

Patent pools and antitrust

Patent pools are “one-stop shop” licensing mechanisms that facilitate access to complex technologies with high levels of patenting activity. However, given that patent pools entail collaborations between patent owners, antitrust issues can arise if the pro-competitive features of the pool are not clearly defined. The impact of patent pools on innovation will be positive (e.g. will alleviate the effects of patent thickets) if the pools are not anti-competitive and fulfill certain conditions. Policy measures addressing such issues are important in ensuring that patent pools are compatible with the objectives of the patent system (e.g. promoting access to innovative knowledge).

What are patent pools and antitrust?

A patent pool is a single entity under which “an entire group of patents is licensed in a package, either by one of the patent holders or by a new entity established for this purpose, usually to anyone willing to pay the associated royalties” (Shapiro, 2001). **When two or more companies control patents necessary to produce a given product, and when at least some actual or potential manufacturers may not themselves hold any such patents, a patent pool can be an effective approach to address such complementarities** (Shapiro, 2001).

Antitrust laws or competition laws seek to promote and maintain fair market competition by regulating the conduct and organization of companies that can create barriers to competition. Competition law and enforcement usually view cooperative activities involving direct competitors with suspicion. **Antitrust concerns may arise with respect to IP when licensing arrangements harm competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the license** (Shapiro, 2001). In particular, challenges to competition arise if patent holders use licensing arrangements to block competitors from entering markets or to avoid being blocked by them (Shapiro, 2002).

Antitrust concerns are greater when competitors who produce substitute (alternative) products team up and raise horizontal issues, than in cases where suppliers and customers collaborate in a vertical relationship (a common type of collaboration that only raises concerns to the extent that rivals at one level or the other are excluded from the market) (Shapiro, 2002). Strategic horizontal collaborations attempting to block access by competitors to a key technology, or to avoid being blocked by them, seem to have developed over the last few years, notably in the electronics industry (Hall and Ziedonis, 2001; OECD, 2004).

The principal anti-competitive effect of patent pools is that they may be used by colluding incumbent firms to block entry by competitors. This is particularly the case if patents actually cover competitive alternatives to a certain technology (Clark et al., 2000).

How are patent pools related to innovation?

Patent pools can support innovation if they bring together complementary patents to facilitate innovation that requires combining to generate a new product (or innovation) (Aoki and Schiff, 2008). These challenges arise particularly in sectors where complex technologies are important, such as electronics (as described below). That is, when the patents forming the pool are appropriately selected, licensees may find such pools advantageous for both the convenience of one-stop shopping and because a subset of the required patents may be of little or no value by themselves (Shapiro, 2001).

Royalty-generating patent pools grouping complementary patents can be welfare enhancing if the overall fees paid by a licensee to a group of licensors is lower than the sum of the amounts to be paid to each licensor through individual negotiations (Lemley and Shapiro, 2007). From the licensee's perspective, licensing the entire package is simpler and avoids the danger of paying for

some patent rights that may be useless without other complementary rights. Pools reduce search, negotiation and transaction costs for licensors and licensees, and mitigate the formation of barriers to further research by their members (OECD, 2006; Aoki and Schiff, 2008; Yanagisawa and Guellec, 2009). Patent pools may also provide incentives to invest in researching other technologies that are related to the pool (Lerner and Tirole, 2004).

However, it is important to note that due to the complex and uncommon patterns of patent thickets, **patent pools created to mitigate thickets' effects require case-by-case analysis** (OECD, 2009). Moreover, in cases where pools do not seem the best option, **other alternative institutional solutions can be explored, such as open-source and clearinghouses** (OECD, 2004). In open-source mechanisms, each innovator licenses his innovation to others at no cost, on the condition that licensees use the same kind of license (the open-source model has found some success in software development) (Aoki and Schiff, 2008). In contrast, clearinghouses are mechanisms whereby providers and users of IP rights are matched, thus facilitating the exchange and negotiation of licenses (Aoki and Schiff, 2008; Van Zimmeren et al., 2006). Those wishing to clear IP rights over particular units of knowledge falling within the clearinghouse enter into non-exclusive standard-form licenses to cover those individual units (for example, clearinghouses are frequently used to clear rights over the broadcast of music over radio in many countries). In a clearinghouse, it is the user who decides which IP is to be licensed (OECD, 2011).

If not properly established, pools can negatively affect innovation and patenting in many ways (Lampe and Moser, 2009). Patent pools are considered to be beneficial for innovation (thus, not anti-competitive) when they can provide the following (OECD, 2011):

- **Fair, reasonable, and non-discriminatory access to all who desire a license** to the technology. Blocking access to the pool can actually hamper innovation by discouraging the innovative efforts of those who wish to enter the pool and find barriers to doing so. All licensees must be offered the same licensing terms regardless of their size (Grassler and Capria, 2003).
- **One-stop licenses consisting of essential (blocking) and complementary patents held by multiple patent holders**. Membership in a patent pool should be restricted to those patents that block each other and thus are deemed to be essential to the pool, in contrast to substitute or rival patents that are not essential for innovating in a particular technology (Shapiro, 2001). In this regard, to satisfy antitrust authorities, it is recommended that patent pools employ independent experts to assess whether the patents included in the pool are essential (Aoki and Schiff, 2008).
- **Freedom to operate for licensees**. Pools are aimed at permitting and encouraging a wider use and adoption of the pooled technology (Grassler and Capria, 2003). Thus, licensees must be free to operate so that the commercial production, marketing and use of innovations based on the pooled technology do not infringe on the IP rights of others, thus reducing litigation (Van Overwalle et al., 2006).
- **An environment that facilitates technology research, implementation and interoperability**, so that when obtaining licenses from the pool, licensees can exploit the licensed technology and conduct further research effectively.
- **Transparency for licensees** by offering clearly defined licensing terms (publicly disclosed) for all potential licensees and avoiding backroom agreements.

Nonetheless, due to their voluntary character, the success of a patent pool depends on whether patent owners decide to join. Thus, if holders of complementary standard-essential patents that are crucial for the development of a pooled technology decide not to join the pool, the potential benefits of this type of licensing mechanism for innovation will be limited (Van Overwalle et al., 2006; Layne-

Farrar and Lerner, 2011).

What is the evidence on patent pools and antitrust?

Until the mid-1990s, regulators had generally considered the formation of patent pools to assist in the creation of an industry standard to be anti-competitive (OECD, 2011). However, **patent pools started to be viewed as pro-competitive mechanisms in the late 1990s (with the approval in 1997 of the MPEG patent pool)**, as long as: 1) the pools only contained valid patents relevant to an accepted industry standard (which is a common standard for a particular industry established by a Standard Setting Organization [SSO], in order to ensure the compatibility and interoperability of devices manufactured by different entities) (Yanagisawa and Guellec, 2009); 2) an independent expert evaluated the patents included the pool in order to ensure that they were essential (blocking) and complementary; 3) licensors could also issue licenses outside the pool; and 4) the pool was open to any actor (OECD, 2011).

The MPEG patent pool in the late 1990s created “one-stop shopping” for makers of televisions, digital videodisks and players, and telecommunications equipment, as well as cable, satellite and broadcast television services (Shapiro, 2002). Since then, the rate at which new successful pool projects are created is steadily increasing. Factors contributing to an increasing ease of pool creation (Baron and Pohlmann, 2012) include: 1) the increasing experience of companies with pools; 2) the emergence of companies specializing in the administration of patent pools, such as MPEG LA (11 patent pools), Via Licensing Corporation (10 patent pools), SISVEL (12 patent pools), the Open Patent Alliance, 3G Licensing and ULDAGE (3 patent pools) (Yanagisawa and Guellec, 2009); 3) initiatives by SSOs and standards consortia encouraging pool creation; and 4) the further clarification of the legal environment.

Antitrust regimes have incorporated specific provisions to encourage the pro-competitive impacts of patent pools. For example, according to the United States (US) Licensing Guidelines, IP pooling is pro-competitive when it integrates complementary technologies, reduces transaction costs, clears blocking positions, avoids costly infringement litigation, and promotes the dissemination of technology (Clark et al., 2000; Shapiro, 2002).

Pools aimed at overcoming transaction costs in order to serve public, rather than commercial, interests, also have pro-competitive effects. This social-entrepreneurial approach is evident in the severe acute respiratory syndrome (SARS) patent pool that brought together public research agencies, a government department and industry so as to facilitate the development of a SARS virus vaccine (OECD, 2011).

Today, **patent pools are notably popular in the information and communication technology (ICT) and electronics/video content industries**, where standardisation of technology is critical to innovation and it is important to create mechanisms to enable potential licensees to access patents that are essential to a certain technology (Yanagisawa and Guellec, 2009). In these industries, the formation of a pool around a common technological standard is relatively straightforward and it is possible to identify which patents are essential to the standard. However, pool formation may be more difficult in biotechnology and pharmaceuticals, as technical standards are harder to define (OECD, 2011); thus, patent pools do not yet offer a clear and viable solution to patent thicket-related problems in these sectors.

In the biotechnology and pharmaceutical fields, social-entrepreneurial pools have shown themselves to be more applicable. Several pools of this type have been created, focusing on ensuring that particular products are made available (usually on a not-for-profit basis) to the research community or, more frequently, to those living in the world’s poorest nations (OECD, 2011). Some examples include the Golden Rice pool, which includes patents essential to the manufacture of genetically enriched rice, and the SARS pool, containing patents incorporating genomic sequences related to severe acute respiratory syndrome (Aoki and Schiff, 2008).

What are policy implications for patent pools and antitrust?

If IP and competition authorities are not well prepared, licensing mechanisms like patent pools can foster monopolistic market structures to the detriment of innovation and development. To promote patent and technology licensing, governments have taken steps to clarify regulations that can affect firm's IP transaction activities through patent pools (Yanagisawa and Guellec, 2009). In the US, for example, the Federal Trade Commission and the Department of Justice issued "Antitrust Guidelines for the Licensing of Intellectual Property" in 1995 and "Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition" in 2007. At the European Union level, the accompanying Guidelines of the technology transfer block exemption regulation (TTBER) contain provisions dealing with multi-party agreements in the form of patent pools. The TTBER and its complementary Guidelines entered into force in May 2004 as part of a broader set of reforms to competition law that are expected to increase legal certainty (Shapiro, 2002; OECD, 2006). The Japan Fair Trade Commission issued "Guidelines on Standardization and Patent Arrangements" in 2005 to clarify competition policy issues related to patent pools affecting technology standards (Yanagisawa and Guellec, 2009). It also issued "Guidelines for the Use of Intellectual Property under the Antimonopoly Act" in 2007, with the aim of facilitating IPR-related transactions by clarifying its enforcement policy (Yanagisawa and Guellec, 2009).

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