supreme Court made clear in *Automatic Radio Mfg. Co. v. Hazeltine Research, Inc.*, 339 U.S. 827, 834 (1950), "The mere accumulation of patents, no matter how many, is not in and of itself illegal."

RPX charges its member companies annual subscription fees based on their annual revenue, with fees ranging from tens of thousands to millions of dollars. RPX grants each of its 300+ members a license to practice all of RPX's aggregated patent rights. These licenses last while a company is a member of RPX, and become perpetual after a certain number of years. Members are not required to grant RPX or other members any of their own patent rights. As such, RPX may be the largest patent aggregation ever created, but it differs substantially from the pools discussed in this chapter in a number of important respects:

- RPX does not obtain patent rights from its members, but from third parties.
- RPX's patents cover many different technologies that, in theory, might compete or act as substitutes for one another, and are not evaluated for essentiality to any particular standard.
- The fees paid by RPX members to the pool are not disclosed, and vary from member to member.

Given these differences, how relevant to patent aggregators like RPX are the DOJ's and FTC's analyses of the procompetitive effects of patent pools? Do you see any potential antitrust issues in such patent aggregation structures? Given the close question in *Princo*, which involved just one patent that was not essential to the CD-R/RW standard, does it matter that RPX members receive licenses to thousands of patents covering technologies that could

³² Princo also alleged patent misuse, discussed in [Chapter 24](#).

³³ RPX Corp., The RPX Network, www.rpxcorp.com/platform/rpx-network; RPX Corp., 2017 Annual Report on Form 10-K.

act as substitutes for one another? What might the effect of such an arrangement be on innovation?

In 2012, RPX was sued by Cascades Computer Innovations LLC,³⁴ a patent assertion entity that sought to sell or license a portfolio of patents to RPX. When the deal failed to materialize, Cascades alleged that RPX represented an illegal *buyer's* cartel that depressed the price for the patents that it sought to sell. The case was dismissed on other grounds prior to a hearing on the merits of the antitrust claim. But what do you think of Cascades' theory? Is it relevant that RPX members can direct RPX to negotiate to acquire particular patent portfolios that they view as threats?³⁵

³⁴ *Cascades Computer Innovation LLC v. RPX Corp.*, Case No. 12-cv-01143-YGR (N.D. Cal., filed Mar. 2012).

³⁵ See Matthew W. Callahan & Jason M. Schultz, *Is Patent Reform via Private Ordering Anticompetitive? An Analysis of Open Patent Agreements in Patent Pledges: Global Perspectives on Patent Law's Private Ordering Frontier* 151, 159–60 (Jorge L. Contreras & Meredith Jacob, ed., Edward Elgar, 2017) (antitrust analysis of open patent agreements, contrasting with defensive patent aggregators).