

# The role of patent pools in commercialising high-demand technology

While patent pools can assist in commercialising technology covered by a patent thicket, they may not be as effective in fostering new innovation

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In a free market economy, patents can be a disruptive tool. Despite a broad policy to encourage competition, a patent provides the rights holder with a means of limiting competition by restricting others from exploiting the patented invention. Many economic studies show that patents can have a positive effect on innovation and competition. However, a build-up of patents in a certain technology can result in a patent ‘thicket’ – an overlapping set of patent rights. Thickets force those seeking to commercialise technology covered by the patent rights to obtain licences from multiple patentees. Unless all rights holders are willing to cooperate, a thicket can stymie competition. When patented technologies become the basis for standards in a particular industry, the anti-competitive potential of patents can be amplified.

Patent pools provide a mechanism for managing the anti-competitive effect of a patent thicket commercially. A patent pool is essentially an agreement between rights holders to license their patents jointly. Generally this includes cross-licensing arrangements between pool participants, and may also include licensing to external parties.

To date, most patent pools have been formed around IT and telecommunications technologies, where the adoption of global technology standards has been the

underlying driver of cooperation between patentees. Patent pools require complex legal arrangements in order to ensure that the needs of both the pool participants and the market are met. Whether a pool arrangement is pro-competitive depends on:

- the relationship between patents in the pool;
- the terms agreed among participants in the pool; and
- the terms offered to non-participants.

These arrangements are therefore subject to competition review. Pool arrangements have also recently been scrutinised by the courts in the context of litigation between pool participants and external competitors.

Patents are territorial in nature and are most prolifically sought in developed nations with sophisticated and large consumer populations. Dense patent thickets and corresponding pools therefore tend to arise most prominently in these jurisdictions. This article discusses:

- the characteristics and market effects of patent pools;
- the legal arrangements between pool participants and with non-participants; and
- the factors that may influence participation in, and licensing from, patent pools when commercialising technology in different contexts.

## Market effects of patent thickets and patent pools

Patent thickets can arise from incremental innovation practices employed to invent over existing patents. Some commentators also blame sub-standard examination practices at various patent offices around the world

for the formation of thickets. Patent thickets can block the pathway to new product development. A 'hold-up' occurs when one or more patentees within a thicket declines to make its patents available on reasonable terms. Where thickets exist, it may be challenging for a company to find a risk-free route along the innovation pathway to product commercialisation.

These problems place an economic burden on the innovator by increasing transaction costs. Thickets run the risk of slowing commercialisation and even retarding innovation. 'Royalty stacking', which refers to the cumulative effect of licence fees paid to multiple rights holders, is one transaction cost which is often a barrier to technology adoption by a licensee.

A patent thicket is analogous to a situation in which a party seeking to access a market must obtain components for its product from separate parties, each having a monopoly in its own component. Economic studies show that the resulting cost of the end product to the consumer is higher than if the components were all available from a single monopolist. When the development of new products is deterred because of multiple companies controlling blocking patents, no one wins.

Alternatively, the component suppliers can band together to sell their components as a package. It is in their best interests to package their components at a lower overall price

in order to generate higher sales and more profit for all concerned. This situation arises because the separate components are not competing substitutes, but are complementary to one another.

The economic theory of complements is the driver behind patent pools. Under a patent-pooling arrangement, a collection of patents owned by a number of different patentees, or by an entity created specifically for the purpose, is licensed as a package. Generally, a pool licence is available to anyone who is willing to pay and comply with the terms on offer. Royalties are split between the patentees. In this way, patentees earn a return on their investment, hold-up is prevented and any blockage represented by the monopoly rights in the pool is eased by universal access at an agreed price. Patent pool operators may be viewed as 'benign' patent aggregating companies which aggregate and monetise strategically important patents by providing non-exclusive licences to all comers, including the patentees themselves.

Patent pools can also be formed to resolve patent litigation between competitors with overlapping technology. That being said, a patent pool is not a shield for an invalid patent or anti-competitive practices.

Competition authorities, such as the US Department of Justice (DoJ) and the Federal Trade Commission (FTC), oversee patent pools as part of their compliance activities. Their

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task is to ensure that business practices are not anti-competitive or illegal. For example, the FTC forcibly changed the rules around a patent pool created in settlement of litigation between VISX and Summit Technology. The companies were the only two US Food and Drug Administration-approved manufacturers of lasers used for photorefractive keratectomy (a form of laser eye surgery). The FTC determined that the pool participants were using the pool as a tool to inflate pricing of their products anti-competitively.

The creation of a patent pool may stymie, or at least change, the nature of subsequent innovation. This is particularly true for innovators whose patents are not included within the pool. For example, a patent pool was formed in June 1997 to encourage adoption of MPEG-2 digital video coding technology as a global technology standard. A recent analysis of the MPEG-2 pool (which included 27 patents from nine organisations licensed to 1,518 firms) found that for both ‘proximate outsiders’ – those patentees which had similar technologies but were left out of the pool – and patentees within the pool, a marked drop in their innovation rate (measured by patent frequency) occurred after the formation of the pool. However, the innovation efforts of both pool participants and non-participants were focused on applying the pooled technologies to new products – focusing on development rather than research. This resulted in a rash of new products reaching the market. In other words, the MPEG-2 pool had achieved its objective of encouraging adoption of the technology – positive proof of the beneficial effect of patents as an economic instrument and of the pool.

### What makes a patent pool work?

The operator of the MPEG-2 patent pool sought and received specific approval from the DoJ before commencing operations. The arrangements for this pool have become a model for later pooling arrangements which seek to avoid falling foul of competition laws.

DoJ guidelines state that patent pooling is pro-competitive when it:

- integrates complementary technologies;
- reduces transaction costs;
- clears patent blocking positions;

- avoids costly infringement litigation; and
- promotes dissemination of technology.

The same guidelines state that pooling may be anti-competitive when:

- excluded businesses cannot effectively compete in the market for the product containing the licensed technologies;
- pool participants collectively possess market power in the relevant market segment; and
- limitations on participation are unreasonable relative to the efficient development and exploitation of the pooled technologies.

Agreements between pool participants may be more favourable than those available to non-participating licensees, in recognition of the contribution of those patentees to the pool. However, pools are generally not permitted to discriminate between non-participant licensees or to set royalty rates or other terms which could lead to a reduction in competition. In the case of patent pools relating to established technology standards, rights holders are typically obliged to offer licences on fair, reasonable and non-discriminatory (FRAND) terms.

Some observers are becoming increasingly concerned that patent pools are failing to meet their obligations to foster competition. David Balto, former policy director for the FTC Bureau of Competition, recently published a study in which he argued that decreasing scrutiny by competition authorities and incomplete adherence to the guidelines set down in the 1990s by US authorities was having anti-competitive consequences. In particular, Balto noted an increase in pools that:

- include both essential and inessential patents;
- demand unreasonable royalty rates from non-participants;
- involve anti-competitive collusion between pool participants; and
- result in increased product prices to the end consumer.

There is no reason why successful patent pools cannot be formed in any field of technology. However, suitable conditions of

complementary patent holdings have so far arisen only in IT and telecommunications technologies. In other fields, efforts to form pools as a means to reduce transaction costs and smooth the pathway to market have been unsuccessful. Novartis, a global patentee of pharmaceuticals, states on its website that “due to the nature of innovations in pharmaceutical research and development, the collaborative mechanisms of patent pools are not readily applicable...Novartis sees no value in patent pools for small molecules in the pharmaceutical field. The absence of patent pools in our industry has not stopped healthcare companies from voluntarily collaborating to develop...drugs that enhance treatment options for patients”. A patent pool proposed in the 1990s to enable low-cost access to AIDS drugs by less developed nations appears never to have reached maturity.

### **Are patent pools right for you?**

Companies looking to enter a market in which the licensing of relevant patent rights is a significant issue must consider the cost and other terms of available licensing options, including any relevant patent pools. All of the existing pools essentially offer ‘one size fits all’ licences for non-participants. This can be problematic for licensees whose circumstances differ from those assumed by the terms of the pool licence. For example, a company or product may be at a different stage of development from a typical licensee. Alternatively, a company may be targeting a geographically limited or specialised market.

Over time, the pro-competitive benefits of patent pools may be eroded, disadvantaging relative latecomers to a market. For example, a 2008 Chinese analysis found that as of 2007, the cost of patent licences exceeded the cost of manufacture for DVD players. Licences to all of the essential patents can be obtained through four distinct patent pools. When these pools were formed in the late 1990s – all with DoJ approval – the cost of manufacture was more than 20 times the cost of patent licences. While manufacturing costs have plummeted, royalties charged by the pools have barely moved. As a result, it is now practically impossible for any new competitor to enter this mature market.

It is not only the passage of time which influences the effectiveness of patent pooling. Pool arrangements generally assume that the object of the licence is to grant access to a global market and treat all non-participant licensees equally. Therefore, each licensee is required to pay the same royalties, whether it operates globally and makes use of all patents in the pool or operates within a smaller domestic market in which fewer patents may exist. In any case, the pool operator will distribute royalties to the rights holders according to the same formula. Licensees operating in smaller markets may therefore not only be paying for patents that they do not use, they may be paying pool participants which do not even hold patents in the relevant market.

Competition authorities, including the DoJ, generally require pool participants to be willing to license any and all of their pooled patents on an individual basis. In a landmark judgment handed down in April 2013 in a dispute between Microsoft and Motorola, a US federal district court in Seattle, Washington developed a detailed methodology for determining FRAND rates for patents licensed outside a patent-pool arrangement. This ruling provides, for the first time, an independent judicial determination of a basis for calculating reasonable royalty rates for patents relating to a technology standard.

One option for companies which require access to only a subset of pool patents may therefore be to negotiate agreements with individual rights holders. This will be most practical when the number of patents required and/or the number of patentees is small relative to the overall size of the pool.

While developing a successful product which is incompatible with an established technology standard is unlikely to be feasible for most companies, innovating around or over the technology in a patent pool may nonetheless be a viable strategy in some cases. Innovation efforts may be directed to developing a competing technology or to improving existing technology. Improvements may themselves be patentable. In some cases it may be possible to contribute improvement patents to the pool, giving the innovator access to more favourable licensing terms and a revenue stream from royalties

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collected through the pool. Companies should certainly consider participating in technology standardisation activities where relevant. While this clearly involves a cost, the long-term benefits may be considerable.

### **Conclusion**

When the terms of a patent-pool arrangement strike the right balance between the interests of licensors, licensees and consumers, the pool can provide an effective mechanism for commercialising technology covered by a patent thicket. For licensees, the risk of hold-up is eliminated, enabling them to enter the market with confidence. For consumers, a competitive market in the technology is created, leading to the availability of a range of products at fair prices. Licensors have the option of participating in this market at favourable royalty rates, as well as receiving income from the royalties collected through the pool. The great successes of patent pools have therefore been in encouraging the adoption of new, beneficial technologies in the IT and communications fields.

It is less clear that patent pools are as effective in fostering new innovation, that their initial successes have been sustained over the long term or that their 'one size fits all' approach to non-discriminatory licensing is fair or reasonable to smaller licensees.

Patent pools are likely to become subject to closer antitrust scrutiny. It is equally likely that pool arrangements will evolve to accommodate new competitive demands. Wherever patent thickets form, pools will remain an important mechanism by which to resolve blocking and hold-ups and enable successful commercialisation of innovative technologies. *iam*

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