



Report on Multiparty Licensing

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Introduction

This report has been prepared for the European Commission (EC) by Charles River Associates (CRA) to assist the Directorate General for Competition in its review of the application of Article 81 (1) and (3) to patent pools and cross licensing of intellectual property (IP). The current Transfer of Technology Block Exemption Regulation (TTBER) covers only bilateral agreements. Multiparty licensing or patent pools are not covered except for bilateral cross licences, which are treated separately under the current TTBER.

The EC is considering whether to extend the TTBER to cover multiparty licensing or whether to cover multiparty licensing by guidelines. These guidelines would inform the business, legal and other interested communities regarding the EC's views on the competition issues with respect to multiparty licensing under Article 81. The two options – developing block exemptions or guidelines – are not mutually exclusive and could be used in combination. To assist the Directorate General for Competition in its review, CRA has been asked to perform four tasks. The first task was one of general fact-finding concerning the use of multiparty licensing, with a view to answering questions about what industries use them, whether they are common practice, what business problems they are designed to solve, and how frequently competition issues arise as a result of multiparty licensing.

The second and third tasks were to survey the economic and legal literature related to multiparty licensing and to survey and compare the treatment of multiparty licensing by the competition authorities in different countries in the Organisation for Economic Cooperation and Development (OECD). Part III contains the results of the work on these two tasks. These tasks were combined because the relevant guidelines of the OECD countries are treated as part of the literature on this subject. The guidelines are, in fact, the public policy embodiment of the mainstream thinking produced by the modern economic literature dealing with competition policy, as it pertains to IP and to collaboration among firms. There is very little said specifically about multiparty licensing in the laws and guidelines of most OECD countries other than the US except to say that the principles which apply to competition policy and to IP generally should apply to multiparty licences. Thus, the comparison here is of necessity quite brief and limited to the Canadian, Japanese and US guidelines. In addition,

Please note: The text in this version contains a number of typographical corrections to the original version submitted to the European Commission

we consider some of the findings about the emerging competition issues that are discussed in the recent US Department of Justice (DOJ) and US Federal Trade Commission (FTC) hearings.

The fourth task was to develop a framework for analysing competition issues that arise in the context of multiparty licensing and to relate that framework to the development of guidelines or to a block exemption. At the end of Part III, we conclude with a general analytical framework for assessing multiparty licensing agreements with respect to their impact on competition and consumer welfare. The framework developed is generally consistent with the guidelines and practices of the OECD countries today and is based upon analysis developed in the professional literature.

In Part IV we note that the framework set forth in Part III that was developed in the modern literature and that is embodied in the guidelines and practices of the OECD countries is based upon the fundamental principle that intellectual property rights should be fully respected by competition rules governing licensing, including multiparty licensing. From this it follows that competition rules should only protect against licensing agreements that restrict competition that would have existed with the IP rights in place, but that would not exist under the licensing agreement. Put differently, the relevant question is, does the licensing agreement restrict competition beyond the restrictions that the granting of the IP right would create? We explore exactly what this means.

We view one of the major unsolved challenges of competition policy to be creation of a competition policy environment and incentives that would allow for the development of institutions to facilitate the rational design of new product standards which may be based upon a large number of independently held patents. This process should be designed to take into account not only technological features of the patents, but their costs as well. This requires the creation of institutions that can promote the efficient assembly of the necessary patents and provide the information needed for rational product design, while simultaneously maintaining the rights of the IP holders and avoiding major competition problems. We believe that this is the standards problem of the future. It is one which presently remains unsolved partly because businesses fear, rightly or wrongly, that the potential solutions would run foul of competition laws.

We look at multiparty licensing issues as they pertain to joint ventures. For competitors, we argue that these issues are generally only a small part of the broader question of what types of collaboration between firms should be allowed under competition law. In the context of joint ventures, multiparty licensing issues will often be subservient to the resolution of other issues such as the size of the joint venture, admission of new members, and so on.

One of the conclusions we present is that competition authorities are going to need to be very flexible and encourage innovative solutions, particularly in the area of standard setting and the design of standards and patent pools that support them. This is an area of competition law and of IP law that requires not only creativity but also judicious use of the regulators' discretion. This must be assisted by a very high level of communication between industry and regulators, and some experimentation may be necessary to see what works well and what does not.

In our view, to solve this problem, mechanisms or institutions will have to be established that allow much more communication and bargaining between firms – even competing firms – prior to the adoption of a standard. The current situation represents a cooperative game in which we now have only the most limited exchange of relevant information in the standard setting process. We believe this must change if the problem is to be solved. While we discuss possible approaches to solving this problem, we cannot propose a single solution, nor do we believe from our review of the literature that a well-articulated solution currently exists. We will, however, propose one model we believe has all the elements of a solution.

A first step towards such a solution, however, is to create a competition policy atmosphere and process which recognises the economic benefits that can be generated when firms and standard-setting organisations are able to consider and discuss the issue of critical information needed to design and implement a reasonable, if not optimal, standard. This requires up-front information about the available technological alternatives, the prices of these alternatives, the total cost of the package and what price licensees would be willing to pay. No firm should have to commit to the final package without knowing within reasonable bounds what it will provide, what it will cost, and what the firm will be paid for the resources it contributes.

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Basic Terminology

MULTIPARTY LICENSING

Before proceeding with a discussion of multiparty licensing, it is important to define exactly what we mean when we talk about patent pools and multiparty licensing. It is useful to start with an accepted standard definition of cross licensing and patent pools, namely:

By "cross licensing," I mean the interchange of intellectual property rights between two or more persons. By "patent pool," I mean the aggregation of intellectual property rights which are the subject of cross licensing, whether they are transferred directly by patentee to licensee or through some medium, such as a joint venture, set up specifically to administer the patent pool.¹

In this study, we include both cross licensing agreements and patent pools as defined under the term multiparty licensing.

In addition, one cannot talk about multiparty licensing and patent pools for long without encountering related terms such as blocking patents, competing patents, and so on. Therefore, it is essential to identify the categories of patents that may be found in a pool. Moreover, the relationship between patents in a pool – such as whether they are substitutes or complements – will have a significant effect upon the competitive aspects of the pool and is therefore central to any discussion of patent pools and competition policy. Below, we discuss different categories of patents in detail.

PATENT RELATIONSHIPS: COMPLEMENTS, SUBSTITUTES AND BLOCKING

In the context of IP, complementarity arises in two ways: one is the familiar technical way; the other relates to issues of infringement. The patents covering two technologies are complementary if both technologies, and therefore the IP rights to them, are required to

¹ Joel I. Klein, *An Address to the American Intellectual Property Law Association, on the subject of cross licensing and antitrust law*, (2 May 1997).

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produce a given output. In other words, from a technical standpoint it is necessary to use them together in the production process and, therefore, to own the IP rights required for both.

However, complementarity between the patents covering two technologies can arise in another way, even when the technologies themselves may be technical substitutes in the production process. This happens if the patents are mutually blocking; that is, each patent infringes upon the other. Suppose, for example, that there are two mutually exclusive processes x and y that can be used to produce a given product; however, the patent for x infringes upon the patent for y and vice versa. Thus, in this situation, any producer must have a licence to both x and y . While the processes are technically substitutes, their patents are complementary in the production process because of their mutual blocking relationship. As a result, if the licence fee for the patent for y increases, the demand for x will decrease and, conversely, if the licence fee for the patent for x increases the demand for y will decrease.

For this reason, the concept of blocking and non-blocking patents is extremely important in the analysis of competition issues arising from licensing agreements. For example, in the case of patent pools one might wish to allow only complementary technologies to be included in the pool, leaving substitute or competing technologies outside the pool to provide competitive options. On the other hand, if the patents for these substitute or competing technologies block the use of technologies required for the pool, they may need to be included in order for the pool to utilise the necessary technology to produce the defined product without infringing upon a patent outside the pool.

The concept of blocking patents can be further refined to distinguish between one-way and two-way blocking patents. Patents A and B are said to be two-way blocking if A infringes upon B and B infringes upon A . Patents are said to be one-way blocking if A blocks B but B does not block A . This relationship is often created when there is an invention of a fundamental technology covered by patent A and then an improvement is discovered and covered by patent B . In this case, patent A can be used without B , but since the technology underlying B builds upon that of A , A blocks B . However, in many cases, as a practical matter these two patents may be two-way blocking. This happens when the improvement represented by B is significant and, given the realities of the market, no one would want to use A without incorporation of the improvements of B .

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One other important concept is that of substitute patents. Patents *A* and *B* are substitutes for each other in the production of a good if they cover substitute technologies and are non-blocking. This implies that having a licence to use *A* is an adequate substitute for having a licence to use *B*. In our earlier example of a patent pool, in order to promote competition it will often be desirable to ensure that patents that are competitors to those within the pool, are kept outside of the pool. This is because patents that are non-blocking, and thus not required by the pool, provide an alternative technology that could be used to compete with the pooled technology.

HIDDEN OR SUBMARINE PATENTS

Patent applications are submitted in private and are not immediately available publicly². A patent must undergo a certain level of scrutiny by the patent-licensing authorities before it can be granted. The length of time to obtain a patent in the US, from date of application to granting of the patent, is usually around 4 years. Given the large number of patents issued in the modern economy and the high rate of change in technology based markets, there is a real risk that once a firm has designed and started producing a product, it can find itself falling victim to an unforeseen patent claim. The owner of such a “hidden” or “submarine” patent may consequently be in an extremely good bargaining position to demand high royalties from a firm that unknowingly has adopted a product design or standard that infringes upon the submarine patent. By the time the problem is recognised, money and time have been committed to developing, producing and marketing a design, and there may be very few options open to the company faced with this problem. If the plaintiff is likely to be granted injunctive relief, the only alternative for the defendant may be to pay an exorbitant claim or be shut down.

Multiparty Licensing in a Competitive Market Economy

Cross licensing and patent pools, along with licensing in general, have been used for well over a century to facilitate the assembly of IP required to design and produce goods and services and to get this IP into the hands of the most efficient producers. In other words, it is

² In the UK a patent application is published 18 months after filing.

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a way of assembling complementary patents to facilitate the efficient production of goods and services. Thus, licensing generally and multiparty licensing in particular constitute an example of markets working to put the required inputs into the hands of the most efficient producers who will then produce and sell goods and services in that market. This process fundamentally promotes efficiency.

In most instances where cross licensing and patent pools have been used, they have been employed to form part of the solution to a commercial problem such as: product development and production being slowed by blocking patents; the need to assemble the IP from a variety of owners to support a standard; the need to pool IP as part of a joint venture; or as a means of settling patent disputes. We discuss each of these cases.

Blocking patents can lead to what Shapiro (2001) refers to as a “patent thicket”. New products in innovative industries may require multiple licences from separate rights holders in order to overcome problems with blocking patents. This problem is also discussed by Heller and Eisenberg (1998) who liken the patent thicket in the context of biotechnologies to the opposite of the “tragedy of the commons”. The tragedy of the commons is a well-known economic analogy that highlights the fact that when property rights are not well-defined, resources get overused, resulting in an ultimate disadvantage to all concerned parties. Heller and Eisenberg say that the density of property rights in biotechnology creates the opposite, namely the “tragedy of the anti-commons” where a large and growing number of licences must be sought from patent owners – the “gatekeepers” – before their IP can be used. In this case, resources are underused, or perhaps not used at all, because too many owners have the ability to block each other’s use of their intellectual property. Multiparty licensing, particularly patent pools, provides the major vehicle for solving these problems of assembling the IP required for a particular application and making it available to potential producers.

Not only does a patent pool assemble the relevant IP, it may also make pricing of the IP more efficient. Shapiro (2001) argues that the pricing of complementary IP by individual owners is a case of the classic “complement problem”, which Cournot (1838) recognised and analysed. Consider a situation in which one firm needs to obtain two licences for essential patents to produce a new product, and the patents belong to different owners. Shapiro, following Cournot, shows that when patent holders set fees individually, the total cost to a firm

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purchasing them individually is larger than if the patents had been assembled by one owner and had been offered as a package with a single fee set for the package. This is because there is no way for the individual patent holder to collectively recognise and implement a plan that takes into account the fact that, because these patents are complements, each patent holder would earn more royalties if each lowered his price. This occurs because the lower combined price will more than stimulate enough additional demand to compensate for each patent holder's individual price reduction.³ Thus, the absence of such pooling will in general lead to the total cost of the licences (when the required patents are licensed individually) being above the monopoly price for the combined package. This consequently raises prices. In extreme cases, the ultimate size of the costs may prevent the new product from being produced at all.

The setting of cooperative standards is another area where a patent pool is often (but not always) used to assemble and license the IP required for its implementation. Standard setting as discussed here is the specification of a technical solution coupled with the pooling of the complementary IP required by that technical solution. A great deal more will be said about patent pools in the context of this type of standard setting.

Disputes over patent infringements can be and often are avoided or settled by the formation of patent pools or by the signing of cross licensing agreements. Such options are attractive to companies who wish to avoid expensive and time-consuming patent litigation, the outcome of which is very often far from certain. Freed from the threat of litigation, each firm can get on with the business of producing goods and services.

Significant innovation can result from joint ventures. Firms may form a joint venture to share the sizeable investments required, to share risk, to combine complementary skills and resources including IP and/or to take advantage of economies of scale and scope. The pooling of IP is in some cases an integral part of forming a joint venture.

³ Another way of understanding the coordination problem is to note that each individual firm optimises the profits (and hence price) of their own patent. They do this by weighing the additional profit that can be gained from increasing the licence price against the reduction in volume expected as a result. However, all else equal, when a single firm increases its price, and volume falls, so the volume and hence profits fall for all the other patent owners. The individual firm sees the benefit of increasing its price, but only a fraction of the true cost. As a result it overestimates the profit gains from increasing price that the market actually experiences – even if it is the only firm to change price – and sets too high a price.

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Thus, cross licences and patent pools can serve many legitimate productive purposes that enhance efficiency and are therefore pro-competitive. But in each of the cases cited above multiparty licensing arrangements can and have been used to restrain competition, and this is the source of antitrust concerns.

The History and Structure of Patent Pools

Patent pools vary in their individual make-up; from huge industry-wide institutions with dozens of members, encompassing hundreds of patents and administered by relatively independent bodies, to relatively small and simple arrangements that look very similar to multilateral contracts. Patent pooling is not the only mechanism innovative industries use to facilitate the transfer of technology and assemble the technology required for complex products and standards, but it does offer one major approach to solving this problem.

MEGA POOLS: AUTOMOBILE AND AIRCRAFT POOLS⁴

The growth of well-documented patent pools had its origins in the aircraft and automobile industries in the late nineteenth and early twentieth centuries. Each licensee was charged a royalty that was determined by the pool committee.⁵

The make-up of these committees took various forms. One example was the committee formed out of the pooling of patents between a private inventor (Vincent) and the State of Florida (under a trust agreement).⁶ This trust agreement pooled certain patents by assigning them to the trustee and created a trust committee under whose direction the trustee would act. The powers of the committee included the right to fix royalties and the right to include, in licences, price-setting limitations upon the licensed products. This basic structure of creating a body which then decided upon key aspects of the running of the pool appeared in pools covering not only automobiles and aircraft, but also sewing machines, bathtubs, door parts,

⁴ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, August 1999, mimeo.

⁵ However, one point to note is that with the exception of the “foundational” patent pools of Glenn Curtiss and the Wright Brothers, which earned millions of dollars from royalties, the early pools were directed more at preventing legal infringement actions and were conducted on a royalty-free basis.

⁶ *Suni-Citrus Products Co. v Vincent*, 170 F.2d 850, 854, (5th Cir. 1948).

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seeded raisins, (bicycle) coaster brakes, and a variety of other technologies.⁷ In fact, it appears in one form or another in most modern cases of patent pools. However, over the years, the powers of these bodies have been modified to meet the competition concerns of the courts and the competition authorities.⁸

The aircraft patent pool⁹ allowed patents to be added after their formation. These patents were divided into two classes: “normal patents” were licensed into the pool that licensed to third parties with most patents not earning any share of the royalties; “exceptional patents” (fewer in number than normal patents) earned ongoing royalties, in an amount to be determined by a formal arbitration procedure, under the provisions of the pool known as the Manufacturers Aircraft Association (MAA)¹⁰.

In the cases of a dispute arising from a member of the MAA about an exceptional patent, a board of arbitrators would be formed, consisting of one member of the board of directors of the MAA, another from the company making the claim and a third from one of the other two companies. The board of arbitrators was to determine the amount of the compensation to be paid, if any.¹¹ However, this procedure was seldom used, because it was reserved for “exceptional” patents. The overall transaction cost savings resulting from the aircraft patent pool were significant. For example, the major patent holders in the aircraft patent pool, Wright and Curtiss, lowered the royalties they were to receive even before the formation of the pool, because they would benefit from the overall reduction in transaction costs.

In the MAA, a voting system was created to deal with potential conflicts of interest among pool members. A voting trust agreement was adopted to weigh voting rights according to the respective patent holdings of the members. Under this agreement the Wright and Curtiss corporations named one trustee, the smaller manufacturers another trustee, and a party not favourable to either interest, namely a member of the Advisory Committee, was selected for the third trustee.

⁷ Floyd L. Vaughan, *The United States Patent System* pp. 40-50 (1956).

⁸ Robert P. Merges (1999).

⁹ *Manufactures Aircraft Assoc. Inc. v United States*, 77 Ct. Cl. 481, 487 (1933).

¹⁰ The MAA was reviewed by the Secretary of War on antitrust grounds in 1917. See *Manufacturers Aircraft Association – Antitrust Laws*, 31 Op. Att’y Gen., 166, 169 (1917).

¹¹ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, August 1999, mimeo.

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In the Auto Industry Patent Pool a similar structure was adopted to reflect the importance of the patent holdings of its members. This structure was initially created as a solution to the risk of litigation between patent holders. The Auto Pool was of a massive scale, with 79 members and 350 patents when it was founded.¹² By 1932, it had amassed over 200 members and 1,000 patents.¹³ It also had a two-tiered patent classification scheme and an arbitration procedure for exceptional patents.

SMALL, CONTRACT-BASED POOLS¹⁴

Merges¹⁵ argues that, regardless of the particular industry or technology in question, smaller scale patent pooling schemes and cross licensing arrangements embody two of the central principles of the mega pools:

- combination of IP in a central entity (i.e. a contract); and
- establishment of a valuation mechanism to divide up the royalty stream.

The main distinction between the large-scale pools and the smaller ones is that the latter do not possess the complex formal administrative structure that epitomises the former. The crucial resulting difference is that the estimation of royalties in smaller contract pools will more likely be based on a negotiated valuation between the parties. This is different from how the estimation of royalties takes place in a more complex structure, wherein the amount of royalties is determined by a collective valuation mechanism, usually by a specially appointed committee (as discussed earlier).

Extensive cross licensing between DuPont and Imperial Chemical Industries (ICI) in the UK lasted for more than ten years. It had many of the characteristics of a pool, in particular its complexity due to the size of each firm's chemical research efforts.¹⁶ There were many disputes over an implicit contractual arrangement whereby certain "exceptional" inventions

¹² William Greenleaf, *Monopoly on Wheels* 242-247 (1961).

¹³ William Greenleaf, *Monopoly on Wheels* 242-247 (1961).

¹⁴ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, August 1999, mimeo.

¹⁵ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, August 1999, mimeo.

¹⁶ David Hounshell & John Smith, *Science and Corporate Strategy: DuPont R&D, 1902-1980* pp.193-205 (1988).

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were placed outside the licensing framework created by the agreement, including nylon and neoprene for DuPont and polyethylene for ICI.

RECENT POOLS¹⁷

Some of the more recent pools employ a fusion of the features of the mega pools and of the smaller contract-based pools. Recent pools are not as far-reaching as the mega pools, being concerned with only one technology application or field of use rather than consisting of all patents in a particular industry. Yet they still include adjustment mechanisms; for example, for incorporating new patents and then resetting royalty shares.

DVD

In 1995, ten companies founded the DVD Consortium, which has now become known as the DVD Forum. In late 1995, the four “core” DVD developers of the ten-member DVD Consortium were about to enter into a patent pooling agreement to administer the licensing of DVD patents. After a series of failed negotiations among the core consortium, Sony and Philips announced in August 1996 that they would form their own pool, with Philips being the licensor. Pioneer Electronics subsequently joined this pool. Six months later Hitachi, Matsushita, Mitsubishi, Time Warner, Toshiba and JVC formed their own patent pool.

The Department of Justice cleared both of the patent pools, noting about one:

It appears that the proposed arrangement is likely to combine complementary patent rights, thereby lowering the costs of manufacturers that need access to them in order to produce discs, players and decoders in conformity with the DVD-Video and DVD-ROM formats.¹⁸

These two pools held many of the essential patents for the Standard Specification of the DVD-ROM and DVD-Video formats. The Department of Justice decided that it was preferable for potential licensees to deal with two pools rather than with the ten companies on

¹⁷ Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, August 1999, mimeo.

¹⁸ Letter from Joel I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Carey R. Ramos, Esq. (10 June 1999).

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an individual basis. In October 2000, the European Commission approved the latter of the patent pools, considering it to have a beneficial effect for the consumer, and issued an administrative comfort letter to this extent.¹⁹

In order to allow the effective operation of these patent pools and to prevent strategic posturing by the members (such as inflated or misleading claims over the extent of players patents), the DVD pools hired patent experts to identify the essential patents in the separate patent pools. Also, standing experts were employed periodically to evaluate prospective new patents to the pool. These independent experts were required to be technical experts in the field of DVD technology.

The DVD and MPEG-2 pools (the MPEG-2 pool is discussed further below) also address the problem of subsequent “essential” patents being developed by members who then use those patents as strong bargaining chits with the other members of the pool. The DVD pool contains a “grant back” provision, which represents an attempt to incorporate any such “essential” patents back into the pool. The MPEG-2 pool grant back provision does the same: requiring licensees to make an essential patent available to all pool participants at a fair and reasonable royalty.

The Business Review Letter for the Philips/Sony DVD pool²⁰ discloses details of a confidential royalty allocation formula, while the Toshiba Pool has a set of "Ground Rules for Royalty Allocation".²¹ These institutions, like those found in the earlier mega-pools, aim to pre-empt bargaining issues surrounding the valuation of essential patents.

The DVD pools show the importance of governmental pressure in helping patent pools to form. The US Department of Justice motivated Sony and Philips to form the pool after a previous investigation into their CD pool by the Department of Justice in 1995 which ended in a settlement.²²

¹⁹ European Commission Press release, 9 October 2000.

²⁰ Letter from John I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Gerrard R. Beene, Esq., 16 December 1998.

²¹ Letter from Joel I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Carey R. Ramos, Esq., 10 June 1999.

²² “Justice Dept. Examining DVD Patent Situation,” Audio Week, 8 January 1996.

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MPEG-2 and MPEG-4

The MPEG-2 pool started as an agreement among nine patent holders to combine 27 patents required to meet the industrial standard known as MPEG-2 video compression technology. Patent holders all licensed their patents to a central administrative entity, MPEG LA, based in Denver. MPEG LA is essentially a licensing agent administering the pool on behalf of its members.²³ MPEG LA licenses patents from the pool to third parties, who will then be able to manufacture products using the MPEG-2 standard.

The MPEG-2 pool has grown since its inception and now includes more than 525 patents including a number owned by European-based companies such as France Telecom, Philips, Robert Bosch GmbH and Thomson Licensing SA. Also, a large number of the patents in this pool have been filed within the EU. The success of this patent pool has contributed to the worldwide utility of the MPEG-2 standard. Throughout the history of the MPEG-2 patent pool, royalty rates have never risen. In fact, they were recently reduced.²⁴

The MPEG-2 pool reflects many of the elements of the mega pools: one-stop licensing; an institutional structure; an expert valuation procedure determining royalty splits among the members; and blanket licensing charges to licensees. There is also a permanent administrative structure for evaluating new technologies.

The MPEG-2 pool separates its patents into different categories. The most fundamental are the “essential” patents: the basic complementary technologies that in effect make up the MPEG-2 standard. The charter also recognises “related patents,” which are patents that represent improvements upon the existing essential patents in the pool. If the related patents were left unlicensed, they would infringe upon the MPEG-2 standard.

²³ Letter from John I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Gerrard R. Beeney, Esq., 26 June 1997.

²⁴ <http://www.mpegla.com>

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MPEG LA is now working on the next generation of patent pools, including the MPEG-4 standard. This proposed patents list resembles the MPEG-2 list in its constituent companies²⁵ (although the actual number of patents involved is not yet certain). In July 2002, MPEG LA and patent holders for the various MPEG-4 components (MPEG-4 Visual Patent Portfolio Licence, MPEG-4 Systems (without MPEG-J) Patent Portfolio Licence and MPEG-J Patent Portfolio Licence) reached agreement on final licensing terms. Official licences were scheduled to be issued in September 2002 for patents essential for any or all of these standards.

To summarise the DOJ position on the proposed MPEG and DVD pools, these proposals were approved based upon the following competitive safeguards:²⁶

- limitation of the portfolio to technically essential patents which, by definition, are not competitive with each other;
- portfolio patents are clearly identified and can be licensed individually as well as in a package;
- issue of worldwide non-exclusive licences;
- licensee liability for royalties conditioned on actual use of the patents;
- freedom of licensees to develop and use alternative technologies;
- requirement that licensees grant back non-exclusive, non-discriminatory licences to use patents that are essential to comply with the technology.

²⁵ The MPEG-4 Visual Patent Portfolio License includes essential patents owned by Canon Inc.; France Télécom; Fujitsu Limited; GE Technology Development, Inc.; General Instrument Corp.; Hitachi, Ltd.; Hyundai Curitel, Inc.; KDDI Corporation; Matsushita Electric Industrial Co., Ltd.; Microsoft Corporation; Mitsubishi Electric Corporation; Oki Electric Industry Co., Ltd.; Philips Electronics; Samsung Electronics Co., Ltd.; Sanyo Electric Co., Ltd.; Sharp Kabushiki Kaisha; Sony Corporation; Telenor AS; Toshiba Corporation; and Victor Company of Japan, Limited. The MPEG-4 Systems Patent Portfolio Licence (without MPEG-J) includes essential patents owned by Apple Computer, Inc.; Electronics and Telecommunications Research Institute (ETRI); France Télécom; Mitsubishi Electric Corporation; Philips Electronics; and Samsung Electronics Corporation. The MPEG-J Patent Portfolio Licence includes essential intellectual property owned by Sun Microsystems, Inc.

²⁶ See Gilbert (2002).

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History of Patent Pools and Competition Policy

Cross licensing and patent pools have served many legitimate efficiency-enhancing business functions in the past and, as we will argue, can be expected to play a more important role than ever in the high-tech, dynamic competition of the new economy. At the same time, it has long been clear that such licensing agreements can and have been used as a vehicle for blatantly anticompetitive conduct. The long history of antitrust and patent pools in the US is instructive regarding the kind of competition problems that can and do arise. The history of such cases in the EU, although much shorter, is similarly instructive.

US PERSPECTIVE²⁷ 1900–1990

Patent pools and cross licensing business arrangements have attracted the attention of the competition authorities in the US for over a century. The evolution of the authorities' view of the relationship between intellectual property law and antitrust law is reflected in their decisions over patent pools.

The Supreme Court made its first landmark decision in the 1902 *E. Bement Sons v. National Harrow* case.²⁸ The National Harrow Company was initially set up to pool 85 patents on spring tooth harrows from six different firms in order to resolve years of patent infringement litigation between them. The licensing terms stipulated the prices for licensed products, the requirements to sell only the licensed products, and that each firm was to use only the patents they had contributed to the pool, not the patents contributed by the other firms. The National Harrow Company decided to sue Bement, a pool member who was selling below the price set in the licensing terms. Bement argued that the price-setting was illegal because it violated the Sherman Antitrust Act²⁹. The Supreme Court found for the National Harrow Company, reasoning that patent protection confers monopoly power and, thus, conditions imposed by patentees upon licensees that maintained the monopoly or fixed prices were not illegal. Through this decision, the Court signalled that intellectual property law was “above” the antitrust law. Furthermore, the Court implied that such terms of licensing as fixing prices

²⁷ Much of this is based on two excellent analytical histories of antitrust enforcement in the US related to patent pools. See Carlson (1999) and Gilbert (2002).

²⁸ 186 US 70 (1902).

²⁹ 29 Stat. 209 (1890).

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were not illegal because the patent law had the purpose of creating monopolies. The competitive aspect of the pool, however, was not given much consideration.

The Supreme Court expressed a very different opinion ten years later in *Standard Sanitary Manufacturing v. US*.³⁰ In that case, the Court upheld the break-up of a patent pool arrangement relating to an enamelling process for sanitary ironware, which established fixed royalties to all members, a system of rebates for licensees and wholesalers, and restrictions on the marketing of inferior products. The Supreme Court decided that the agreement violated the Sherman Act as it had led to prices being set through the pool rather than by firms independently and competitively, as was the case before. The Court thus expressed the view that patent law did not supersede antitrust law.

Until the *Standard Oil Company v. United States* case in 1931³¹, however, the Supreme Court did not consider the relationship of the patents in a pool in its competitive assessment. In *Standard Oil*, the Court disagreed with a complaint issued by the DOJ that the patent pool relating to gasoline cracking (part of the process of refining crude oil into gasoline) was illegal. The Court did not find that the cross licensing arrangement contained the requirements it had held to be unlawful in *Standard Sanitary*. Instead, the Court's analysis focused upon the positive aspects of cross licensing with regard to clearing of blocking patents. The Court found that none of the patents in the pool was fundamental but that many infringed upon other patents in the pool, mostly because many were improvements of others, thus potentially being blocked by the basic patent. The Court stated that cross licensing had positive effects on the patent blocks, but it did not analyse in detail whether patents in the pool were actually blocking, complements or substitutes. Its decision also noted that the pool did not fix prices and did not limit the use of non-licensed technologies and, hence, was unlikely to harm competition.

In 1942, the relationship between patent rights and the antitrust law was further refined. In *United States v. Masonite Corp.*, the Supreme Court declared, "Since patents are privileges restrictive of a free economy, the rights which Congress has attached to them must be strictly

³⁰ 226 US 20 (1912).

³¹ *Standard Oil Company (Indiana) et al. v. United States*, 33 F.2d 617 (1929), *Reversed*, 283 US 163 (1931).

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construed...”³². In *United States v. Line Material*, the Court stated that having a valid patent does not exempt the patentee from the provision of the Sherman Act “beyond the limits of the patented monopoly”.³³ These two decisions taken together appear to state one of the modern guiding principles of the US antitrust authorities’ approach to licensing agreements; namely, that the patent holder should be able to exercise all his monopoly rights through licensing, but should not be able to limit competition (through the licensing agreement) that would have existed even with full exploitation of the patent by its owners.

By the end of 1960s the overall view of patent pools by US competition authorities was one of general suspicion if not outright hostility. The Antitrust Division of the DOJ announced a “watch list” of licensing practices that would be considered anticompetitive restraints of trade in licensing agreements including patent pools.³⁴ The list of these restrictions, often referred to as the nine “No-Nos” was as follows:

- royalties not reasonably related to sales of patented products;
- restraints on licensees’ commerce outside the scope of the patent (tie-outs);
- requiring the licensee to purchase unpatented material from the licensor (tie-ins);
- mandatory package licensing;
- requiring the licensee to assign to the patentee patents that may be issued to the licensee after the licensing arrangement is executed (exclusive grant backs);
- licensee veto power over grants of further licences;
- restraints on sales of unpatented products made with a patented process;
- post-sale restraints on resale; and
- setting minimum prices on resale of the patent products.

All of these restraints, with the possible exception of the sixth pertaining to veto power, violate two principles of the modern competitive analysis of multiparty licensing agreements.

³² *United States v. Masonite Corp.* 316 US 265 (1942), at 280.

³³ *United States v. Line Material*, 333 US 287 (1948).

³⁴ Shapiro (1997).

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They may eliminate competition that would have existed absent the agreements, and in these cases the restriction is such that it is not reasonably necessary to achieve the integration of the technology required in order to have pro-competitive benefits.

As can be seen from the list above, the first four points restrict the licensor's ability to compete by raising costs and limiting how and where it can compete. The fifth practice could stifle innovation because it offers exclusivity, although it is plausible that it also has some pro-competitive effects. The last three items of the "watch list" deal with vertical restraints. As a result of the announcement of this list and the change in antitrust policy toward patent pools represented in the 1995 Federal Antitrust Intellectual Property Licensing Guidelines, patent pool-related litigation became far less common and cases of collaboration through patent pooling arrangements seem to have decreased, perhaps because of the evident hostility and suspicion of the US antitrust authorities and the courts.³⁵

It should be mentioned, however, that prior to issuance of the 1995 Guidelines, there was a first glimpse of recognition that competition policy and patent laws may in fact serve the same goals and not always be in tension with one another. The Federal Circuit Court stated in *Atari Games Corp. v. Nintendo of America* that "...the two bodies of law are complementary, as both are aimed to encouraging innovation, industry and competition."³⁶

To summarise, for most of the 20th century, US Courts and antitrust agencies were suspicious of patent pools because of the potential use of restrictive terms that reduced competition and went beyond what was required for the efficient sharing of critical technology. As the century progressed, one also saw eventual adoption of the principle that the patent holder could exercise all his patent rights through licensing agreements but could not, through the terms of those licences, restrict competition that would have occurred if the patent holder had himself exercised all his rights.

In the 1990s the perspective changed materially, reflecting improved understanding of the issues, which in turn has influenced antitrust thinking and the growth and importance of the new economy markets where multiparty licensing agreements were becoming increasingly

³⁵ Carlson (1999).

³⁶ 897 F.2d 1572 1990, at 1576.

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common. These changes in thinking were reflected in the 1995 IP Guidelines. The first significant change was the recognition of the enormously procompetitive potential of multiparty licensing under the conditions of the “new economy”. The second significant change was the development of a systematic methodology for analysing when the pooling of IP was likely to be procompetitive and when it was not. The key concept here was the distinction between the pooling of essential and complementary patents which was generally seen as procompetitive, and the pooling of substitute patents, which was likely to be anticompetitive. This framework is embodied in the 1995 Antitrust Guidelines for the Licensing of Intellectual Property and is discussed in detail in Part III of this report.

EU PERSPECTIVE

The number of multiparty licensing cases dealt with by the EC has been small. Despite this succinct history, it is clear that the EC has for a very long time been aware of the potentially anticompetitive aspects of certain restrictions in multiparty licensing.

In 1987, the cross licensing of patents was found to have a negative effect upon competition within the European Community.³⁷ Philips and Sony had entered into an agreement with other VCR producers “on uniform application of technical standards for the VCR system”.³⁸ The arrangement was a royalty-free cross licence of patents to ensure the compatibility of cassettes with recorders from different vendors. However, the agreement provided that only the Philips complete system would be allowed. Also, any change to the Philips system required the consent of all of the parties.

Despite the improved interoperability of the cassettes with video machines of different producers, the Commission refused exemption arguing that:

compliance with VCR standards led to the exclusion of other, perhaps better, systems. Such an exclusion was particularly serious given the market position enjoyed by Philips... (para. 29)

³⁷ Philips VCR, OJ No L 47, 18.1.1978, p.42.

³⁸ Dolmans (2002).

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restrictions were imposed upon the parties which were not indispensable to the attainment of these improvements. The compatibility of VCR video cassettes with the VCR video machines made by other manufacturers would have been ensured even if the latter had to accept no more than an obligation to observe the VCR standards when manufacturing VCR equipment [para. 31]³⁹

Since the early 1990s the EC has also clearly demonstrated that it recognises the potentially procompetitive aspects of technology sharing such as standards setting, for example. Its most recent decisions are reviewed below. No formal decisions were taken on these notified agreements but the Commission sent the parties an administrative letter (comfort letter) mentioning its opinion on the competitive effect of the notified agreement.

In 1993, Canon, Kodak, Minolta, Fuji and Nikon notified the European Commission about the agreements they had concluded for the development and exploitation under licence of the advanced photographic system (APS), a new industry standard which involved the production of new types of cameras, films and photo-finish equipment.⁴⁰ The parties to this agreement were all large players in the European and world market in cameras, lenses, colour roll films, colour photographic paper and single use cameras and as such were keen to ensure wide acceptance of APS as a new standard, as demonstrated by their commitment to granting licences to competitors. This is a typical example of firms that are primarily manufacturers who aim to generate revenues essentially from their production, rather than from the licensing of their IP. The Commission reviewed some aspects of the third-party licensing in 1997, mainly as it related to the technical assistance given to licensees.⁴¹ Following some adjustments, the Commission was confident that the conditions were “*securing a transparent and fair licensing system*”.⁴² The DVD pool (cleared in 2000)⁴³ had similar licensing arrangements: it was set up by firms that intended to manufacture DVD-related products and who thus wanted the standard to be established.

³⁹ Philips VCR, OJ No L47, 18.1.1978.

⁴⁰ Notice in OJ C 68/3 of 5 March 1994.

⁴¹ Notice in OJ 330/10 of 1 November 1997.

⁴² Press release IP/98/353 of 15 April 1998.

⁴³ Press release IP/00/1135 of 9 October 2000.

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Other recent notifications have included the previously mentioned MPEG-2 pool (cleared in 1998)⁴⁴ and the subsequent MPEG LA +5 pool (cleared in 2001)⁴⁵. These pools both offer a single non-exclusive licence programme and are administered by an independent entity, MPEG LA (see above). Furthermore, patent holders can offer licences for their patents outside the pool. By clearing these agreements, the European Commission demonstrated that it held the same opinion as its American counterpart; namely, that the specific terms of these pools are broadly procompetitive.

Most recently, the agreement between 3G mobile equipment manufacturers (who refer to themselves as the 3G Platform Partnership) has been granted antitrust clearance.⁴⁶ In order to produce equipment that complies with the 3G standard, manufacturers need to have access to five essential patents. The set up of this pool is atypical in the sense that the patents are offered and priced separately, the aim being to ensure that competition for the essential patents is maintained. It is clear that through this decision, the EC wants to be supportive of the 3G industry but at the same time to deal with concerns regarding maintaining competition among competing technologies.

However, a patent that is essential for using a particular technology may still compete with a patent that is essential for using another technology if the two technologies compete. Therefore, in assessing licensing agreements for 3G equipment the Commission must ensure that competition between those essential patents that compete is maintained.⁴⁷

⁴⁴ Press release IP/98/1155 of 18 December 1998.

⁴⁵ Notice in OJ 174/6 of 19 June 2001.

⁴⁶ Press release IP/02/1651 of 12 November 2002.

⁴⁷ Press release IP/02/1651 of 12 November 2002.

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The New Economy, Competition Policy and Multiparty Licensing Today

The new economy is almost synonymous with information technology industries such as computer hardware, computer software and Internet-based businesses built upon that technology. But there are other industries born or revolutionised in the last quarter of the century that have characteristics of the new economy as well. Communications networks and biotechnology are among them. In the new economy markets, some or all of the following five key features tend to be present, and are the structural drivers of the distinctive competition issues that arise:

- R&D and IP are critical assets;
- demand-side network effects are common;
- cost structures are often marked by very high fixed (and usually sunk) costs and low — sometimes near zero — marginal costs;
- the requirement for technical compatibility between components, products or software packages (and therefore standards) is pervasive; and
- technical complexity.

Given these features, competition in the new economy is often based much less upon price than upon product development, and that competition is often *for the control of* a market rather than *within* a market.⁴⁸ The critical importance of IP, which may be widely dispersed, combined with the greatly increased need for compatibility and the technical complexity of the solutions to many problems, requires that firms be allowed to collaborate on setting standards and on assembling the IP required to support those standards. Competition authorities and antitrust specialists realised this, and began to analyse when such collaborations would on balance be pro-competitive or anticompetitive.

⁴⁸ For a more complete description of the new economy and its characteristics that are important for competition analysis see OFT Economic Discussion Paper 3, *Innovation and Competition Policy*, Chapter 3, March 2002

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In the case of patent pools, there are two types of competitive concerns. First, there is a concern regarding the licensing practices and the restrictions they entail. Second, there is a concern about the collaboration itself and the rules under which it takes place, the organisations that are created to carry out the work of the pool, and so on. This is why, when developing a framework for analysing multiparty licensing, one must consider the literature and guidelines dealing with intellectual property as well as the literature and guidelines which deal with collaboration among firms. This integration of the analysis for multiparty licensing in general and patent pools in particular will be carried out in the next section of the report.

Consistent with this change in attitude and a more proactive approach, US antitrust authorities have worked to provide a model for patent pools and cooperative standard setting. The elements of this model were set forth in the two DVD business letters and the MPEG business letter.⁴⁹ In these letters, the US Department of Justice enumerated the requirements of a patent pool that limit the risk of the pool being challenged and found illegal under the antitrust laws. The requirements are:

- the patents in the pool must be valid and not expired;
- there must be no aggregation of competitive technologies and setting a single price;
- an independent expert should be used on an ongoing basis to determine whether a patent is essential to complement technologies in the pool;
- the pool agreement must not disadvantage competitors in downstream product markets;
- the pool participants must not collude on prices outside the scope of the pool, e.g., on downstream products; and
- the pool agreement should not diminish the incentives of the licensees to innovate.

⁴⁹ See letters from John I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Gerrard R. Beeney, Esq., December 16, 1998 and Carey R. Ramos, Esq., 10 June 1999 and letter from John I. Klein, Assistant Attorney General, Department of Justice, Antitrust Division, to Gerrard R. Beeney, Esq., December 16, 1998

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Several antitrust enforcement actions in the US and EU are significant. Two types of cases arose. The first type involved classic misuse of a licensing arrangement, in this instance a patent pool. The case was the VISX/Summit case filed by the FTC. The second type might be labelled the strategic misuse of the standard setting process. In the context of different standard setting procedures, Dell and Rambus both withheld or did not reveal information during the course of adopting a standard. After the standard had been adopted, they asserted patent claims against the companies that had adopted and were using the standards.

Summit and VISX involved two US firms that had developed their own technology for performing laser eye surgery, and had each sought patent protection.⁵⁰ They were the only two firms with this type of technology. The US Federal Trade Commission (FTC) concluded that, rather than proceeding to take their laser technologies to market independently, they created a patent pool in the form of a partnership, to which they each contributed their respective patents. However, in the view of the FTC, the patents were substitutes, not complements; hence the patent pool restricted competition that would have happened in the absence of the pool. The FTC was further concerned that there were restrictions on the pool that were not required for the pooling of the patents. These included imposing a \$250 licensing fee to be paid to the pool each time a laser manufactured by either firm was used to perform a type of eye surgery known as photorefractive keratotomy (PRK) — a procedure for correcting nearsightedness, farsightedness and astigmatism. This had the effect of fixing and increasing the price that doctors paid for PRK equipment and technology, by ensuring that neither firm had an incentive to charge doctors less than \$250 per procedure. In addition, the FTC found that the pool's terms also prevented either Summit or VISX from licensing its own technology to a third party without the approval of the other partner in the pool.

50 This case was brought by the Federal Trade Commission (FTC) in the US in 1998, and involved a patent-pool allegedly used anticompetitively to fix market prices. The facts reproduced here are those recorded by the FTC. The original case details that are publicly available can be found listed as Summit Technology, Inc., and VISX, Inc., Docket No. 9286 on the FTC's website. A summarised case study is also available in a report by the Office of Fair Trading (OFT) in the UK, *Innovation and Competition policy*, Part II – case studies, Economic Discussion Paper 3, March 2002, available at www.of.gov.uk. This section is adapted from the OFT report, which was written by the authors of this report.

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On the basis of the facts and analysis presented by the FTC, this case contains most of the problem areas that can arise in a patent pooling case:

- the key patents were alleged to be substitutes rather than complements,
- there were concerns over possible patent validity (since found to be incorrect),⁵¹
- there were collateral restraints that were arguably unnecessary and anticompetitive (the limitation on unilateral licensing), and
- royalties were at a level that attracted concern.⁵²

In *Rambus v. Infineon*, Rambus asserted that Infineon had infringed upon Rambus' patent rights. Infineon successfully refuted all the claims by accusing Rambus of fraud. In the early 1990s Rambus was a member of the Joint Electron Device Engineering Council (JEDEC), a standard setting organisation for memory chips. It used its membership to promote a Synchronous DRAM standard while at the same time amending its patents to cover the JEDEC DRAM specifications and not declaring to JEDEC that it held a potentially blocking patent. After 1996, Rambus terminated its membership at JEDEC but continued obtaining information on the standard developments. Later, it sued Infineon for patent infringement. In 2001, a jury found in favour of Infineon, and Rambus was permanently prohibited from suing Infineon for patent infringement.⁵³

In *Dell Computer*⁵⁴, the FTC prohibited Dell from enforcing its patent rights against computer manufacturers using VL-bus technology, which is used to transfer commands between a computer's central processing unit (CPU) and its peripherals. The FTC found that Dell had encouraged the Video Electronic Standards Association (VESA) to adopt the VESA Local (VL) bus standard while knowing that Dell held a blocking patent for this technology. In fact, Dell did not reveal to VESA that it held such IP rights when its representative signed

⁵¹ The FTC pursued VISX over allegations that one of its patents was invalid, however this action has since been abandoned, and the patent office has reaffirmed the validity of VISX's patent. Further information is available at www.ftc.gov/opa/2001/02/fyi0107.htm.

⁵² Note that, in our view, whether this was a valid concern depended critically upon the analysis of whether the technologies were substitutes or complements.

⁵³ Dolmans (2002) and *Rambus, Inc. v. Infineon Technologies AG*, No. Civ. A. 3:00CV524, 2001 WL 913972 (E.D. Va. Aug. 9, 2001).

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a statement that the proposal to adopt the standard did not “infringe upon any trademarks, copyrights or patents” that Dell possessed.⁵⁵ After the adoption of the standard, Dell claimed that companies who produced computers with VL-bus were in violation of Dell’s exclusive rights. The Commission intervened and Dell was forced to renounce its claims. According to the Commission, Dell unreasonably restrained competition by hindering the acceptance of the VL-bus standard, raising costs of implementing the design and thereby decreasing the willingness of other firms to participate in industry standard-setting efforts.

What will be the Future Antitrust Issues relating to Patent Pools?

It is always difficult to predict the future, but there are some problems such as the proliferation of patents and the growing patent thicket of overlapping blocking patents that are likely to get worse. Timothy J. Muris, Chairman of the Federal Trade Commission, summed up the problem as follows:

*We need to understand the recent trend of patent proliferation: what are the factors underlying the trend - an explosion of innovation, changes in business approaches to intellectual property, patent procedures at the PTO, or other causes? How does this trend affect the commercialisation of new technology? If the central approaches to navigating a patent thicket involve cross licences and patent pooling, how should antitrust enforcement react to these practices? To the extent that such a patent thicket exists, how does it affect standard setting, for example when access to multiple patents in the hands of different patentees may be required to develop and implement a technological standard?*⁵⁶

While there may be many new problems related to IP and antitrust, it is the last two questions raised by Muris that are central to this report’s goal of providing the EC with an analytical

⁵⁴ *Dell Computer*, 121 FTC 616 (1996).

⁵⁵ Note that one of the issues in standard setting is that when large organisations with many patents are involved in standard setting efforts it is difficult for the individual representing a firm in the process to (1) know of the existence of all the possible relevant patents and (2) know which patents the standard might actually infringe upon. In the Dell case, the FTC did not allege that Dell intentionally and knowingly misled VESA.

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framework for analysing competition issues related to multiparty licensing generally and patent pools in particular.

From our interviews and literature review two major challenges appear to be emerging. We will describe them here and then address them further in Section V. The first is the design and implementation of efficient standards and the patent pools that support them. By analogy, consider the design of a product. The designer needs to be able simultaneously to determine what the product characteristics should be, what technologies and other inputs should be used in building such a product, how much these inputs cost, and whether those inputs are available. Using all this information the product can be designed and “costed” out. If it turns out that the product design is too expensive, the product may have to be redesigned to eliminate high cost inputs. This is an iterative process that requires substantial information. Ideally, designing a standard should be similar to designing a product. However, in most cases, far less of the relevant information is available during the design process preceding adoption. This is due at least in part, to firms’ fears of running foul of the competition authorities.

The second problem is related to the Rambus and Dell cases. In both those cases the firms were part of the standard setting process and then later asserted patent rights and demanded royalties. The competition authorities did not respond favourably to this situation. However, suppose a firm strategically stayed out of the process knowing that there was a good chance that the standard that would be adopted would infringe upon its IP rights. Rather than joining the standard setting process and sharing in the joint royalties, such a firm could position itself to try to extract much higher royalties after the standard had been adopted. A few successful instances of such behaviour could scuttle the development of standards. We believe these issues should be on the agenda of competition authorities in the EU and the US in the coming decade. However, this problem, while extremely important, is not central to the subject matter of this report, which is focussed upon developing an analytical framework for multiparty licensing.

⁵⁶ Timothy J. Muris, *Competition and Intellectual Property Policy: The Way Ahead*, Prepared Remarks before the American Bar Association, Antitrust Section Fall Forum, Washington, DC, 15 November 2001.

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Over the past century antitrust enforcement has focused upon preventing the terms of patent pool design and licensing practices from being used to restrain competition without contributing to the legitimate objective of efficiency-enhancing sharing of technology. In the future, we believe such enforcement will be directed toward:

- the question of what institutional mechanisms and rules are required to solve the problem of designing effective standards; and
- the problem of protecting standards from strategic attacks by firms that deliberately stay out of the process with the intention of getting greater royalties by waiting until after the standard has been adopted before revealing IP rights.

Clearly, the number of cases involving multiparty licensing and competition policy has been small in the US and the EU, although this number could increase exponentially as the patent thicket becomes more dense and firms become ever more strategic in their use of IP as a competitive weapon. In this environment, patent pools become more and more important as one possible solution. In talking with business people and patent lawyers, their subjective estimate seems to be that if one were to count the number of new major standard setting efforts with patent pools worldwide, the number would not exceed two hundred — with about ten coming to fruition each year. If one added the smaller efforts by consortia, that number could rise to two thousand. In addition to those in progress, there are thousands more of these arrangements in place. If a significant number of these resulted in challenges, it could create a capacity problem for the enforcement institutions. To date this has not occurred in either the US or the EU

II Multiparty Licensing – The Literature and OECD Practices

In the preparation of this report, CRA has reviewed four blocks of literature that bear upon competition policy and multiparty licensing. The first two are found in the modern literature, essentially that from 1980 to the present, dealing (1) with competition policy and the licensing of intellectual property and (2) competition policy and collaboration among competitors, since both are elements of most, if not all, multiparty licensing. At the intersection of these bodies of literature is a small set of papers dealing specifically with cross licensing and patent pools or with the antitrust aspects of cross licensing and patent pools in the context of some collaborative arrangement such as standard setting.

The third body of literature that is intimately related to the first two includes the competition guidelines of the OECD countries in general, but in particular the US Guidelines. The 1995 *Antitrust Guidelines for the Licensing of Intellectual Property* [1995 Guidelines] and the 2000 *Guidelines for Collaboration Among Competitors*, [2000 Guidelines] embody the principles of antitrust analysis that have been articulated in the two previously mentioned strands of modern literature on these topics. Therefore, by carefully setting out those principles, one summarises the critical contributions of this literature as well as enunciating the basic principles for analysing any competitive issue that arises in the context of multiparty licensing agreements. In fact, a fairly simple set of competition principles and concepts can be applied to these problems.⁵⁷

As a way of summarising the basic conceptual development in the modern literature and the principles that guide US antitrust treatment of multiparty licensing, we enumerate and discuss these principles with a few examples to clarify the basic points. We also look at the relationship between these principles and those used in merger analysis. The purpose is not to rehash the US Guidelines, but to capture and state the principles from the 1995 Guidelines

⁵⁷ We recognise that often the application of these principles is far from simple given the practical (often factual and institutional) difficulties with which the competition analyst is faced when trying to apply the principles. Some would argue, therefore, that the principles are of little help. However, we disagree. The practical problems will exist regardless of whether a framework is available, and are in no way easier to deal with in a conceptual vacuum.

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and the 2000 Guidelines that should provide a starting point for the competition analysis of any specific multiparty licensing arrangement.

We next compare the US approach to that of Canada and Japan, which, aside from the countries of the EU and the US, are the only OECD countries with notable mention of IP licensing in their competition policies. What we find from this review is that both Canada and Japan articulate policies that are consistent with the principles in the 1995 Guidelines and 2000 Guidelines, but it is entirely possible that their application of those principles may vary. In any case, neither Canada nor Japan has a well-articulated method of analysis that goes beyond the US model or that provides a markedly different perspective for consideration.

Finally, the fourth body of literature reviewed consists of selected papers and transcripts from the ongoing hearings and roundtable discussions jointly sponsored by the US Department of Justice and the US Federal Trade Commission addressing competition policy as they pertain to issues related to IP. The stated concerns of some of these papers about emerging future problems coupled with similar expressions of concern found in other recent literature, and expressed to us in interviews, are reported at the end of this section. Aside from a brief discussion, these issues will simply be raised here and discussed more fully later in the report, although some of the implications are discussed at the end of this section.

The Development of the Modern Literature

In Part I we developed the history of multiparty licensing and its relationship to competition policy as it was enforced in the US and the EU. One of the central themes was that multiparty licensing in general, but patent pools in particular, were looked upon with great suspicion by competition authorities in the 1960s and 1970s. This was because on a number of occasions patent pools had been used as an instrument of blatantly anti-competitive practices, and because any kind of collaboration among competitors was looked upon with great concern due to the likelihood that it would enable or facilitate collusion. However, in the 1980s, the rapid growth and importance of the new economy forced a reassessment of this thinking.

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What was required was a new approach to antitrust enforcement that was not universally hostile to all forms of collaboration among competitors such as patent pools, but one which could distinguish between those forms of collaborative behaviour involving IP that on balance were pro-competitive and those that were not. To sort out the pro-competitive and anti-competitive aspects of the licensing of IP, one of the most fundamental issues that had to be considered carefully was the fact that the granting of IP rights creates a limited monopoly for the owner of the IP. Some see this as creating a constant tension between competition policy and the IP laws. In fact, at a fundamental level, both are designed to serve the same goal, that of creating an efficient productive economy that benefits the consumer. However, the laws creating and protecting IP do so by creating financial incentives for innovation, which expands production possibilities, whereas antitrust policy has tended to focus on promoting efficient use of these possibilities.

In evaluating licensing agreements from the perspective of whether they are procompetitive, inevitably one of the key questions is: “Compared to what baseline?” Put differently, given the expected effects of this licensing agreement, would competition be greater or less than what it would have been in the “baseline” case? Establishing the relevant baseline, or counterfactual, is therefore key. Indeed, we believe that often differences of opinion as to whether or not a particular arrangement is anticompetitive actually hinge on the assumed counterfactual. It is important to point out again that in cases of multiparty licensing, i.e., cross licensing and patent pools, there are often a combination of issues pertaining to licensing and the collaboration of competitors that arise in the context of joint ventures, standard setting, the settlement of IP disputes, or rivals seeking to solve mutual problems when they face a patent thicket. Therefore, in addressing the competition issues that pertain to multiparty licensing, one must look at the related issues of how to analyse licensing agreements, as well as how to analyse situations where competitors collaborate.

Confronted with the need to analyse both the competitive effects of licensing agreements and the competitive effects of collaboration among competitors in the new economy, a new group of antitrust economist and lawyers emerged in the 1980s. They began to address these issues and to develop a methodology that would keep in place the old prohibitions against licensing agreements and collaborative arrangements that remained clearly anti-competitive, but at the

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same time was designed to be sufficiently flexible and robust to allow competition authorities to identify those situations in which licensing agreements and collaborative action would significantly enhance efficiency without unduly restricting competition. In other words, these scholars sought to develop a methodology whereby competition authorities could identify cases in which there would be either clearly beneficial effects on productivity with little or no adverse effect on competition, or a substantial productivity gain with some lessening of competition or a risk of lessening competition, but where potential gains clearly outweighed the risks to competition. In these cases, a disciplined framework was required which competition authorities could use to identify the potential competitive benefits and costs and then weigh one against the other. This was not too different from what had been developed for evaluating merger cases, although there are some significant differences that will be discussed.

The analysis of these issues was led by a small group of economists, all from the University of California at Berkeley. This group, writing individually and collaboratively, produced the major work in this area of analysis. To be sure there were a substantial number of other economists and lawyers who wrote about these topics and who are listed in the attached Bibliography, but it was Joseph Farrell, Richard Gilbert, Michael Katz, and Carl Shapiro who pioneered this analysis and their collective work stands today as the accepted intellectual framework for this analysis. Very recently, however, several papers have emerged that also address some of these issues in the context of sequential innovation (Lerner and Tirole 2002; Denicolo 2002).⁵⁸

Furthermore, the analysis presented by these four economists forms the basis for antitrust enforcement in the United States as set forth in the 1995 Guidelines and in the 2000 Guidelines. One certainly suspects that some significant part of this congruence between economic theory and antitrust practice stems from the fact that all four economists, plus one other economist from the University of California at Berkeley, Daniel Rubinfeld, have served as Deputy Assistant Attorney General for Economics in the Antitrust Division of the US

⁵⁸ These papers do not offer any insight or conclusions that would significantly change the basic principles that are embodied in the 1995 Guidelines and 2000 Guidelines which are adopted in this report. What they do suggest is that there may be a case for relaxing the principles in some cases of sequential innovation, Lerner and Tirole agree incentives for innovations may be increased in some sequential situations if competing patents were allowed into patent pools.

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Department of Justice in the period from 1993 to the present (Michael Katz is currently finishing a two-year term in the position). That position is uniformly regarded as one of the two top jobs in the US for economists dealing with competition policy. Also, the influence of these economists goes far beyond US policy. As evidence of this, the OECD recently commissioned Carl Shapiro to prepare a paper on competition policy and innovation to help member countries identify ways in which they can design and implement policies that best promote innovation, while protecting against anticompetitive behaviour.⁵⁹

Therefore, the basic principles developed by the modern literature on competition policy and licensing, as well as on competition policy and collaboration among competitors, form the intellectual basis for the 1995 Guidelines and the 2000 Guidelines. These Guidelines themselves are an important part of the literature in their own right, because they not only represent the policy of the US antitrust enforcement agencies, but they also have provided principles which have been influential in the development of similar policies in OECD countries as well as in countries throughout the world which have developed competition policies.

Principles from 1995 Guidelines

The first of these guidelines, the 1995 Guidelines, begin by reasserting the premise that “the intellectual property laws and the antitrust laws share the common purpose of promoting innovation and enhancing consumer welfare”⁶⁰. Furthermore, as general principles, the 1995 Guidelines establish (1) that IP should be viewed as comparable to any other property, and (2) that IP should not be presumed to create market power in an antitrust context but “that intellectual property licensing allows firms to combine complementary factors of production and is generally procompetitive”⁶¹. Put differently, the treatment of the use of IP in the antitrust context is to be similar to the treatment of the use of any other property. There is to be no presumption that IP creates market power that is inconsistent with the enforcement of the antitrust law; and it is recognised that in general, licensing serves a function that generally

⁵⁹ *Competition Policy and Innovation*, Professor Carl Shapiro, OECD Directorate for Science, Technology and Industry Working Papers 2002/11.

⁶⁰ 1995 Guidelines, p.2.

⁶¹ 1995 Guidelines, pp.2-3

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promotes procompetitive outcomes. This is a significant shift to recognising the many benefits of licensing, rejecting the conflict theory of IP law and antitrust law, and the adoption of a unified perspective on the treatment of agreements pertaining to all property including IP. This repositioning and reframing of this basic starting point or perspective was a major step toward developing sound competition policy with respect to intellectual property.

It is important to note in this opening statement of principles that the guidelines point to the efficiency gains from the combining of “complementary” factors of production. A major distinction that is developed in the literature and incorporated in the guidelines is that the combining of complementary factors of production, in particular complementary patents, is generally likely to be procompetitive whereas the combining of substitute factors that are competitive alternatives often may be anticompetitive. This principle is fundamental to competition analysis pertaining to multiparty licensing.

Further, in discussing the procompetitive nature of combining complementary factors the guidelines also recognise that blocking patents are necessarily complements and that one of the procompetitive benefits of licensing may be the coordinated use and development of technologies in which the underlying patents are in a blocking relationship⁶². This establishes important procompetitive benefits from licensing generally which in turn applies to all examples of multiparty licensing.

The next fundamental principle pertains to the situation in which licensing may lead to competitive harm. Following the modern literature in the field, the 1995 Guidelines stated that:

*the key competitive issue raised by licensing arrangements is whether it harms competition among entities that would have been actual or potential competitors in the absence of the arrangement.*⁶³

This is the single most important principle in the application of competition policy to licensing agreements. It is applied time and time again in the analysis of the effects of licensing upon competition. In fact, the remainder of the 1995 Guidelines (parts 3-5) are

⁶² 1995 Guidelines, p.5.

⁶³ 1995 Guidelines, p.6.

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simply examples of how the agencies might apply this principle in different factual circumstances. The breadth of its application is suggested in the following sentence that immediately follows that statement of the basic principle:

Such harm could occur, if, for example, the licences anticompetitively foreclose access to competing technologies..., prevent licensees from developing their own competing technologies..., or facilitate market allocation or price fixing for any product or service supplied by the licensees.⁶⁴

In some cases it may be relatively straightforward to apply this principle. In others however, it will be very difficult. In still other cases its application may be unacceptably speculative. Nonetheless, the critical question remains: what competition would have existed, but for the licensing agreement? Trying to determine the “but for” situation can, of course, be extremely challenging, as can determining how competition will in fact work after the licensing agreement is formulated. Furthermore, the establishment of the “but for” situation is particularly speculative when one is talking about potential competition from new firms or new, but as-yet-undeveloped, products or about the level of future R&D by competitors. Against these problems, a counterfactual is always present in any decision, even if only implicitly. So, while it may be difficult to define the counterfactual, the important point is that serious thought should be specifically dedicated to considering the counterfactual, and that focus should not be solely on the potential outcome of the arrangement as proposed. The competitive analysis simply cannot be done properly without considering explicitly both the “with” and “without” licensing state of competition. Even if the counterfactual cannot be defined clearly, this approach will still significantly assist the analysis process, and lead to better decisions.

One simple example, that combines the elements of several of the examples in the 1995 Guidelines and illustrates the basic principles, is presented as follows. Suppose a firm owns a patent on a technology for a product for which there is no close substitute. The firm could then produce that product throughout the world as a monopolist. Instead of doing that, it chooses to license the patent to a number of licensees, giving each an exclusive licence for particular territories with regard to both the production and the sale of the product. Basically, through its licensing practice, the firm is facilitating the establishment of geographically

⁶⁴ 1995 Guidelines, p.6.

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restricted monopolies of the product. Application of the fundamental principle would lead one to conclude that this should not be seen as anticompetitive from the prospective of competition policy because the patent holder could have operated a monopoly in each geographical region, or if the patent holder had not licensed the patent, there might be no production or sale of the product in these areas. Another way of viewing the issue is to observe that as there is a single IP right holder, then there will always be a monopoly of the property right, regardless of whether the right is used by the rightholder themselves, or by one or more other parties on the IP owners behalf. Granting a “local monopoly”, or more particularly refusing to allow such local monopolies, in no way alters this basic fact. In any case, there is no reduction of the competition that would have existed but for the licensing agreement.

Now alter the facts slightly. The patent holder owns a patent required to make a product that is a significant improvement on another patented product manufactured by one other company. This other product is an imperfect substitute for the new product. Now suppose the holder of the patent on the improved product licenses it on an exclusive basis to a number of firms which have territorial restrictions on their use of the patent. So far the analysis is the same as before; no competition has been eliminated that would have existed “but for” the licences.

Suppose, however, the patent holder of the improved product had given an exclusive licence to the firm producing the competing (original) product. This would put production and distribution of the two (albeit imperfect) substitute products under monopoly control and that might eliminate competition that, “but for” the licensing agreement, might have existed. We can only say it *might* have eliminated such competition, because if the poor substitute would otherwise have gone out of production, then there would be no impact upon competition. Further, there might be procompetitive benefits if the existing producer of the inferior substitute was likely to be the most efficient producer and marketer of the new product. This is a relatively simple case. In general, however, analysing what the competitive situation will be with and without a given licensing agreement can be a significant challenge; but it is a challenge that cannot be avoided. Even in this simple example, considering the

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counterfactual carefully has considerably advanced the analysis, and has highlighted issues that might warrant further investigation in a real case.

Another way of looking at this principle is that it provides a specific test for determining whether a licensing agreement extends the limited monopoly power of the licensor or the competitive constraints granted by the IP beyond what was granted by the IP. In the case of multiple exclusive licences, in the foregoing example the answer is, clearly, “No.” However, if an exclusive licence is granted to a competitor with the only competing technology, then the situation changes. Rather than take advantage of the right to exercise his patent and benefit from competing as the only producer with this technology, the licensor now creates an entity that can produce a product with the new technology covered by the licensed IP, but without the same competition from the old technology. This licensing agreement would create a situation equivalent to a monopolist producing the new technology merging with the only firm producing a competing product. This clearly extends the competitive restrictions granted by the IP. Therefore this test of whether a licensing agreement eliminates competition that would have existed without the licensing agreement is an operational procedure for testing whether the competitive constraints granted by the IP laws have been extended beyond the IP rights that were initially granted. If one accepts that the rights granted by the IP laws should be respected, then the way to test for this is to ask whether any competition that would have existed in the absence of the agreement has been eliminated.

We now focus upon what the 1995 Guidelines say about cross licensing and patent pools and the issues that it identifies as being particular to these forms of licensing⁶⁵. In addressing these issues, the 1995 Guidelines begin by setting out the potential procompetitive benefits of these arrangements which facilitate “integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation”⁶⁶. However, it goes on to say:

Cross licensing and pooling arrangements can have anticompetitive effects in certain circumstances. For example, collective price or output restraints in pooling arrangements, such as joint marketing of pooled intellectual property rights with collective price setting or coordinated output restrictions, may be

⁶⁵ 1995 Guidelines, section 5.5.

⁶⁶ 1995 Guidelines p.28.

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*deemed unlawful if they do not contribute to an efficiency-enhancing integration of economic activity among participants.*⁶⁷

The 1995 Guidelines restate, for cross licensing and pooling arrangements, the basic principle that the Agencies (US Department of Justice and The Federal Trade Commission) will apply when considering whether the effect of those arrangements is to diminish competition that would have been likely in their absence. The Guidelines enumerate a number of specific concerns and give examples of how the agencies would address them. However, before turning to these specific issues and their analysis which we treat in the next section, it is important to turn to the other half of the analytical framework, namely, the principles set forth in the 2000 Guidelines.

Summary

In summary, the 1995 Guidelines establish a number of important principles for dealing with IP licensing issues. In particular:

- IP should be viewed as comparable to any other property;
- IP should not be presumed to create market power in an antitrust context;
- the key competitive issue raised by licensing arrangements is whether it harms competition among entities that would have been actual or potential competitors in the absence of the arrangement, which is equivalent to asking whether it extends competitive restraints beyond what were granted to the licensor.

⁶⁷ Note here that the 1995 Guidelines clearly anticipate the 2000 Guidelines. 1995 Guidelines p.28.

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Principles from the 2000 Guidelines

The 2000 Guidelines, like the 1995 Guidelines, begin by recognising procompetitive opportunities, in this case the opportunities are seen as stemming from collaboration among competitors, which represents a marked change in tone. The first two paragraphs state:

In order to compete in modern markets, competitors sometimes need to collaborate. Competitive forces are driving firms towards complex collaborations to achieve goals such as expanding into foreign markets, funding expensive innovation efforts, and lowering production and other costs.

Such collaborations often are not only benign but procompetitive. Indeed, in the last two decades, the federal antitrust agencies have brought relatively few civil cases against competitor collaborations. Nevertheless, a perception that antitrust laws are sceptical about agreements among actual or potential competitors may deter the development of procompetitive collaborations.⁶⁸

The basic framework for analysing such collaborations is very similar to the framework for analysing mergers. The first step is to identify and verify significant procompetitive effects from collaboration, followed by identifying and analysing the possible negative effects upon competition; ultimately resulting in a balancing of one against the other. However, the 2000 Guidelines point out that there are some differences which, as we shall see, create the need for an additional principle:

The competitive effects from competitor collaborations may differ from those in mergers due to a number of factors. Mergers completely end competition between merging parties in the relevant market(s). By contrast, most competitor collaborations preserve some form of competition among the participants. This remaining competition may reduce competitive concerns, but also may raise questions about whether participants have agreed to anticompetitive restraints on the remaining competition. Mergers are designed to be permanent, while competitor collaborations are more typically of limited duration, and for a limited purpose. Thus participants in a collaboration typically remain potential competitors, even if they are not actual competitors for certain purposes (e.g. R&D) during the collaboration. The potential for future competition between participants in a collaboration requires antitrust scrutiny different from that required for mergers.⁶⁹

⁶⁸ 2000 Guidelines, p.2.

⁶⁹ 2000 Guidelines, p.5.

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In the context of a procompetitive collaborative arrangement there may be a variety of ways to structure a deal that accomplishes the desired procompetitive integration. In such instances the competition agencies will rightly ask whether an agreement is structured to achieve an efficiency-enhancing integration with the least restrictive impact on competition. It is emphasised, however, that it does not have to be the least restrictive from a theoretical standpoint. The agencies will ask only whether there is a practical alternative that would be substantially less restrictive of competition. If so, such a collaborative agreement may be challenged as anticompetitive on the premise that it would eliminate significant competition that could have existed under an alternative agreement that would have achieved the same pro-competitive benefits.

The 2000 Guidelines state:

An agreement may be “reasonably necessary” without being essential. However, if the participants could achieve an equivalent or comparable efficiency-enhancing integration through practical, significantly less restrictive means, then the Agencies conclude that the agreement is not reasonably necessary. In making this assessment, except in unusual circumstances, the Agencies consider whether practical, significantly less restrictive means were reasonably available when the agreement was entered into, but do not search for a theoretically less restrictive alternative that was not practical given the business realities.⁷⁰

Therefore, the basic principles for evaluating a collaboration between or among competitors are⁷¹:

- the existence of recognisable efficiencies that must be verifiable and potentially procompetitive;
- the proposed collaboration must be reasonably necessary to achieve these efficiencies and be the least restrictive of the practical alternatives for achieving them;
- the benefits from these efficiencies must outweigh any anticompetitive costs or harm.

⁷⁰ 2000 Guidelines, p.9.

⁷¹ 2000 Guidelines, p.24.

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It should be noted that both the 1995 Guidelines and the 2000 Guidelines have antitrust “safety zones”. Absent extraordinary circumstances, the Agencies will not challenge a licensing agreement or collaboration when the collective market shares of the participants are less than twenty percent of each relevant market in which competition may be affected.⁷²

We believe that such a safety zone is appropriate and should be incorporated in any set of competition guidelines. It will allow firms with low markets shares to engage in exchanges and pooling of technology that could help them compete more effectively without having to consider the competition ramifications of their multiparty agreements.

It must also be understood that both the 1995 Guidelines and the 2000 Guidelines make very clear that there are two modes of analysis: that of a “rule of reason,” which applies to the majority of cases involving intellectual property; and that of “*per se*” violations, which are considered so plainly anticompetitive that they are concluded to be anticompetitive, and therefore illegal, without any enquiry into the restraint’s likely competitive effect.⁷³ The 1995 Guidelines state:

In the vast majority of cases, restraints in intellectual property licensing arrangements are evaluated under the rule of reason. The Agencies’ general approach in analysing a licensing restraint under the rule of reason is to inquire whether the restraint is likely to have anticompetitive effects....

*In some cases, however, the courts conclude that a restraint’s “nature and effect are so plainly anticompetitive” that it should be treated as unlawful *per se*, without an elaborate inquiry into the restraint’s likely competitive effects....*

*Among the restraints that have been held *per se* unlawful are naked price fixing, output restraints, and market division among horizontal competitors, as well as certain group boycotts and resale price maintenance....*

It is important to note that there are two significant differences between rule of reason analysis and the analysis of *per se* violations. In the case of *per se* violations, the analysis focuses upon whether the illegal act occurred. There is no in-depth analysis of the facts surrounding the alleged conduct or of the effects of that conduct upon competition and consumer welfare. Under *per se* treatment, the alleged conduct is presumed to harm competition and is therefore prohibited. Accordingly, there is no need to analyse the

⁷² 1995 Guidelines 4.3, 2000 Guidelines 4.2.

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competitive effects or to weigh competitive benefits against costs. By contrast, in rule of reason analysis there is generally an in-depth analysis of the competitive consequence of the conduct in question. This analysis may find that there are no anticompetitive effects, given the facts of the case, or that there are. In cases where there are both, rule of reason analysis will typically weigh the competitive benefits against the anticompetitive costs. Thus, rule of reason analysis involves, first, an in-depth analysis of the competitive consequences of the conduct in question, and the factual setting and, second, an analysis of the trade-off between pro-competitive and anticompetitive effects, when both are present.

The modern literature on licensing and collaboration among competitors and the 1995 and 2000 Guidelines make it clear that the basic principles that have been previously cited have been developed for application to rule of reason analysis and have never been advocated to supersede fundamental antitrust prohibitions or to justify conduct that has been designated as *per se* illegal, even if the conduct does not violate any of these principles.

To illustrate this, let us take the example mentioned above of retail price maintenance. If terms of a licensing agreement called for retail price maintenance in the US, it would be ruled illegal without any further analysis, even if the agreement did not violate the basic principle developed above – that it would not eliminate any competition that would have existed in the absence of the licensing agreement. Does this fact somehow invalidate the principle? The answer is: not at all. In the US, retail price maintenance is something that the courts have concluded should be forbidden *per se* as being anticompetitive. In the EU, it is also treated as being anticompetitive under Article 81.⁷⁴ Some economic analysis of retail price maintenance has questioned whether retail price maintenance is, in fact, anticompetitive. However, the point here is not to argue that retail price maintenance should or should not be illegal. It simply *is* illegal in the US and is viewed as anticompetitive in the EU. The fact that a principle of competition policy would not automatically imply that retail price maintenance should be deemed anticompetitive, does not imply that the principle is flawed. Similar reasoning applies to the concept of market partitioning in the EU.

⁷³ 1995 Guidelines, 3.4, pp. 11, 12; 2000 Guidelines, 3.2, 3.3, pp. 6-8.

⁷⁴ RPM is treated as a hardcore restriction, and is listed as such under Article 4(a) of the Block Exemption Regulation.

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The fact is that for historical and other reasons including objectives that go beyond competition concerns, such as economic integration in the EU, governments have declared some economic practices to be anticompetitive, and therefore illegal. The formulation of principles for analysing licensing agreements that was developed in the modern literature was not designed as a basis for either evaluating or overriding conduct that had been established, rightly or wrongly, as anticompetitive in a particular jurisdiction. What the principles in the guidelines are designed to do is to help analyse the competitive effects of various multiparty licensing agreements, while at the same time not restricting the property rights of the parties involved in the licensing agreement.

In the context of licensing and competition analysis, the principle that a licensing agreement should be challenged only if it eliminated competition that would have occurred in the absence of the licence, is primarily a test for whether the terms of the licensing agreement extend the competitive restrictions beyond those that were granted to the owners of the IP under the intellectual property laws. As we have seen in Section I, the history of competition law is filled with instances in which licensing agreements and patent pools were used to greatly increase competitive restraints beyond those granted by the IP rights being licensed. If a licensing agreement does not eliminate or restrict competition that would have existed with the granting of the IP, but without the licensing agreement, then the licence does not extend the restrictions on competition beyond those granted by intellectual property laws. This means that if we are not to abrogate the IP laws with the enforcement of competition policy, we should allow restrictions on licensing agreements that are consistent with the owner of the IP exercising his IP rights. As we have just indicated, that does not include licensing terms that would require or allow the licensee to violate existing competition laws, just as the owner of the IP would not have been allowed to do that in exploiting his own IP. We will discuss this in more detail in the next section, which deals with the relationship between IP law and policy, and competition law and policy.

The significance of this discussion for the development of guidelines or a block exemption by the EC is that multiparty licensing agreements that involve terms that clearly violate Article 81 should be prohibited. This is equivalent in terms of the US guidelines of conduct being *per se* illegal. To the extent that there is no clear violation and the question is whether

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a particular agreement should be allowed because it does not restrict competition or not allowed because it does without providing offsetting pro-competitive benefits that more than compensate for the reduction in competition, then the principles in the modern literature developed above can be very helpful. We will develop a four-step procedure which embodies these principles that can be used to answer these questions.

Innovation and Technology Markets

The 1995 and 2000 Guidelines also advocate the use of technology and innovation markets. We have some reservations with respect to the use of innovation and technology markets as described (with examples) in the 1995 and 2000 Guidelines. There are two related issues underlying these concerns. First, it is not clear that the examples given could not have been dealt with more conventionally as product markets, albeit that the products were highly technical, and traded between manufacturers, with the competition issue relating to a reduced incentive to improve products or introduce new products. Second, we believe that it is important to focus upon the actual market where trade or production will take place as much as possible, because there are quite serious conceptual problems associated with attempting to apply conventional competition analysis to research and development activity. This is particularly an issue in relation to innovation markets. We discuss these points in turn.

It is not clear that most examples of competition issues that can be envisioned could not be better dealt with as product markets. For example, the 1995 Guidelines⁷⁵ discuss an example of two firms producing specialist components for aircraft turbine engines. The scenario considers a cross licensing agreement of future patents, with the possible result that it will reduce the incentive to conduct R&D and innovate in the manufacture of certain components. Certainly it is true that this can be seen as an “innovation” problem. However, if competition is viewed in its broad sense, that is, as a process which involves not only price competition in the short term, but also new and improved products, then the arrangement can be seen as simply having the potential to restrict or reduce the level of competition in the relevant market for aircraft turbine engine components. Our view is that in markets with a heavy focus on technology, where competition usually has a significant dynamic component, competition must be viewed in this broad sense, and that many issues of potential impacts on

⁷⁵ 1995 Guidelines at page 12.

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innovation should therefore be dealt with by using a broad definition of competition rather than through a narrow market definition.

We should note, however, that we do not believe there is a problem defining a market for a technology, when this is simply reflecting the fact that the product traded is technology itself. We do not see any particular difference between trading technology and any other input. Indeed, given that licensing issues depend heavily on whether particular inputs (technologies) can be substituted or not, rather than whether final goods in the market are substitutes, this approach to defining markets is entirely appropriate.

We are not particularly comfortable with the idea of an innovation market — a pure market in R&D, as against a product market in which innovation is a significant feature of competition — as there are quite serious conceptual problems associated with attempting to apply conventional competition analysis to pure R&D activity. Forecasting the effects of intervening in these markets on future R&D, product development and future competition is highly speculative. In part this is because there are fundamental difficulties raised by the fact that R&D is not an output, but an input. An expectation that the level of R&D undertaken will be reduced is not equivalent (in terms of welfare analysis) to the expectation that a monopolist will constrain quantities in an output market. In theory, constraining output causes prices to rise above costs, and detriment to consumers occurs both from the inefficiency that results, and from the resulting wealth transfer from consumers to producers. There is no theoretical equivalent effect resulting from reducing R&D.

A reduction in R&D expenditure as a result of mergers, R&D joint ventures or licensing agreements may simply eliminate duplication, thereby enhancing efficiency. It may even lead to more innovation with less total cost due to knowledge sharing, or, alternatively, it may lead to less innovation. Economic theory, however, does not predict which of these is likely to result. Carlton and Gertner (2002)⁷⁶ argue (in the context of mergers) that there are three conditions necessary to justify the addition of innovation markets to merger analysis; namely, (1) reducing R&D expenditures is undesirable; (2) if there are fewer firms performing R&D, there will be less aggregate R&D and fewer new products, and (3) it is possible to determine

⁷⁶ *Intellectual Property, Antitrust and Strategic Behaviour*, NBER Working Paper 8976, June 2002, www.nber.org/papers/w8976, at page 3.

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that there are not enough other firms to perform R&D through which to develop future products to compete with future products of the merged firm. They further argue that there is no general theoretical or empirical support for any of these conditions.

Related to points (2) and (3) raised above, our view is that it needs to be kept in mind that where products have not yet been developed, particularly where they will be based on future R&D (which will become a fixed and often sunk cost), investment in R&D can be justified only if the products resulting from that investment can be sold, at least for some period of time, at prices above what would prevail in a market with a number of competitors. Thus, in innovation markets or technology markets, efforts by competition policy enforcement to ensure that there is immediate and vigorous competition in markets for newly developed products may, to some extent, be counter-productive. Such efforts are likely to risk discouraging investment in these cases, and to slow or stifle the development of new products which cannot yield an adequate return on investment if immediately sold in competitive markets. Competition authorities first ought to allow licensing arrangements that facilitate new product introduction. In dynamically competitive markets, which are generally the ones in which innovation or technology markets are defined, competition will normally follow once a product is successful and highly profitable.

Nonetheless, it would be too harsh to say that the concept of either a technology or an innovation market should never be applied to deal with situations where the prime concerns is a potential change in the level of R&D activity. There are examples of industries where numerous individuals and firms exist to create ideas and inventions related to various industries, and in which the resulting ideas and innovations are traded. There will be times when such activity will not be clearly related to existing markets. If product markets cannot be defined because it is not clear from the nature of the innovation what products might be developed, but it is apparent that there will be a reduction in the level of rivalry in a market that involves R&D, then it may be necessary and desirable to analyse the relevant innovation market. However, if this option is taken, it is very important to understand that the tools applied to output markets cannot be applied blindly to analysing an input market. This is as true of licensing arrangements as it is of merger analysis. Our view is that such an approach may be needed at times, but that this should be rare, and the analysis needs to be carefully

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undertaken. Finally, when the degree of uncertainty is such that competition authorities would likely reject out of a hand a merger defence based on such speculation, those authorities should be equally reticent to intervene on the basis of a similar degree of speculation regarding a licensing arrangement.

THESE PRINCIPLES AS A FRAMEWORK FOR COMPETITION ANALYSIS OF MULTIPARTY LICENCES

Taken together the basic principles from the 1995 Guidelines and the 2000 Guidelines can be developed into a systematic framework for analysing multiparty licensing agreements. Further, this analytical framework is consistent with how competition issues are generally analysed, including the analysis of mergers. For multiparty licensing agreements that do not fall within the antitrust safety zone, and that do not include terms that are prohibited under the law as being anticompetitive without further analysis – i.e., the equivalent of being illegal *per se* – the procedure would be as follows:

Step 1. Analyse whether the agreement or the collaborative process lessens or puts at risk any competition that would have occurred in the absence of the agreement and collaborative process.

Comment: If the answer is no, then the agreement should be allowed. If it is yes, the process should be continued to the next step.

Step 2. Determine whether the multiparty licensing agreement and the process of collaboration that surrounds that agreement creates cognisable, verifiable, measurable procompetitive efficiencies.

Comment: Here, part of the answer may be determined by whether the agreement allows for the combination or integration of complementary (as opposed to competing or substitute) IP. Given that the proposed licensing agreement will lessen or put at risk competition that would have occurred in the absence of the agreement, the efficiencies must be documented and, if possible, quantified. If substantial efficiencies cannot be identified, the process should end, and the licensing agreement found to be anticompetitive. If they can be identified, one would move to Step 3.

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Step 3. Determine whether the licensing agreement, and the process of collaboration associated with it, is reasonably necessary to achieve the procompetitive benefits.

Comment: The term “reasonably necessary” in this context contains two elements for scrutiny. First, is it necessary? Second, if yes, is it the least restrictive approach: i.e., there is no practical alternative way of achieving a similar level of benefits that is significantly less restrictive of competition than the proposed agreement. If the answer is no to the first question, then the agreement should be rejected. If it is yes to the first and no to the second, one should move to Step 4.

Step 4. For agreements and collaborative processes that have reached this point, then the procompetitive benefits from the integration of IP must be weighed against any foreseeable lessening of competition or competitive risks from the proposal as it stands.

Comment: This process is typical of the balancing of the benefits from efficiencies against the costs of competitive restrictions that characterises a wide range of competitive analyses including mergers. While it has been shown in other areas, for example in merger analysis, that a procedure or framework like the one proposed above is not always easy to follow, it can be very helpful in analysing licensing agreements and provides a discipline to keep the analysis focused and on track. Further, such a procedure will quickly pick up the anticompetitive cases where a multiparty licensing agreement has provisions that go beyond what is required to gain any potential efficiency benefits and are designed to limit competition that would have occurred in the absence of the agreement. These cases will fail to get past Steps 1 and 3. At the same time the procedure does allow the procompetitive benefits to be weighed against competitive restrictions or risks where incurring these are essential to obtaining subsequent benefits to consumers.

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The US Guideline as compared with Canada and Japan

Canada

The Canadian approach is summarised in the 2000 *Intellectual Property Enforcement Guidelines* and is based upon the premise that the *Competition Act* generally applies to conduct involving IP in the same way it applies to conduct involving other forms of property. Aside from some brief mention of arrangements based upon IP rights between individual entities and a brief discussion of patent pools, there is very little in the guidelines regarding the competition treatment of patent pools in Canada. This does not mean that it departs markedly from the EU and the US perspectives. In fact, a 2001 parliamentary report on Canadian innovation policy, *A Canadian Innovation Agenda for the Twenty First Century*,⁷⁷ mentions patent pools as solutions to the patent thickets and alludes to the fact that the approach of the Canadian competition policy to patent pools is essentially the same as the one of the US.

The Bureau does not consider IP licensing anticompetitive unless it:

reduce(s) competition substantially or unduly relative to that which would have likely existed in the absence of the licence.

Furthermore,

It applies the general provisions of the Competition Act to arrangements between independent entities based on IP rights, not to the exercise of the IP rights themselves.

The guidelines briefly mention patent pooling arrangements and recognise that they may provide pro-competitive benefits by providing a solution to (one-way and two-way) blocking patents, to expensive infringement litigation and to lowering transaction costs.

Note in addition that the above-quoted statements capture two of the principles in the 1995 Guidelines. The second says, essentially, that the basic competition laws will apply to the conduct of competitors and that IP is a form of property that will be considered in

⁷⁷ <http://www.parl.gc.ca/infocomdoc/37/1/INST/studies/reports/indu04-e.htm>

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determining whether conduct or agreements are anticompetitive. This is similar to the principle in the US Guidelines that states that IP will be treated like any other property. Moreover, the first statement sets forth the most important guiding principle of the 1995 US Guidelines; namely, that the “but for” situation or benchmark for determining whether competitors will be lessened should be the competition that would have existed in the absence of the licensing agreement.

Japan

In Japan, the most recent intellectual property guidelines, the Fair Trade Commission Guidelines for Patent and Know-How Licensing Agreements (Japanese Guidelines) under the Antimonopoly Act, were enacted in 1988 as a result of patent reforms. Japan strengthened its patent laws in 1988 and those reforms increased the scope of protection covered by a single patent, basically allowing inclusion of multiple-interdependent patents into a single claim.⁷⁸

The Guidelines view the protection of intellectual property rights as pro-competitive since it encourages firms to conduct research and development of new technologies. Transfers of technology by means of licensing are also seen as promoting competition, diffusion of technology and creation of new markets. The Japanese Guidelines recognise that in some instances licensing agreements may impose restrictions on licensees and thus have anticompetitive impacts. The Japanese Guidelines suggest that since the Antimonopoly Act applies to technology transactions, consideration should be given to ensure that the pro-competitive effects that come from the IP rights protection do not offer anti-competitive protection that would impede competition.

The Guidelines state that cross licensing and patent pools are conceptually pro-competitive and do not necessarily pose unreasonable restrictions on trade. They nevertheless recognise that patent pools and cross licensing agreements could pose anticompetitive restraints and therefore evaluate in detail examples of such behaviour. When such agreements result in mutual restrictions on prices or volume, or substantially restrict competition in the respective markets for particular products, they would be considered to violate the Antimonopoly Act as

⁷⁸ Sakakibara, Mariko and Branstetter, Lee (1999). “Do Stronger Patents Induce More Innovation? Evidence from the 1998 Japanese Patent Law Reforms”, NBER Working paper No. 7066, April 1999.

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unreasonable restraints of trade.⁷⁹ A similar assessment also applies to multiple licensing.⁸⁰ For example, where a trade association creates a patent pool and licenses pooled patents to its members and, as a result, competition is substantially restricted, such behaviour constitutes violation of Section 8.1 of the Antimonopoly Act. If a similar outcome is achieved via a formation of a joint venture to set up a pool, it constitutes a violation of Section 10.1 of the Antimonopoly Act. This approach is consistent with the US 1995 Guidelines.

New Developments Relevant to Multiparty Licensing

From our interviews and our review of very recent papers, a number of which were produced for the ongoing hearings of the Agencies in the US on antitrust issues related to intellectual property, we developed a number of impressions about developments in the field generally that are particularly relevant to multiparty licensing.

First, it appears that there continues to be a proliferation of patents. Second, firms are being more aggressive in asserting their patents and in using their patents and the patent process as elements of their competitive strategy. By implication, the patent thicket will become more dense and there will be more patent litigation. Accordingly, it is more important than ever that multiparty licensing options be available to solve these problems, and that such options can be implemented swiftly and without great uncertainty about whether, in solving one business problem, firms will simply find themselves with a different, and more troublesome, problem in the antitrust arena.

These developments have several implications. First, it is more important than ever to have simple, sound, competition policies with regard to multiparty licensing. Second, blocking patents and the resulting patent infringement litigation can cause severe disruption if injunctive relief is granted, with potential for disrupted production and ancillary inefficiencies. Thus, the attention given to solving these problems should be greater relative to the more traditional competitive concerns that have typically been dealt with in the past. This should be taken into account when establishing either guidelines or block exemptions.

⁷⁹ This is violation of Section 3 of the Antimonopoly Act.

⁸⁰ Multiple licensing refers to granting licences for a patented good or process by one right holder to multiple firms.

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In addition, the environment surrounding the setting of standards and the creation of patent pools is changing as well. More participants with more diverse interests are joining standard setting efforts, and the initial sets of patents to be considered for the pools appears to be growing as well. Some argue that the *Dell* and *Rambus* cases have made it clear that if firms that are part of the standard setting process wish to earn revenues from their patents, they must reveal those patents early and get them included in the pool in order to earn subsequent royalties. While this is a good development, it also means that there are more players demanding royalties, with the associated potential for pricing the standard out of the market.

This growth of the number of participants and of potential technologies exacerbates old problems with standard setting practices where, because of the fear of antitrust violations, participants are afraid to discuss and negotiate pricing and other commercial terms up front. Potential licensees were being asked to commit to a standard before knowing the likely terms of commitment, and providers of technology were asked to commit their IP knowing only that they would receive a royalty described as “fair and reasonable”. There have always been flaws in the process, but it appears that they may be greater flaws in today’s environment. The challenge is for competition authorities to allow for organisational models that will facilitate standard development without compromising competition. We discuss this issue further as part of our analysis of patent pools in Part V.

III Competition Policy and Intellectual Property

We now explore the economic and policy foundation of the basic competition principle for licensing that was developed in the modern literature – namely, that a licensing agreement should not be challenged by competition authorities unless it reduces competition that would have occurred in the absence of the agreement, or it contains elements that are prohibited by the antitrust laws,⁸¹ for example, price fixing. Only if a licensing agreement restricts competition beyond what would have occurred in the absence of that licence should the competition authority begin to examine whether this added competitive restriction was more than offset by procompetitive efficiencies.

This discussion is essential for several reasons. First, it makes the conceptual foundations behind the basic principle clear, which can be useful in eliminating controversy that arises from misunderstanding. Second, it provides a useful starting point for critically examining the validity and usefulness of the underlying assumptions. Third, it provides the basis for accepting, rejecting or modifying the principle; and fourth, it provides a useful starting point for analysing the competitive effects of licensing agreements and for deciding whether such agreements are consistent with and permissible under existing competition law.

The foundations of the basic principle are based upon two very simple and compelling ideas. The first is that the IP laws grant important property rights that provide incentives for firms and individuals to both innovate and, subsequently, invest in those innovations in a way that produces new goods and services and that fosters overall economic growth. Note that from the standpoint of economic policy, including competition policy, IP laws are not only designed to promote innovation in the sense of invention, but also to promote innovation more broadly, which incorporates investment in the development and production of new products based upon invention. This key point is often neglected in the literature on the relationship between the IP laws and innovation. For example, the number of patents filed or the amount spent on R&D is often used as a measure of innovation. But most patents are never implemented, and R&D measures an input, not any meaningful output at all, let alone the value of important new products based upon research findings that are brought to market.

⁸¹ In other words, laws that would apply to any other property transaction.

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The IP laws grant limited monopoly rights that are designed to promote both invention and investment in the development and production of new products based upon this innovation. A fundamental assumption of the basic principle is that the property rights granted under the IP laws are extremely important to our economic system and should not be abridged by the discretionary application of competition policy.

The second cornerstone of the basic principle, and in fact a cornerstone of competition policy generally, is that while the limited monopoly rights granted by the IP laws may be fully exercised, the recipients should not be allowed in the process of exercising these rights to extend the restriction of competition beyond that granted under the IP laws. More specifically, when looking at licensing, this means that any licensing agreement covering patents should not restrict competition or create new monopoly power beyond that granted to a patent holder.

This second cornerstone of the basic principle is important for another reason. One of the significant efficiency enhancing aspects of licensing is that it facilitates putting the know-how or technology represented by the IP in the hands of the most efficient producers and distributors so that the final products incorporating the IP can be produced and distributed most efficiently. Therefore, the competition rules should be such that the owner of the IP can achieve the same restrictions under a licensing agreement that he could achieve by exercising the IP directly himself, but should not be able to achieve anything more. This is important in order that the decision to license or not to license be made on the basis of what is most efficient, and therefore profitable, rather than on the basis of whether the IP owner can make more money by choosing to license or not because one choice will result in more or less favourable antitrust treatment. Accordingly, in addition to the basic principle providing a test for identifying when a licensing restriction would represent a restriction that goes beyond what is granted by the IP right and what that right comprises, following the basic principle is important in order to insure that choices about productive efficiency are not distorted by the asymmetric application of competition policy to licensing *versus* not licensing. This also implies that the competition laws that would apply to the IP owner if he produced and distributed goods himself must also apply to licensees and should not be circumvented by the terms or requirements of a licence.

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The question that requires further exploration is: How should this principle be applied in practice? To explore this question, consider what rights the ownership of an ordinary piece of property allows you to do with it. One of the basic principles of the modern literature and the 1995 Guidelines is that IP be treated as would any other piece of property. You can use it for your own benefit and prevent others from using it; you can sell it; and you can rent it – which transfers the right to use the property and to exclude others, just as selling does. Moreover, additional conditions can be applied, limiting your use and exclusion of others. In the case of intellectual property rights, again suppose a patent, this means that you can develop and produce a product based upon the patented technology and sell it wherever you choose, and that you can exclude others from producing products that infringe upon your patent without your approval – i.e., without a licence. You can sell the patent or you can rent out the patent, which is equivalent to licensing it. Because intellectual property has the property of a public good in that more than one person can use it simultaneously, a number of licences for IP can be granted simultaneously. The difficult question then is how would one determine whether the monopoly rights of the owner of the IP have been extended by the terms of the licence beyond those that were granted to the owner of the patent.

The obvious answer is to look at what the owner of the patent could have done if he had fully or potentially exploited the rights granted by the patent independently without licensing. Going back to our example of ordinary property, ownership entitles you to rent the property, but it does not allow you to require the renter to use the property in a way that violates the law, which is something that you, as the owner, could not have done yourself. This is the basic idea behind determining whether licensing terms for IP eliminate competition that otherwise would have occurred in the absence of the licence. This idea also is essential to preserving the IP right, and in particular its value, as well. It allows you to sell or rent all of the IP rights that you have been granted, but nothing more.

If the owner of IP could not sell or license all of the rights granted because of the enforcement of competition policy, then the value of those rights is reduced, as are the presumed socially beneficial incentives that are the purpose for establishing the IP. It would also provide an incentive for the patent holder not to license and instead to exploit the patent rights itself. Both of these incentives will create inefficiencies. It is well understood that it

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would not in many cases be socially optimal for the patent holder to develop its own IP, because the patent holder may not have the resources or skills to optimally develop and produce products worldwide based upon the patent. The point is that if competition that would have existed given the full or partial exercise of the patent holder's rights as a monopolist exploiting the patent is not eliminated by a licensing agreement, then there is no harm to competition that would have existed in the absence of a licence. Several examples will help illustrate this point.

Suppose a patent is granted in the EU for a new cancer drug. The company obtaining the patent could produce and sell the drug in the EU and also establish a wholly-owned subsidiary in the US to produce the drug in that country. Alternatively, if the company obtaining the patent was a small firm specialising in the development of innovative pharmaceuticals, but did not have production and marketing capability, it might enter into an exclusive licence with a company for production and distribution of the drug in the EU, and another exclusive licence with a firm in the US for US production and distribution of the drug. These agreements would have territorial restrictions. One company would be limited to producing and distributing the drug in the EU; the other would be limited to the US. This is identical to the situation that could have been achieved where the original firm had itself produced and distributed the drug in the EU and set up a subsidiary in the US to do the same.

What then would a firm faced with a prohibition on giving exclusive territorial licences do if it were not best positioned to produce and distribute the drug worldwide? It might sell the patent to a firm who could, but in the process lose potential value if only a limited number of firms were in a position to bid for the patent. It could develop the production and distribution capacity internally, recognising this is not the optimal strategy from its point of view, nor would it be optimal from society's point of view. The original firm might choose to give an exclusive licence to one producer worldwide, which would not be optimal, because if it were, the firm would not have pursued a strategy of licensing to two separate producers for two different markets.

Whatever the firm does with its patents, if it is blocked from issuing two exclusive licences with territorial restrictions, it will end up with exactly the equivalent situation as far as competition is concerned – but with a loss of efficiency – or in some extreme cases the

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product simply may not be produced and distributed in some territorial markets. Therefore, in this case, the baseline should be what competition would exist if the patent holder fully exploited the patent as a monopoly owner.

Now consider a second example where the alternative to a licensing agreement might be partial exploitation of the IP. Suppose a company develops and patents technology for a new high-end sound system for CDs and other recorded sound. The relevant alternatives for the company are to produce the sound system itself and to develop its own system of distributors through whom it sells the product or to license the technology on an exclusive basis to another producer who will also develop and sell through a distribution system. Now suppose the patent holder believes that the franchise would be worth more if distributors could be required to maintain minimum retail prices. Suppose, as well, that the law prohibits retail price maintenance, but that the patent holder tries to circumvent the law by putting a condition on the licensing agreement that requires the licensee to establish retail price maintenance. Would this be permitted under the principle that the licensing restriction would not have eliminated any competition that would have existed in the in the absence of the licensing agreement?

The answer clearly is that it would not be permitted. Had the IP owner produced the product himself and sold it through distributors, as he envisions the licensees will do, he would not be permitted to impose retail price maintenance. Therefore, he cannot, through a licensing agreement allow or require his licensees to do something he could not do. Properly interpreted, the principle that restrictions in a licensing agreement should be allowed provided that they do not eliminate competition that otherwise would have existed, and prohibited if it does, implies that the licensee will have to obey all of the competition laws that the IP owner would be faced with had he chosen to produce and distribute products rather than to license the IP.

One might argue, however, that a fully integrated producer in this case could charge any retail price it wished and, therefore, retail price maintenance would not really change the price that the IP owner could charge. The problem is that this argument uses the wrong counterfactual. The correct counterfactual is: “What could the firm owning the IP have done if it had chosen to distribute through independent retailers?” It clearly could have given the licensee an

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exclusive right to produce and distribute the sound system and the licensee could have been fully integrated through retail sales. Under this scenario there would not have been any need for a clause specifying retail price maintenance.

This has several implications. If the basic principle is followed, not only will property rights be fully respected, but also competition law that is applied in cases of licensing will be consistent with competition law as a whole. As we have pointed out, this is extremely important if competition law is not to distort the decision to license or not to license, which should properly be based upon efficiency considerations, not upon whether one choice or another elicits more favourable treatment from the competition authorities. This also means that if two jurisdictions, such as the EU and the US have slightly different competition rules, applying the basic principle in each of these jurisdictions will lead, predictably, to slightly different treatment of licensing, reflecting those jurisdictional differences.

If a licensing agreement does not limit competition that would have existed under these circumstances, then it is consistent with the owner of the IP being able to exploit his property rights without extending his monopoly rights to further limit competition. Conversely, if competition authorities step in and restrict an IP owner's right to exploit this property through licensing, they are limiting the property right and confiscating part of its value.

It is sometimes argued that as long as the IP owner has the right to decide whether or not to license (i.e., there is not mandatory licensing), then his property rights have not been lessened. This is incorrect. The terms under which the IP owner may license will significantly affect the value of the licence. Being able to charge whatever royalty the market will bear and the ability to give an exclusive licence, possibly with territorial restrictions, may be the most important restrictions from the IP owner's perspective, although many others are important as well. To place restrictions on such common terms of licensing agreements in the interest of achieving greater competition can partially (or even largely) negate the value of the IP right that has been granted. It may be that some policy makers want to do this; but we should be absolutely clear about what is being done. If this competition policy practice is widespread, it will significantly alter the IP laws and the potential incentives they provide.

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We will now briefly address these issues in the context of the recent literature related to the determinants of innovation and investment in the modern economy. Clearly, a full review of the literature on innovation, competition and the IP laws is beyond the scope of this paper.

Innovation, Investment and Intellectual Property Rights

There have been a large number of publications over the past fifteen years that have investigated the determinants of innovation and, in particular, the strength of the relationship between the amount of IP protection and the amount of innovation. This literature is large and diverse, and much of it is not particularly relevant to the discussion at hand — but some of it is. We will attempt to summarise the findings of this literature that are most relevant to competition policy generally and, in particular, to competition policy as it applies to licensing and the protection of IP.

The first question is: does the system of IP in developed countries provide an important incentive to the creation of new ideas, or are the IP laws at most a marginal factor that could be ignored, without serious consequences, by competition authorities seeking to establish greater competition in markets where IP might now limit competition? If this were the case, the adoption of the basic principle developed in the modern literature, which starts with the commitment to protect those rights would appear much less imperative. A second and related question is: does the current patent system lead to a situation known as the patent thicket, in which the proliferation of IP rights that are overlapping, and therefore blocking, presents a barrier to, and not an incentive for, innovation and investment in innovative products. If this is the case, how should the competition authorities account for this situation in formulating licensing policy?

First, however, it is important to point out that most of the studies have measured the amount of innovation by the number of patents filed or by the amount of R&D spending. A few have used innovation counts – comprehensive lists of innovations made by various firms – which are developed through surveys. Innovation counts are not available at the firm level in most countries. As a result most studies have used either patent counts or R&D spending as proxies for levels of innovative activity. These may be acceptable measures for some purposes, but they do not measure innovation that is important to economic growth and

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prosperity, namely, invention coupled with investment that creates new products that are successful in the market. Therefore, most of the studies do not provide useful evidence on the questions raised here.

A nearly ideal measure of innovation from the standpoint of economic importance would be the value of new products resulting from new inventions and brought to the market by investment in the development and commercialisation of these new inventions. The important point here is that most inventions as represented by patents do not get produced, and it is the combination of innovation coupled with investment to develop and commercialise it that leads to new products and increases in productivity. In assessing the role of the IP laws in promoting economic growth and prosperity, one has to take into account the impact of IP rights not only upon the invention component of innovation, but also upon the investment and commercialisation aspect of innovation.

Virtually none of the studies on the relationship between IP rights and innovation captures this dimension. Nevertheless, one study in particular presents evidence indirectly that IP rights may be extremely important for investment in commercialisation of inventions. In a paper entitled “Does Venture Capital Spur Innovation”, Kortum and Lerner conclude that venture funding does have a strong positive impact upon innovation as measured by patents.⁸² However, one possible explanation of this is that venture capital may spur patenting while having no impact upon innovation measured by the number of patents issued. Kortum and Lerner try to test for this and present evidence that suggests that while they cannot reject the hypothesis that venture firms simply patent more, they interpret their data as showing that venture firms probably invent more as well.⁸³ This study is also consistent with the hypothesis that before investing in the development of new technology, the venture firm wants to have its intellectual property as well protected as possible.⁸⁴

They go on to state:

Perhaps most striking is the finding in Tables 10 and 12 that venture-backed firms are not just more frequent litigators of patents, but also of trade secrets.

⁸² Kortum and Lerner, p. 3.

⁸³ Kortum and Lerner, p. 35.

⁸⁴ Id.

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As they point out, litigation is a proxy for the economic importance of a property right.⁸⁵ What this suggests is that having and protecting important property rights is important, whether by patent or trade secret, and that firms that intend to develop new technologies want the protection that IP rights give.

This is consistent with the macro-literature on IP rights, and overall levels of prosperity and innovation. Countries that have developed economies and high standards of living for the most part have strong systems of property rights in place. Further, countries with high levels of innovation, however measured, also have relatively strong IP laws. At the same time, all the macro studies of innovation make clear that there are many other factors that are found to be important in determining overall innovation. For example, Stern, Porter, and Furman state in “The Determinants of National Innovative Capacity” that

In particular, we find decisive and robust effects on international patenting from R&D, manpower and spending, aggregate policy choices such as the extent of IP protection and openness to international trade, and the share of research performed by the private sector ... Finally, we show that the predicted level of national innovative capacity has a substantial impact on more downstream communication and diffusion activities (such as achieving a high share of high-technology export markets).⁸⁶

Therefore, the macro models of innovation show that IP rights are an important determinant of innovation, although perhaps not the most important factor. However, like other studies focusing on patents as a measure of innovation, it misses the possibly very important effects that strong IP rights have on promoting investment in the development and commercialisation of independently developed innovation.

At the same time, there is some recent micro-economic research that suggests that patenting in particular is not an important factor in how firms protect and exploit innovations. In their article, “Protecting Their Intellectual Assets: Appropriability Conditions and Why US Manufacturing Firms Patent (Or Not)”, Cohen, Nelson, and Walsh state:

⁸⁵ Id., at 33.

⁸⁶ Stern, Porter and Furman, p. 5.

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Based on a survey questionnaire administered to 1478 R&D labs in the US manufacturing sector in 1994, we find that firms typically protect the profits due to invention with a range of mechanisms including secrecy, complementary marketing and manufacturing capabilities. Of these mechanisms, however, patents tend to be the least emphasised by firms in the majority of manufacturing industries, and secrecy and lead times tend to be emphasised most heavily... Our results on the motives to patent indicate that firms patent for reasons that often extend beyond directly profiting from a patented invention or licensing. In addition to the prevention of copying, the most prominent motives for patenting include the prevention of rivals from patenting related inventions (i.e., "patent blocking"), the use of patents in negotiations and the prevention of suits.⁸⁷

This finding suggests that the intellectual property laws are not found to be very significant protection for innovations and, therefore, some might conclude that if competition policy were to significantly weaken IP rights, it might have little or no effect upon innovation or investment in the development of innovative technologies. If, however, you look behind the answers to these questions by the respondent firms to understand why they often do not patent many inventions or why they do not see the patenting process as important for protecting most inventions, the answer is simple. Most inventions are not very important or fundamental discoveries and the benefits do not justify the cost, because in many cases it would be easy to invent around the patent. As Cohen, Nelson and Walsh observe:

In our survey we asked firms to report which reasons contributed to the decision not to apply for a patent on the most recent innovation which they decided not to patent. The reasons for not applying for a patent considered in our survey include: 1. difficulty in demonstrating the novelty of an invention; 2. the amount of information disclosed in a patent application; 3. the cost of applying; 4. the cost of defending a patent; 5. the ease of legally inventing around a patent.⁸⁸

Basically, what this says is that for most inventions, the inventions are not sufficiently strong to easily make the case for the patent or to prevent the competition from easily inventing around it, and therefore they do not justify the cost of the application or the cost of defending the patent. Furthermore, patenting requires disclosure, which could lead others to copy the idea.

⁸⁷ Cohen, Nelson and Walsh, p. 1.

⁸⁸ Id., at 14.

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This result should not be a surprise. Morck and Yeung state that a number of studies “find that the distribution of private value of patent rights is highly skewed, with a heavy concentration of patent rights having very little economic value.” They also find a sharp change in the 1960s, after which the number of patents fell, but the quality rose.⁸⁹ This is consistent with the fact that only a small percentage of patents are ever commercialised. All this tells us is that most inventions are marginal, and not of great significance. This implies they probably are not worth the cost of protecting them with patents. That does not mean, however, that patents are not extremely important in protecting breakthrough inventions, which are the ones that create new industries and radically new products. These are the cases for which IP protection is critical to the health of the economy. It is the incentives to discover and develop these relatively few “killer” products and applications that generate economic growth and significant productivity improvement. It would be a significant mistake to conclude that because firms do not patent many inventions that the IP right protection is not important in creating incentives for the discovery, development and commercialisation of the significant new technologies and products. This is consistent with the fact that macro studies generally confirm a positive relationship between well developed IP laws, innovation activity and per capita GDP.

There are, however, some important changes that are taking place in the way firms use the patenting process and the reasons that firms obtain patents, often for technologies that they never intend to develop or use. It has been widely recognised that firms are obtaining patents and using individual patents and portfolios of patents for strategic purposes that are largely unrelated to protecting the IP contained in the patent.⁹⁰ This development has to be of concern to competition authorities and to the legal and legislative communities concerned with the framework of IP laws. From their survey results, Cohen, Nelson and Walsh find that:

One broader use of patents...is their combination to build patent fences around some patented core invention. Such fence building involves the patenting, though not licensing (nor necessarily even commercialising), of variants and other inventions that might substitute for the core innovation in order to pre-empt rivals from introducing competing innovations...

⁸⁹ Morck and Yeung, p. 17.

⁹⁰ See, for example, Carlton and Gertner.

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A second common use of patents which also goes beyond the licensing or commercialisation of the patented invention is observed in complex product industries such as electronics. This is patenting to become or remain a major competitor (i.e., “player”) in an industry, often via the amassing of large portfolios. The fact that the same patents are often used for both blocking and negotiations in such industries suggest that firms patent not only to protect their own technology, but to hold their rivals hostage by controlling technology that they need...The ransom demanded by the firm is either formal access to rival technology realised through liberal cross licensing, or at least the ability to do work similar to that of its rivals without being sued. In this fashion, patents confer the reciprocal access to one another’s technologies which enables firms to steadily improve and expand their product lines and processes – something which firms must do to be major competitors in complex product industries subject to rapid technological change. By conferring nonexclusive access to a market in such settings, patents are less an instrument for appropriating rents directly from the firm’s own patented inventions..., and more an instrument for appropriating a share of the oligopolistic rents accruing to the new technologies of all incumbents...

The threat, often implicit, of infringement suits and counter suits underpins almost all the uses of patents, whether to force participation in cross licensing negotiations in complex product industries, to build patent fences in discrete product industries, or to protect the ability to license or commercialise a new technology in the drug and other industries....⁹¹

At the same time, these authors acknowledge that:

Our data do not show the degree to which patent portfolio races distort the nature of R&D incentives or lead to socially wasteful outcomes, or whether such portfolio races or patent thickets actually block entry. Nor do they indicate whether fee stacking or the breakdown of negotiations in complex technology industries have ever undermined the commercialisation of innovation. The data do suggest, however, that the potential for such outcomes may be more pervasive than previously thought. They also show that patents are used in substantially different ways across different technologies, suggesting that policy and court decisions affecting the breadth of claims, applicable nonobviousness standards, likelihood of being upheld in court and other features of patents will likely have different impacts on invention and competition in different industries.[footnotes omitted]⁹²

⁹¹ Cohen, Nelson and Walsh, pp. 25-26.

⁹² Id., at 29-30.

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One specific competition concern relevant to licensing that Cohen, et al., raise is that:

...in complex industries...if access to competitor technology is essential to being a viable competitor (i.e., “player”), and only incumbents holding significant patent portfolios can achieve such access, then patenting can again become a vehicle for impeding entry and the innovation that often accompanies it. Unlike the patent thicket case, here the barrier does not protect one firm but a group of oligopolistic incumbents. An offsetting advantage of such entry restrictions is implied, however by the arguments of Merges and Nelson [1990], Scotchmer [1991] and Heller and Eisenberg [1998] who suggest that as the number of firms holding separately patented pieces of the same commercialisable technology becomes too large, commercialisation may fail due either to a stacking of licensing fees or a breakdown in negotiations arising from asymmetric subjective valuations of patent rights and associated transactions costs. Thus, by limiting entry, patent portfolio races may actually help prevent such breakdowns in negotiations over intellectual property. Patent portfolio races may offer yet another offsetting social benefit. Such races induce firms to disclose more of their inventions because failure to do so (through patents) creates the risk of being excluded from the industry or even from one’s own inventions. This greater disclosure increases the extent to which rivals can build on each other’s R&D, presumably accelerating the pace of innovation. This effect is also enhanced by the more liberal cross licensing that typifies the player strategy. [footnotes omitted]⁹³

This is obviously a very complex area where IP law and policy and competition law and policy intersect. Our review of this literature led us to the following conclusions:

- 1) Much of this literature is of very little value to the analysis of the economic importance of IP protection for economic growth, because of the way innovation is defined and measured.
- 2) All the developed countries that have exhibited high rates of invention and investment leading to new products have strong IP laws.
- 3) Patent or other IP protection appears to be very significant for important or highly valuable technical inventions, but much less significant in protecting less important or routine inventions.

⁹³ Id., at 29.

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- 4) Investors in innovative technologies such as venture capitalists appear to want IP protection when making investments in the development of these innovative technologies.
- 5) There has in some industries been a proliferation of mutually blocking patents generating “patent thickets.”
- 6) Firms are increasingly using their patent portfolios in new strategic ways such as negotiating settlements to patent litigation and bargaining over cross licensing.

What we conclude from this is that the evidence supports the idea that protecting potentially important IP, particularly the major advances that will be the basis upon which important new products are based, plays an important role in investment in the development of new innovative technology. The literature, in our opinion, does not support the idea that IP protection can be assumed to be of marginal importance, nor does it support the conclusion that the IP laws are not important to the dynamic efficiency and growth of the modern economy. Therefore, we strongly believe that competition policy and enforcement should fully respect IP rights in applying competition law to licensing and, in particular, to multiparty licensing.

The basic principle for evaluating licensing agreements that is generally accepted in the modern literature on licensing is that competition policy with regard to licensing in general, and multiparty licensing in particular, should fully respect and not seek to limit IP rights granted under the IP laws, but should seek to prevent the lessening of competition that would have existed but for the licensing agreements. This leads to the test of whether a licensing agreement limits competition that would have existed in the absence of the licensing agreement. We believe that this is appropriate, and that it reflects both good economics and good public policy. For that reason we have followed this approach in the remainder of the report.

At the same time, we are not advocating this on the basis of an assumption that is sometimes made by economists that the IP laws are in some sense completely optimal.⁹⁴ We recognise

⁹⁴ An example of this is Carlton et al, 2002.

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that the IP laws as they exist today are causing or may cause problems (for example, the problem of the “anticommons”). It may well be that in the future some changes in the IP law will be needed. What we do not believe should happen, however, is competition authorities taking it upon themselves to modify the IP laws through the adoption of competition policies that significantly limit or change the system of IP rights. This is particularly true of a narrow segment of competition policy such as the rules governing licensing. Policy makers should be aware of the issues and problems, but not attempt to solve broader policy issues acting alone, with narrowly focused tools. If the IP laws need to be modified, there are many reasons why a comprehensive approach is preferable to piecemeal *de facto* changes made by competition authorities on an *ad hoc* basis in the context of particular cases.

Having said that, we acknowledge that there is currently a proliferation of patents that are often overlapping and therefore blocking. Further, there are increasing problems associated with the strategic use of patents to create “patent fences” around new inventions to block others from entering a market, to create portfolios of patents in order to force inclusion (on favourable terms) in multiparty licensing agreements or to be used as bargaining chips in negotiation in patent disputes and in litigation. This relatively new environment does raise some challenging issues for competition authorities as it relates to licensing and may ultimately lead to modification in the IP laws and the competition laws.

IV Competition Policy and Multiparty Licensing Rules

In the previous sections we have reviewed the history of antitrust and multiparty licensing, the modern competition literature and the principles that have been adopted in the guidelines of OECD countries related to IP and collaborative behaviour, particularly those of the US. We have also addressed the relationship between competition policy and the IP laws. When one looks at this analysis in its entirety there are in fact only a relatively small number of general principles and licensing restrictions that need to be analysed by competition authorities. In most cases, if a few competition reducing and generally non-essential restrictions are avoided, we can conclude with a high degree of certainty that multiparty licensing will be procompetitive and should not be subject to challenge by the competition authorities. In those cases where there may be a competition issue to be evaluated, then there is a well accepted four-step process that the analysis should follow. That four step process can bring into play issues and methods of competition analysis as broad as competition policy itself. For example, in the context of a particular joint venture, the analysis of the conditions of a patent pool established by the joint venture has to be a part of the broader analysis of the joint venture itself. However, this section will demonstrate that in most cases there should be no need to engage in this four-step process.

To carry out this task we subdivide the space of multiparty licences into several categories; cross licences, patent pools designed to support product standards and patent pools that are part of joint ventures. We will discuss the competition issues that arise in each case.

The competition concerns involving multiparty licensing revolve around six restrictive terms that are sometimes included in the agreement, plus a small number of other general competition concerns that can arise. The six types of restrictions are:

1. Restrictions on, or setting of, the prices of goods produced with the licensed IP.
2. Restrictions on the quantities of the goods produced with the licensed IP.
3. Territorial restrictions on where the licensee can produce and sell goods produced with licensed IP.

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4. Restrictions on the licensees ability to license their own IP to others (exclusivity restrictions).
5. Restrictions with regard to field of use.
6. Restrictions that cover future IP (the issue of grant backs).

The other general concerns are the process of setting royalties, the level of royalties, the inclusion of substitute or competing IP in a multiparty licensing agreement, the general problem of invalid patents, and the blanket licensing particularly of future IP which is an extension of the grant-back restrictions listed above. We analyse each of these issues in the context of the three categories of multiparty licences just mentioned.

Bilateral Cross Licences

The case of two-party cross licences is the simplest case to analyse, but even here we need to define more precisely exactly what we are discussing. We are talking about situations where two firms discuss and agree as part of one negotiation to license to each other their respective IP. This differentiates it from cases where company X licenses technology A from company Y and at some point in time company Y licenses another technology, say technology B, from company X. That would be like Ford having a licence from Daimler–Chrysler on a brake technology and Daimler–Chrysler having a different licence for transmission technology from Ford. These types of licensing arrangement can and should be treated by the competition authorities under their rules for unilateral licensing. The reason for this is that when the licences, such as in the example above, relate to different technologies, they are almost certainly complementary. As we shall demonstrate, licensing in this situation should cause no problem.

The situation of a bilateral cross licensing agreement where two firms negotiate an exchange of licences to their respective technology can also be distinguished from other bilateral agreements between three or more firms where these bilateral licensing agreements are coupled by a formal or implicit contract among all the parties as to the terms and conditions of these bilateral agreements. This latter situation will be treated as a pooling arrangement.

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The analysis which follows will demonstrate that from the standpoint of bilateral licensing agreements, these agreements should be treated under the same rules applied to unilateral licences except in one case — that is where the cross licensed IP rights are, or may be, substitutes for each other. Even in this case, there is no competition problem if some form of zero royalty or one-way minimal royalty is used, or if the two firms fall below the twenty percent market share rule or safety-zone.⁹⁵

We begin by considering the types of restrictions that are of general concern from a competition perspective, and analyse how they should be or are treated in the case of unilateral licensing. The first two, setting restrictions on the prices or quantities of goods produced using the licensed IP are generally condemned in both the EU and US and should be forbidden in all licensing agreements. Territorial restrictions would be allowed under the analysis of whether it restrains any competition that, in the absence of such a licence, would have existed. In the EU, since territorial restrictions would be a violation of Article 81, there is a block exemption covering territorial restrictions provided that these restrictions are limited in time. Restrictions with regard to field of use, the issuance of exclusive licences (with the same restrictions for territorial exclusivity), and reciprocal and non-exclusive grant-backs for improvements to the licensed technologies are not seen as violating Article 81 and therefore are allowed under EU law. It should be pointed out, however, that obligations to assign⁹⁶ to the licensors rights to improvements to, or new applications of, the licensed technology (assignbacks) is expressly prohibited as anticompetitive in the block clauses. With minor limitations on territorial restrictions, the current EU block exemption is consistent with the test of “*would this restriction limit competition that otherwise would have existed?*”, and is consistent with the worldwide competition policy practice of banning the fixing of prices or output. In addition, the conditions put on grant backs are a reasonable compromise recognising the positive incentive effect of giving the licensor and licensee an incentive to improve existing technology, and having these improvements available to both parties and potentially to other firms as well through licensing.

⁹⁵ We note, however, that market share measures should be treated with caution when dealing with the issue of technology substitutes. The US guidelines calculate this share as share of the number of competing technologies, rather than by measures such as, for example, share of the market by value or new sales.

⁹⁶ That is, for the licensor to have the sole IPR to improvements or innovations made by the licensee.

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We believe that these regulations can in most situations be carried over to bilateral cross licensing. In other words, a bilateral cross licence can be seen as two unilateral licences provided that the technology being cross licensed *does not* include competing or substitute technology. To make the case as clear as possible, suppose that firms A and B own complementary production inputs, and assume that this complementarity arises because the patents on this technology are two-way blocking with one owned by each firm. If A and B cross license the technology to each other under cross licences that have any of the restrictions that are allowed for unilateral licences, the resulting situation will always be such that it will not restrict competition that would otherwise have existed.

Now suppose the cross licences are not exclusive and firms A and B independently decide to license to others, at the same royalty that they pay to each other. The concern is often stated that the royalty rates in the cross licence could be set such that the monopoly profits of the two firms will be maximised. That is true, but not a reason for concern. Suppose, the cross licence were not in place. Each firm could still license its technology to other firms. In this case A and B would set their licensing rates independently and because of the Cournot complements problem, they would set them at rates that, taken together, would be at least as high as a monopolist owning both technologies would charge. Therefore, any coordination that might occur through the joint licensing process would only result in lower not higher combined royalty rates. The (joint) profit maximising monopoly price would be lower than the price that would be obtained in the market with each firm setting its royalty rate independently. Whether A and B end up producing the goods in question will depend entirely on whether they are among the most efficient producers of the good. Therefore, in the case of complements and as compared with any relevant counterfactual scenario, bilateral cross licensing, under the same rules as applied to unilateral licences, will produce no worse an outcome and in many cases a better outcome from a competition perspective than the counterfactual situation.

There is, however, an informational or evidentiary problem which was discussed in the example at the end of Part IV. The problem is that firms have an incentive to claim that their patents are blocking and therefore that their technologies are complementary when in fact they are substitutes. The problem is complicated by the fact that even where firms file patent

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infringement suits against each other, where in most cases each of the firms denies the infringement allegations, there is no resolution of the issue of infringement if cross licensing is the proposed settlement mechanism, as will often be the case in practice. It would therefore be appropriate for the competition authorities under these circumstances to assume that the two technologies were substitutes for antitrust purposes, unless it was proven conclusively by the parties that they were complements. As a practical matter therefore, most cases of cross licensing should be evaluated as if the technologies were substitutes, unless proven otherwise.

If the IP represents substitute or competing technologies, in the absence of a cross licence each technology would be produced and/or licensed by its respective owner and there would be competition between the products produced with each one. To the extent that this competition reduced prices it would put downward pressure on royalties for both technologies as well. Now suppose that the technology owners engage in a negotiation for a cross licence. For simplicity assume that the two technologies are perfect substitutes in the production process and have identical costs. If the two owners set the same cross licensing royalty to each other at the rate that a monopolist would charge for this technology, then the cross licence will have in effect created a monopoly in that technology. The monopoly profits will be divided between patent owners on the basis of how much of each technology is licensed. In this case, given perfect substitutes, the share would probably be roughly half to each. However, they would have earned considerably less, had there been the competition that would have existed in the absence of the cross licence.

One might conclude that all cross licences involving substitutes or competing IP should either be forbidden as anticompetitive, or subjected to the four-step analysis of whether it could be justified. The basic problem is that, as we have just discussed, it is often unclear in practice whether the IP are substitutes or complements and it is these very situations where cross licensing is seen as an important solution to a business problem. Again, suppose two firms that use competing patented technologies to produce products that compete in the market are suing one another on the grounds that the patents underlying these products infringe upon one another. Whether the patents are complements or substitutes from a competition perspective is not known. Now suppose that the two parties want to settle the potentially expensive

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litigation and therefore propose a cross licence. As we have seen, there should be real competition concerns if there are substantial royalties involved. But what about a cross licence with zero royalties and no other restrictions? Such a cross licence can only increase competition as compared with the situation prior to the litigation. Each firm can produce and license its own original technology as before, and in addition, produce using its newly licensed technology as well. Further, marginal costs have not been raised by the zero royalties in the agreement. Further, zero royalties cannot be used to identify a common price, or focal point, around which fees to all other licensees can then be set. Therefore, this is a solution devoid of competition problems.⁹⁷

This type of solution is particularly important in the context of Shapiro's "patent thicket". Competing firms may find that because they are constantly being drawn into unproductive patent disputes with each other resulting in constraints on design and general hold-ups to progress, the solution is to give a broad cross licence of patents to each other. Under these circumstances, one generally cannot easily tell in advance whether the IP in the package is complementary or competing, however, it does not matter from a competition perspective if the problem is solved by a *zero royalty cross licence with no other restrictions that raise competitive concerns*. Therefore, in general, cross licences with zero royalties and other restrictions should be allowed. Cross licences with royalties and other restrictions on the other hand should be allowed only if it can be reasonably proven that the technologies are complements.

Sometimes, in both the case of patent infringement litigation and where blanket licensing is a solution to potential problems of patent dispute and hold-ups, one firm's patent or portfolio of patents is clearly worth more than the others, so that some payment to reflect this is justified. One way this can be (and is) sometimes accomplished is with zero royalty cross licences with lump-sum side payments which could be paid at one time, or with such side payments coming at intervals. In either case, so long as the payments are not unit based, these payments do not affect marginal production costs, which is one of the economic objectives that zero royalty cross licences satisfy.

⁹⁷ Note, however, that the "no other restrictions" point is important. In particular, there should not be restrictions on unilateral licensing to third parties.

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One might argue that while lump-sum payments do not affect marginal costs they do affect fixed costs, and the argument is that by raising the fixed costs (and therefore average costs) of a competitor, it would force prices up. Such a rise in prices would, however, only occur if the industry were in a long-run competitive equilibrium. Given the oligopolistic and dynamic nature of the markets in which such cross licences are likely to be used, this should not be a major issue.

Another possible solution to meet this objective, that does not have the same potential to increase market prices, is one-way payments for balancing sums. For example, rather than firm A paying firm B €10, and firm B paying A €8, A should pay B €2. For this to work, it will need to be the case that there is some predictable relationship between sales and the payments that need to be exchanged; for example, each party paying the royalty for each unit sold (by either party). Where this type of system is employed, however, firms can be fairly compensated for their relative contribution, without concerns that it might lead to the elevation of market prices. One other area where blanket cross licences can be used to clear the way through the patent thicket, is in connection with future technology. However, in this case, even if these are zero royalty cross licences, they can still raise competition concerns.

Future technology

In general, agreements to share existing technology aid dissemination of that technology. Agreements to share future discoveries can, however, discourage investment in new technologies. This is because firms will have little incentive to undertake research individually if they know that any discoveries they might make will be immediately available to competitors. Likewise, there will be little incentive to innovate defensively (that is, to preempt the research of others) if a firm knows it has the right to access competitors' new inventions whenever they occur. Agreements that involve future technologies should, therefore, be scrutinised carefully, most particularly if the arrangement involves a large share of the potential innovators in an industry.

An example of how this can be a concern is a case lodged against the Automobile Manufacturers Association by the US Department of Justice in 1969. The major US car manufacturers had entered into a research joint venture to develop new pollution control

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equipment, with an associated agreement to exchange cross licences to any future technology developments. The Department of Justice alleged that the venture retarded rather than promoted research. The resulting agreement to license any future IP removed the possibility (and therefore incentive) associated with an individual manufacturer being able to gain an advantage in the market, and instead encouraged them to free-ride on other members of the joint venture.

Shapiro (2001) argues that while concern over agreeing to license future patents is valid in theory, in practice much of this activity is associated with the fear of being “held-up”. That is, having to pay royalties on patents that have not yet been issued (sometimes referred to as “submarine” patents), for products designed without knowledge of the relevant patent applications. In reality, there seems to be a significant problem with new patents regularly being issued for technology that others are already employing, or independently deploy before the patent is granted and disclosed. This is a problem related to the current operation of the patent system itself, and seems to be a problem that is exacerbated by the high rate of change and increasing incidence of both patents being sought and issued.

Competition authorities need to be aware that issues such as this can provide *bona fide* justifications for entering into agreements to share future intellectual property rights. However, the particular industry involved and the form of any such agreements should be examined to ensure that it is a legitimate concern, and that the agreements have the minimum adverse impact on incentives to innovate. One approach would be to allow firms to exempt some future IP from these agreements by giving appropriate notice. This would allow them to exempt future patents that were of significant value and therefore retain the incentive to pursue breakthrough technologies. However, such notice would have to exempt any infringing products made or designed before the announcement, so that firms would know that until otherwise notified they were free to use all technology patented by the licensor.

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Invalid patents

Another concern that is sometimes raised is the issue of *invalid patents* and whether multiparty licensing agreements including cross licensing shields these patents from challenge. There is no doubt that invalid patents exist and that they can create a problem if they are enforced. This unnecessarily increases costs. Unfortunately challenging invalid patents is costly and pursuing patent infringement lawsuits may not be worth the expense for a firm that is challenging a potentially invalid patent. In the context of bilateral cross licensing, invalid patents are likely to arise in two contexts. First, cross licences to settle patent disputes and second, blanket cross licences to solve the problem of disputes and hold-ups due to the patent thicket. In each of these cases zero royalty cross licences can solve the problem without allowing the invalid patent to add to the cost of production. While this solution does not remove the invalid patent it doesn't entail the considerable cost of litigation either.

Cross licensing between competitors

One concept that is frequently put forward is that competition authorities should look carefully at cross licensing agreements between competitors. For the purpose of identifying potential violations of the above rules, this is probably a good strategy as competitors are likely to both own competing technologies and be aware of the potential for creating monopoly power through cross licensing. One way this can come about is through both competitors, for example, filing patent infringement litigation and then settling with a cross licence. If the settlement has a zero royalty, with or without side payments (that do not vary with volume), then it should be allowed, otherwise it should be investigated. However, a cross licensing agreement between competitors with royalties should only be challenged if the IP is competing (or a substitute) rather than complementary, as would be the case if there were mutually infringing patents. The burden of proof, however, should be on competitors to show that the technologies are complementary because they are blocking. Furthermore, it is important to note that competitors would be prevented under other competition laws from entering into agreements that had the effect of dividing up territories or imposing other restrictions that may be forbidden by laws such as Article 81.

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Nonetheless, from the perspective of the licensing issue alone, the competition test remains not one of whether the licensees are competitors (which will be common), but whether the cross licensed IP is competing. This is because if firms anticompetitively pool IP that is competing and critical to various products, they can (assuming the IP conveys market power) monopolise *all* the markets in which that technology is important, whether or not they are competitors in those downstream markets. In other words, the competitive harm is conceivably worse than if the firms were simply direct competitors in a single downstream product market.

Summary – bilateral cross licensing

In summary then, cross licences of non-substitute technologies should be treated like unilateral licences. Under the EC's current block exemption and guidance, this is very close to the rules one would achieve if one were to apply the criterion of *does it restrict competition that would otherwise exist in the absence of licensing*. The one exception is that, as previously noted, some restrictions are placed on the length of time territorial restrictions can remain in place. It would appear that the current rules can be extended appropriately to all bilateral cross licences where it is clear that no substitute IP is involved. However, because of the incentive problem, some proof of complementarity should be required.

Further, for cases where there may be a question of whether patents may be complements or substitutes such as the settlement of patent infringement cases and the blanket cross licensing of current technology, the agreements should be allowed if they have zero royalties, with or without lump sum side payments, or balancing one-way royalties. In the case of blanket patents for future technologies such cross licences should be allowed if: (1) there are no (zero) royalties and (2) the process can be terminated at any time by either party and (3) either party can designate "carve outs" (or exempt technology) so as to be able to protect those kinds of invention that are of significant value in and of themselves, and that a company would therefore not want to share on a zero royalty basis. The "no royalty" condition means that the substitute/complement issue is not critical, while Conditions (2) and (3) allow firms to protect truly high value inventions. It is these inventions that justify R&D budgets, and allowing firms to have the potential for protecting the really valuable IP innovations will greatly reduce or eliminate any negative incentive for R&D that such cross licensing

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agreements entail. If desired, a fourth condition could also be added. This would be that such licences only be allowed in industries where the patent thicket is a proven problem.

To summarise:

- Cross licences of complementary IP should be allowed under the same terms as applied to unilateral licensing, but the burden of proof should be on the firms to show complementarity.
- Cross licences with zero royalties or minimum one-way royalties, and no other collateral restrictions, should always be allowed.
- Blanket licences for future technologies should be allowed if royalty free, the agreement can be terminated by either party, and there are carve outs allowed.

An optional requirement would be that these types of cross licences be limited to industries where it is determined that problems associated with frequent patent disputes and the threat of hold ups are realistic.

This simple set of rules could be used as the basis for either a new guideline, or a new block exemption covering bilateral cross licensing which is based on, and consistent with, the existing licensing rules. The existing licensing regulations in the EU are consistent with the principles that have been developed in the modern literature and therefore do not appear to need revision in substance.

Guidelines for Patent Pools That Support a Standard

The analysis of competition guidelines for the creation of patent pools as part of the creation of an industry standard is very different from that for bilateral cross licences. The business purpose is different, although assembling complimentary IP required for product production is a common goal of both. The institutional setting is also different, in that there are organising agreements and often a standard setting organisation (SSO) is used. There may be an ongoing organisation that manages and reviews the standard and the patent pool of technology that supports it. It is these organisational and process issues that are associated with how a standard is chosen, how the patents in the pool are chosen, how the royalties on

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various IP rights are established, and how the price of the package licensed is determined, more than the actual form of the licensing agreement itself, that are of the greatest concern to the business, legal and regulatory communities.

Before analysing the competition guidelines that should apply to the standard setting process and to the formation and operation of the patent pools that support them, it is important to be clear about what kind of standard we are talking about and what the purpose is, because that dictates the competitive rules that should apply. For years there have been a wide variety of industry standards. These include product safety standards, product performance standards, and so on. Most of these standards do not involve patent pools, and while such standard setting has long raised competition concerns, this is not what we are talking about here. We are talking about the setting of standards that will provide the basis for the design and production of new classes of products that will be interoperable and that can be produced by any firm that chooses to adopt the standard. Thus, the very concept of an industry standard embraces the idea that there will be open competition among firms who wish to adopt it. Accordingly, interoperability, openness and competition are key elements in the rationale for standard setting and it drives many of the competition rules that should apply.⁹⁸ This concept of an industry standard is widely shared by business, the legal community and by competition authorities. The same view, from a business perspective, was stated by Scott Peterson of Hewlett Packard at the recent FTC and DOJ hearings:

HP's long-standing approach has been to cooperate on standards and compete on implementation... The use of common protocols and interfaces can expand markets for networks of products that implement those protocols and interfaces... Producers compete by innovating on top of standardised functions. Although the functional characteristics specified in the standard may be the same in all products, innovation builds on these points of commonality....

In addition, standard setting in the case of complex products that require licences to many different pieces of IP requires formation of a patent pool, which can then license the entire package of required IP to firms choosing to adopt the standard. This, if done properly, will

⁹⁸ Also, it is highly unlikely that an industry standard that requires the rights of a significant number of firms could be established by firms acting unilaterally. From this perspective, these exercises are quite different to small scale cross licensing arrangements.

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greatly reduce the cost of acquiring the IP for those adopting the standard and potentially expands the possible revenue for the owners of the IP by creating expanded opportunities for licensing their IP for use in a new application. Thus, the objective of creating efficiency is at the heart of modern standard setting. To create such efficiency, standards must be designed so that the underlying product is one that has features that consumers want, and that can be produced and sold by competitive firms at a price the consumers will pay. If this is not achieved, the standard will fail entirely or fall far short of its potential for generating demand, economic growth and efficiency. Therefore, it is essential that the standard setting process be such that it will choose the right mix of product characteristics and choose the least cost pool of available technology to produce this product. Thus, the standard design and choice of technology should be carried out as they would be in any rational, profit-maximising firm designing a product.

Before exploring the implications of these requirements for the standard setting process, it is important to consider the case for and against industry standards at all. The case for a successful standard is that by cooperating, firms can create a set of product features that consumers want, can assure interoperability of the products of different producers who have adopted the standard, can establish an environment in which a multitude of firms can compete in various markets for products conforming to the standard, and can provide that entry into these markets is relative easy, since one can produce a few or many of the different standardised products. For example, some firms may make only CDs; others may make CDs, CD players and CD “burners”. Therefore, the standardised product, in all likelihood, will be produced in highly competitive markets. When (demand-side) network effects are present, establishing standards that allow inter-firm or inter-product compatibility offers the potential for greater realisation of network effects. As increasing network size increases the value of the network to consumers, this is a gain in consumer welfare. Whether or not network effects are present, compatibility through standard setting can deliver a number of other significant benefits. These include decreasing the cost of duplicate equipment needed to participate in multiple networks, and benefits in terms of the average cost of production can be achieved when economies of scale, learning effects and technological spill-over in the development and production of specific components are important. Increased variety can also result from standards. Against this, perhaps the biggest potential drawback of a highly successful

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standard is that there may not be competition for producing new and better quality standard products. If the standard is highly successful and well-accepted by highly satisfied consumers, this may not be a significant problem, but if the standard becomes outdated or new, better and cheaper solutions become available, it is important that there are incentives for these to be developed and implemented.

There are several ways that this could happen. In cases where a standard has an ongoing governance organisation and management capability, that redesign could come internally. To the extent that this does not happen or go far enough, existing users of the standard could team with others to develop a new competing standard. Also, individual firms or joint ventures of firms could enter the market with their own proprietary standard and compete for the market. Therefore, one of the important competitive objectives of competition authorities is to ensure that agreements in connection with a standard do not prohibit those who adopt the standard from competing in the future with another open standard or with a proprietary standard. This is seen in the standard conditions set by competition authorities in connection with the approval of proposals for standards.

What is it then that industry standard setting does that might be seen as anticompetitive? The development of a successful industry standard eliminates possible dynamic competition among proprietary standards for the market. Since standard setting associated with patent pools today takes place in industries where there are strong network effects, it is likely that the end result of dynamic competition for the market will either be one monopolist supplying the market or perhaps a very dominant firm supplying the market with the winning technology, although probably still operating along with several marginal competitors. Therefore, after the initial period of intense competition for the market when price competition is likely to be fierce, and a winner has emerged, prices are likely to be higher than with competition under an industry standard. The competitive standard race will also potentially leave consumers stranded with technology that is of little value, either because it is no longer produced or, more importantly, because it is not interoperable with the winning technology.⁹⁹

⁹⁹ A good example of this is recordable DVD formats. For further information, see “Battle of the Blues”, *The Economist Technology Quarterly*, 14 December 2002.

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Unless one believes that the dynamic process of competition generates a winning technology that is far superior to the industry standard, it is difficult to see how the process of dynamic competition leading to monopoly is preferable to developing a successful industry standard. While there is no definitive way to answer this question, it does appear that what determines the winner of the process of dynamic competition may depend more on who has the resources and correct strategy to take the lead and ride the tide of network effects than on having the best product. Therefore, we believe there is more than enough room for the setting of industry standards and the formation of supporting patent pools, so long as the terms of involvement do not preclude the participants from joining competing ventures and possibly providing future competition to the standard itself.

The basic efficiency and competition enhancing objectives of the standard setting process have led to some generally accepted competition conditions that standard setting and the formation of related patent pools are required to meet. They can be summarised as follows:

1. The IPRs in the pool are complements.
2. Intellectual property for which a royalty is charged must be essential to the standard.
3. Licensees should be free to develop competing products and standards.
4. Licensors should be free to participate in development of competing products and standards.
5. Licences to the pool should be non-exclusive, allowing those licensing technology to the pool to license that technology independently to others.
6. Licences should be issued on a non-discriminatory basis.
7. Royalties paid to the pool should be reasonably related to the level of use of the licensed technologies.
8. Grantback restrictions should be non-exclusive, essential to the pool, and have the same field-of-use as the licence from the pool.

These conditions are consistent with those set forth by the DoJ in business letters in response to the MPEG and DVD proposals, and with the terms of EC approval of standards with patent pools. Note that the first two conditions address the concerns that the IP be complementary and that it be essential. This guarantees that there will not be IP in the pool, raising cost, that

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is not required. To this extent it goes to one objective of standard design which should be cost minimisation, given any design. Conditions 3 and 4 are meant to insure that the potential for competing in alternative standards is not foreclosed by participation in the standard. The next two conditions are directed to creating an open pool with all participants having access on non-discriminatory terms. Condition 7 requires that royalties be reasonably related to use. This is another non-discriminatory condition assuring that smaller firms adopting the standard will get unit royalty cost roughly equal to larger firms and finally Condition 8 applies to grantbacks. It is generally consistent with EC policy on grantbacks for licensing in general and could be made identical without changing the thrust of the restriction.

Now consider the six restrictions of concern about licensing terms discussed in the previous section. The first two: setting prices or quantities for products produced under the standard are clearly, and should be, forbidden. Exclusive licences of either technology to the pool or of pool licences is forbidden by conditions 5 and 6. While there often is a field of use defined for the pool and the licences in the pool in order to restrict the scope of the standard and the licences associated with it, the pool cannot grant exclusive licences based upon field of use or discriminate on terms based upon field of use. This is also forbidden under conditions 5 and 6. The last restriction on grantbacks is covered as well, as we have discussed.

The compliments versus substitutes issue has been clearly addressed as well. The problem of invalid patents is present for standard setting as it is for all other licensing situations. Therefore, all the restrictions of concern in licensing agreements are forbidden for patent pools associated with standards. This is because of the basic nature, rationale for, and objectives of, industry standards. The sixth type of restriction, grantbacks, can be dealt with in a manner consistent with general EC and US licensing policy.

Creating efficient standards

The question of the setting of a royalty rate and the level of the royalty rate depends on what standard is chosen and the cost of the technology required to support it, but it also will be determined by the process by which the standard is chosen, the process by which the pool technology is chosen, and by whom the standard setting process and formation of the patent pool is run. It is this process, and not the eight conditions prescribed above, that is currently

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of greatest concern to both business and competition authorities, and it is this area where there are the most unresolved competition issues.

Competition authorities naturally want an effective standard setting process to develop and implement a cost-effective standard with an efficiently designed patent pool. However, competition authorities are also worried that the collaboration coupled with the communication that is needed to do this may facilitate both current and future collusion among producers. They also have concerns that a powerful member of the organising group will get control of the process and direct it in such a way that the design choice favours its own technology and plays to its own technical and business strengths in a way that disadvantages other technology suppliers, raises the cost of the pooled technology, and puts other producers under the standard at a disadvantage. Thus, by raising the cost of the pooled technology and by weakening competition among the firms using the standard this firm subverts the standard in a way that can lead to higher prices and reduced consumer welfare. These concerns are legitimate, but the response of the antitrust authorities to remedy these problems may have created other equally serious problems.

Because antitrust authorities have taken a tough stand against any communication related to prices and output among competitors in the past, firms and organisations involved in the standard setting process have shied away from the kinds of communication required to design and select a standard in a rational way. A standard is like a product, one cannot design it on the basis of technical performance characteristics alone. There must be a conscious trade off between technical features and price. The objective should be to achieve a cost-effective design of the standard. This requires more than technical experts specifying a design and then assembling the IP rights required to support that design.

There must be an interactive process where the technical designers can develop alternative technical designs and specifications and then cost them out. This means that the designers need to know the price of the technologies they are incorporating. Further, if a design is too expensive, there needs to be a process whereby the team managing the standard setting process can go to a particular IP owner or group and negotiate a lower royalty rate to reduce costs. Alternative designs with lower price tags need to be considered. In order to know what is an acceptable price range for the pool licence, the designers need to talk to the firms

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that will produce under the standard and learn something about at what price they will be willing to commit to producing products based on the standard. This is all common commercial practice in the design and production of products. It serves the consumer because the producers want to offer the consumer the best combination of product features and price. Unfortunately, much of this process is absent or truncated in the standard setting process as it exists today. This is caused by the concern and perception, whether or not correct, that communication of this type involving competitors would draw the wrath of the competition authorities.

Another feature of most commercial transactions is that neither buyers or sellers have to commit to selling or buying without knowing the terms, at least within some limits, on which they will have to buy a product or sell inputs to the production process. In the standard setting process today, firms are asked to commit technology to the pool at fair and reasonable royalty rates and to commit to the standard before knowing the price of the pool licence and all the other terms that may go with it. For example, if a buyer has a patent dispute with a supplier of technology to the pool regarding IP that is unrelated to the pool, can that IP owner that has licensed to the pool unilaterally withdraw its licence to the buyer in the dispute, thus making it impossible for the firm that adopted the standard to produce under it? Without taking a position on whether the latter should be allowed, no firm should have to commit to an arrangement in which the terms of the deal are basically unclear. Perhaps terms can be defined only within ranges, but this is often sufficient to allow firms to make an informed choice.

The difficulty of asking firms to commit to buy or sell without a good idea of the price has caused a number of problems in the context of standard setting. First, in the EU it has precipitated legal problems. In the case concerning the ETSI IPR Undertaking, the EC Commission stated:

“The “licence by default system” ... an undertaking pursuant to which IPR holders are deprived of their freedom to decide whether or not to grant licences on their existing and future technology is restrictive of competition: it amounts to a mutual renunciation of gaining competitive advantages thanks to technical efforts and thereby deprives the participants of the incentive to develop new technologies.”¹⁰⁰

¹⁰⁰ Dolmans 2002, p15.

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In addition, some expert observers believe that the withholding of information about patents that bear on a standard, as was the case with Rambus and Dell, was in part a response to not wanting to commit up front to licensing technology for a royalty rate which was unknown. This is in addition to the incentive created by the IP owner being in a stronger bargaining position with regard to royalty negotiations after the standard is adopted as opposed to before, when there may be a realistic opportunity to design around that IP. However, the response of the antitrust authorities in the Dell and Rambus cases has made it clear that this conduct is unacceptable and will not be tolerated.

Thus, firms involved in the standard setting process appear now to want to make sure that they reveal all possibly relevant patents so that they can have them included and earn royalties. This and the growth in the number of patents that might be needed for a proposed standard means that a large number of patents may be candidates for a pool. This raises several problems and an opportunity. On the one hand, more patents have to be evaluated, although this larger initial set may offer alternatives for the design of the standard if some of them are substitutes. On the other hand, with potentially large numbers of patents in a pool there is the inevitable problem that if even a relatively modest royalty is required for each, this total may make any proposed standard unacceptably expensive. A process should be developed for the standard-setting process that can deal with large numbers of patents that are candidates for the pool. That process should be able to both design a standard and negotiate royalties that will make the standard a viable economic alternative.

Unfortunately, there is no single institutional model of how to achieve this that will be appropriate in all cases. Hundreds, if not thousands, of product standards might be under consideration at any time. These standard setting efforts range from the large, highly visible standards that involve SSOs to consortia of firms that come together to develop a standard to a few firms who get together to develop a standard for interoperability. Such efforts may or may not involve the formation of a patent pool, although the larger, more comprehensive standards often do. What this means is that one approach will not necessarily fit all situations.

Several things appear to be needed to make the standard setting process more effective as a way of bringing interoperable products to consumers at competitive prices. First, the logic of

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product design requires a process whereby technical cost and demand information is available to the standard design team. Standards that are purely based on technical considerations are not likely to be optimal from a producer's point of view or from the perspective of enhancing consumer welfare. Cost is clearly critical and tradeoffs need to be considered. A process that allows a sufficient information exchange and up front negotiation is essential to rational standard setting and the choice of the essential technology to support. There seems to be a growing consensus among competition authorities, lawyers, economists and business people who deal with the development of standards and patent pools that this needs to happen. Our discussions with these groups suggest that there is no full-blown model of how this should occur. However, there is agreement that there will almost certainly have to be a variety of approaches to accommodate different circumstances in which standards get set, and patent pools are created to assemble the supporting technology.

What this suggests is that competition authorities should make clear to the business community that they will look favourably on efforts to create rational standards and associated patent pools that involve the provision of necessary information and negotiation prior to the adoption of a standard or the formation of a patent pool. The presumption should be that if the process and information is reasonably related and necessary to the process of rational product design, then it will not be challenged by the antitrust authorities. It probably will take some experimentation to determine what will work and what seems inevitably to lead to competitive problems. The competition authorities may have to be proactive in promoting change in this area because our impression is that standard setting organisations and businesses have for years had the current practice ingrained in their thinking. In fact, someone coming from other than the competition community might ask "How in the world did we get to the present irrational process of designing standards and assembling the IP required to support them?"

On the other hand, the competition authorities should not give the business community free rein to use the opportunity to experiment with better ways to develop standards as an excuse to create imaginative schemes to lessen competition. What competition authorities need to make clear is that they encourage experimentation in this area and will not challenge arrangements and processes of ex ante communication and bargaining that can improve the

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process, but that they will challenge blatantly anticompetitive conduct and that they will also challenge schemes where there is clear evidence of anticompetitive intent.

There are a number of safeguards that will greatly lessen the chances for abuse. To illustrate how a new model for standard setting might work, let us consider the case of setting a major industry standard that would involve SSOs and that would also have some kind of governance structure housed in a permanent organisation that would review periodically the status of the standard and patents in the pool. This governance body and its management should also be able to respond to changes in circumstances or major concerns among its membership about the operation of the standard. What follows is not a set of proposed requirements for standard setting. That would contradict our recommendation for an experimental approach to standard setting. Rather, it is a suggested approach that we believe has a number of features that will make the standard setting process more effective and at the same time much less subject to competitive abuse.

First of all, it is essential that the process be open to all interested firms that may want to adopt the standard and produce and sell goods and services that conform to that standard as well as to firms that have IP that is a candidate for inclusion in the supporting patent pool, and, obviously, firms who may do both. The existence of the standard setting effort should be well publicised through the appropriate industry channels. Second, the governing mechanism should contain representatives from all important groups, and some independent members as well, along the lines of those pools in the aircraft and automobile industries discussed earlier. There will be obvious conflicts of interest among groups on some issues such as the royalty rate for individual technologies and the total price of the licences for the pooled technology. At the same time, all groups have an incentive to compromise in order to make the standard a successful commercial reality. It is important for the integrity of the process and for insuring that one group does not commandeer the process for their own purposes that no one group controls the process.

Third, and probably the most important feature for the new process would be an expanded SSO or some other management group, made up either exclusively or mostly of outside experts, that would do the primary work required by the standard setting process. This group would report to the governing board, and with input from the members would design the

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standard, evaluate the alternative technical solutions available, cost out the initial design, and be in charge of redesign and negotiations over royalties in an effort to get the total price of the technology package as low as possible.

Getting to a cost-effective standard that will facilitate production and competition by participating firms in a new expanded product market is the object of setting such a standard. What differentiates such standard setting from a large joint venture is that the process is open; it is designed to create an opportunity for all firms, and the money to be made comes from the expanded opportunity to produce and sell goods in a new market, not from control of the standard setting process. This contrasts with a joint venture which in general will be exclusive and where the clear objective is to develop products that will enhance the competitiveness and profitability of its limited membership. For an open standard to serve its open membership and the interests of the consumer well it must be designed to be cost-effective. That requires that cost be minimised for whatever package of technical characteristics is selected, regardless of which technology is chosen. This makes the independence of the standard setting team extremely important.

But there are other benefits of this as well, both from the standpoint of the coherence of the process and from the standpoint of the protection, and therefore the availability, of confidential information from the participants, as well as minimisation of the competitive concerns with regard to information collection and use during the standard setting process. The standard setting management team needs to get a wide variety of information from participants in the standard setting process – information that may be very sensitive and not something those participants would be willing to provide with the knowledge that it would be seen by competitors. For example, a firm might have a candidate technology for the pool on which it has a patent pending but not yet issued. The firm would be willing to license the technology to the pool if the technology were adopted by the standard, but would not want to reveal details on the technology to competitors if it were not to be adopted. Also, the design team needs to get information from future licensees of the pool concerning what they think the cost of producing the good will be given different technical options, what they believe they would be willing to pay for a licence to support their use of the standard, and what they believe they can charge for different products in the market. All of this is information that

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competition authorities would just as soon not have discussed on a regular basis by future competitors in the market for the standardised projects. This can be avoided if such communication is between the independent staff and participants rather than between participants.

Another task in which independence is important is in negotiating licences for the pool and in designing the standard around IP, where the owners are not willing to offer a price that makes the pool as competitive as it could be. This could mean serious negotiation with some of the major firms involved in the standard setting process.

The standard setting organisation we are describing here is not the typical SSO in existence today, and it needs both business/economic expertise as well as technical expertise specific to the technology required by the standard. This new type of SSO should be formed specifically for the job at hand. It could be drawn from consultants, retired experts in the industry, academics, and so on, but it needs to have a larger role than many SSOs or technical experts have had in the past. For example, in the past, technical experts typically have been used to assess the essentiality of IP after a standard has been chosen. In the system we are proposing, technical experts would be involved in developing alternative technical designs for the standard and advising on technical alternatives that might be available.

One issue that has received a lot of attention from competition analysts is the problem posed by including invalid patents in a patent pool. Invalid patents are no more or less a problem in this context than they are in general. One suggestion has been to use the technical experts associated with the standard setting process to evaluate the validity of patents proposed to the pool. This would add considerably to the time and cost required by the technical management and as one industry observer pointed out, it would not solve the problem. It is unlikely that the owner of the patent would agree with the experts conclusion that the patent was not valid, and the pool would still face infringement litigation if it infringed upon this patent and did not include it in the pool. The dilemma is that as long as patent granting bodies grant some invalid patents, and as long as the only way to settle the issue is expensive time-consuming litigation, there is going to be a problem. This problem is not one that can be solved by evaluation unless it is backed by litigation. In many cases it may, from a business

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perspective, be more advantageous to pay some royalty rather than incur the costs and possible risks of hold ups associated with litigation.

Obviously, this type of standard setting exercise would require resources from the participants. It is desirable that these resources be drawn widely from the standard setting group in order to insure the independence of the technical management staff. With this type of organisational structure all of the information necessary for the rational design of a standard can be obtained while maintaining the confidentiality of the participants' information and not requiring competitors and potential competitors to share and widely discuss sensitive information.

This model was developed as an ideal to foster discussion, debate, and perhaps the trial of this model as part of the process of experimentation. What industry representatives are seeking is much more modest; such as, "could we ask, as part of the standard setting process, that the potential providers of technology commit to providing that technology to the pool at some price?" This seems entirely reasonable from a competition prospective, and our conversations with past and present regulators leads us to believe that they would not have a problem with this. However, it shows how wary the business community and SSOs are of doing anything that would run afoul of the antitrust authorities. This is not benefiting the ultimate consumer, the economy, or the business community.

While the model set forth was for the setting of a major standard, the same model and principles can be applied on a smaller scale. For example, for a consortium of firms who want to develop a standard and supporting pool, several independent consultants might be hired to perform all the functions of a larger staff in the previous model. However, whatever the model, the ultimate standard and patent pool should be operated according to the eight basic rules, set out earlier, that are generally accepted by competition authorities worldwide and by the business community.

These rules should be the centrepiece of any guidelines for standard setting along with the requirement that the process be open. The use of independent experts to do much of the design and evaluation of the technical and business options for the standard should be encouraged. While at this point we would not make it a requirement that an independent

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professional group run the standard setting process, we believe that a standard setting activity led or run by one or a small number of companies inevitably creates greater risk that the process will be driven by the competitive interests of those companies, and that the information exchange needed for the rational design of the standard could be used to facilitate collusion. The governance structure therefore should be such that all major groups are represented and, again, outside independent representation would help instil confidence that the process would not be used to advance the interests of one or a few participants at the expense of competition.

In general, participant standard setting should be given more latitude for experimentation, and its use should be encouraged. The expectation should be that, except in the case of blatant anticompetitive behaviour or behaviour where the proven intent was to restrict competition, that if they follow the basic eight rules, and adopt procedures that are designed to implement a rational standard setting process, they will not be challenged by the competition authorities.

Patent Pools and Joint Ventures

Patent pools may be created in the context of joint ventures. In many cases the patent pool will be ancillary to the overall structure of the joint ventures. In that case, there is very little general guidance one can give about whether the patent pool is acceptable from a competition perspective. The patent pool will have to be evaluated from a competition perspective on the basis of its role as an integral part of the joint venture. This will entail the competition authority analysing the competitive effects of the joint venture under the usual procedure, which includes an analysis of the patent pool in the context of the joint venture. Obviously, in evaluating the patent pool, all of the issues that have been discussed with regard to multiparty licensing will be relevant; e.g., are the patents in the pool complements or substitutes, on what terms will these patents be licensed and to whom, and so on. On balance, whether the joint venture is acceptable from a competition perspective will depend upon the competitive characteristics of that joint venture in its entirety, with the terms of the patent pool being only one factor of several interacting factors.

There is, however, one type of joint venture that is in effect an effort to establish a standard. Suppose several firms get together and pool their technology, by establishing a patent pool,

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and based upon this technology they define a standard. There are various ways this scenario might play out. On the one hand, suppose these firms made it a proprietary standard for themselves and licensed the technology only to the firms in the joint venture. In this case one would obviously need to look at the competitive situation in the relevant market. If there were a number of competing products with significant market share and essentially comparable technologies available in that market, this joint venture would probably not be of great concern. On the other hand, if there were not, and if these firms together had a large combined market share of the existing market, the adoption of the new standard would raise concern – particularly in the presence of network effects – that these firms would jointly monopolise the market with the new standard.

Given this potential, several other familiar factors enter the analysis. Are the patents in the pool substitutes or complements? If they are substitutes, then the formation of the pool is eliminating potential competition that would have existed in the absence of the pool. Without opening the standard and licensing the technology to other producers, the joint venture is foreclosing competitors from the market and limiting competition. By the joint setting of royalties, the firms are able to set a floor on the price of the product, and engage in other anticompetitive behaviours. These are all concerns we have encountered and discussed earlier in the report.

What this analysis suggests is that if the firms forming a joint venture have market shares that are above the minimum threshold, then, unless the joint venture meets all of the eight requirements for standards generally, it should be subject to antitrust scrutiny. The one concern that the eight conditions do not deal with is the setting of royalties. Suppose for example that a group of three major firms in an industry pool their technologies and define a standard based upon this technology for which they then set royalties. The technology meets the essentiality requirement and the complementarity condition. They openly license this technology on a non-discriminatory basis and they do not place any restriction on the firms in the joint venture standard against licensing the technology to others. That is to say, it meets the eight conditions.

However, the royalty rates set by the firms and the joint venture are not set in a competitive process where other possible substitute technologies are considered, as would be the case of

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the open standard setting process described earlier with the use of independent experts. Obviously, the firms are constrained in their setting of royalties by what the market will bear, but once the standard is widely adopted – even if the cost is significantly higher than available alternatives – it would be difficult to overcome the inertia of changing a widely accepted standard, even if there were a significantly lower cost solution. Therefore, standard setting that is primarily led by several large firms, based upon their own technology may lead to higher costs than the more open competitive process of standard setting recommended in the report: that is, a process that includes the use of outside experts and an on-going organisation to review the standard, and the technology base to support it.

At the same time, developing a standard is not a simple process, and it may be that firms have to profit directly from their efforts to organise such a standard in order to give them the incentive to do so. Again, the appropriate test is whether the agreement to develop a standard supported by a patent pool would prevent competition that would have existed in the absence of the agreement. In the case of standard setting, it is not whether the best or lowest cost standard was adopted but whether, in the absence of this standard, another better standard or substantially better competitive situation would have emerged? If any such standard setting activity meets the eight conditions laid out above, then the answer is probably “no”. Nonetheless, standard setting should be encouraged wherever possible to use the open process with independent experts and provision for review over time.

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