

# Framing the case for a 4G patent pool

Globalisation of intellectual property spurs innovation and nowhere is this more the case than in the emerging 4G technology space. Patent pools are key to ensuring this continued success

By **Frank J Bernhard**

Since the late 1890s, the concept of patent pools has given rise to cooperative methods for sharing IP assignments between patent holders and newly established markets. Today, patent pools have become a near-global solution for IP rights to proliferate throughout the markets they are intended to serve in a way that reduces transaction cost economics and fuels efficiency between firms. From pharmaceutical innovators to telecommunications developers, never before in recent times has the application of patent pools been more relevant to changing the way that intellectual property goes global.

In the United States, for example, these pools carry forward a long history of successfully enabling critical industries to flourish where they would have otherwise floundered. Starting with various manufacturers of sewing machines, the patent pool has been in use for the better part of a century.

A recent example of a successful technology patent pool is that created for Advanced Audio Coding audio MPEG-4 technology. This was administered by Via Licensing, which oversees administration of the Open Patent Alliance (OPA) Worldwide Interoperability for Microwave Access (WiMAX) pool. Technology such as this is now used in many of today's leading-edge devices, such as the Apple iPod and most other MP3 players. This proliferation was

made possible because various technology product manufacturers, such as Apple and Microsoft, were able to license and then use the format from one location. Patent pools – generally formed when multiple patent-holding entities decide that a pool would best enable a technology to be rapidly and widely adopted by relevant companies – continue to increase in importance in the technological sphere. Given the increasingly dense patent landscape, pools have proved themselves to be a best of breed strategy for promoting rapid and wide adoption by keeping both licensing and transaction costs in check. Essentially, the pooling approach works to lower licence fees and transaction costs for the member firms – as opposed to separatist agreements in place or cross-licensing strategies.

Thinking about the case highlight of telecommunications and breaking ground on wireless broadband innovation, the fourth generation (4G) environment (which includes both WiMAX and long-term evolution (LTE) technologies), a patent pool trumps the concept of bilateral agreements by open access to essential technologies. This is because bilateral agreements simply do not provide the appropriate steps and timing to engender success. In simple terms, they typically take too long, lack transparency, are not universally used and cost more in long-run instances. These agreements can involve only a few patents or entire portfolios for particular technologies. In addition, companies in bilateral agreements frequently have no intention of opening up their IP licensing to any and all third parties seeking a licence.

Patent pools, on the other hand, are formed with the specific purpose of licensing the pooled patents – without discrimination – to any third party seeking a licence, so that these third parties can provide enhanced

products and services based on the pool's patents. Also, bilateral agreements are unlikely to provide a company with all of its required patent licences. Since patent pools do not preclude bilateral agreements, they can easily complement third-party bilateral agreements, but only under certain conditions.

### Critical thinking: benefits of patent pools for 4G technologies

A 4G wireless patent pool brings a unique set of benefits that are particularly advantageous for companies on the cutting edge of technological development. The main benefit is the ability to move more rapidly to bring a particular technology or product to market by fast-tracking the development process. By removing the cost and negotiations associated with blocking patents (patents without which the technology cannot be implemented) and stacking licences (where multiple companies must be paid for licences, thus "stacking" the royalty payments), patent pools accelerate the rate of development and innovation for a given technology.

Ideally, the patent pool serves as a one-stop shop for a specific technology or host of technologies to enable companies interested in developing a product or service incorporating that engineering to get access to the intellectual property they need from a single organisation. Contemporary research shows how the pool approach reduces the time to market for a product or service in question while effectively lowering the barrier to entry – all the while attracting more companies to develop products or services. From the consumer's perspective, this affords more options and choices for a particular type of product. For example, mobile handsets or laptop computers from multiple manufacturers equipped with a technology such as 4G will increase competition and cut down on consumer cost, leading to broader adoption. And this increase in competition will ultimately spur secondary markets for some of the base 4G technology.

The primary result of a 4G patent pool will be significant. By having a one-stop shop for all relevant patents needed to incorporate 4G into a product, IP rights barriers to entry will be reduced for various players in multiple ecosystems, expanding the potential proliferation of the technology beyond what was previously suspected to be possible. This will encourage heightened competition, which in turn will increase innovation, while having the added effect of reducing costs for the end user. External economic research reveals

### Cross-pollination: patent pools, technology and timing

While patent pools have the potential to drive innovation and lower the cost of products for the general public, they are not always necessary to achieve these goals. Several variables must be considered before determining whether a patent pool approach is the right answer for the situation at hand. When a product and/or service is based on a broadly agreed-to standard or specification, it becomes easier to determine which patents are essential to practise that standard or specification, thus making it easier to determine the patents needed to be in a patent pool. If a technology is non-standardised, it becomes difficult – if not impossible – to determine which patents will need to be licensed to implement that technology. Therefore, technological standardisation has become a key component to the success of a modern patent pool.

If there are only two or three entities that own the relevant patents, then a patent pool is generally not the best solution, as manufacturers should be able to manage the creation and negotiation of licensing agreements at minimal cost and effort. However, when IP ownership is spread across many different entities, a patent pool may be useful in reducing the costs and risks associated with creating and managing multiple licensing agreements. Once again, transaction cost economics becomes the key in weighing the options of pool formation.

A common misconception in the global IP

marketplace is that a patent pool needs 100% participation from all essential patent holders to succeed. In fact, a patent pool can be very successful and effective with a much smaller contingency of essential patents. Many patent pools start out small and build their membership over time. However, if it is clear that a critical mass of essential patent holders will never join a patent pool, then the cost of creating it may outweigh its benefits.

A patent pool makes sense only if there are many potential licensees wishing to develop products related to the patent pool's technology. If only a few companies express interest in building products based on the pool's technology, then it will likely be more cost effective to negotiate bilateral agreements. From an accounting point of view, the start-up cost to develop a patent pool could be several million dollars and take upwards of two years – often a lifetime in the technology world. Thus, it makes sense only if there are enough potential licences to offset these costs.

It is also important, of course, to ensure that the patent pool "germinates" at a critical time appropriate for the technology. While there is no prescribed timing, this typically occurs after the technology is generally available, but prior to broad adoption. In the case of the OPA's most recent pool, timing proved essential in a very fast process, with the entire design from formation to completion being accomplished in less than 18 months.

that the effect of patent pools carries the impact one step further: an increase in member firm incentives to invest in their research and development, because the pool membership can more effectively litigate against infringement.

Hence, the patent pool model also significantly reduces litigation costs and the transaction costs of negotiating licensing agreements. Even negotiating a single licensing agreement between two companies can absorb a significant amount of time, resources and investment. When patents are widely distributed among many different organisations and across multiple markets, the costs can quickly balloon to the point where they prohibit any single company from entering the market at all. Fees for attorneys and consultants, as well as the innumerable hours spent by talented personnel (who could otherwise be used elsewhere), are all factors in the creation and negotiation of licensing agreements. The slack waste created by inefficiency poses a

## Action plan



Applying patent pools makes a difference. The benefits of a solid patent pool strategy brings the potential to deliver:

- Reduced risk of litigation.
- Secondary profit channels for essential technologies.
- Normalised values for royalty fees across a given technology.
- Increased demand for applicable technology within the pool.
- Efficiency of lowered transaction cost economics.
- Composite fee structures and transparency to information.
- More effective introduction of standards and globalisation of technology intellectual property.
- Healthy competition and survival of markets.

strategic concern to organisations, especially those early in the start-up or launch phase.

Under the patent pool design, many of the necessary patents for a technology reside in a single location with clear and structured licensing rules. In addition, the patent pool approach greatly reduces the risk of litigation because the licensee is protected against the risk of infringement litigation by all patent owners in the pool.

The proposal of 4G patent pools – such as those implemented by the OPA – will also likely prove useful in establishing a market reference point for royalties. Unlike bilateral licensing arrangements, this type of patent pool is being negotiated by a group of essential patent holders that, under a pool, will license as many essential patents owned by as many licensors as possible. All of these patent holders have a common interest in spurring market development while realising a reasonable rate of return on the licensor's patent assets. Bilateral licensing arrangements generally only consider the needs of the parties to the agreement. Those needs will undoubtedly be self-serving, and as such, a patent pool is far more likely to represent the generally acceptable royalty rate for a particular technology with respect to bilateral licensing arrangements. Using this rubric for assessing value, a patent pool may inevitably be a useful guide in those situations where a "reasonable" royalty rate benchmark needs to be determined.

### Technology and patent pools – a closer look

A core benefit of any patent pool is championing the case for standards within an industry. When a standard is closing towards broad adoption, a number of issues arise. Among these are how easy the underpinnings of the technology are to identify (typically made easier through the help of a standard), how broad the IP rights ownership is, whether there is interest on the part of the patent holders and whether there is a significant pool of potential licensees. In the case of 4G wireless technologies – specifically, mobile wireless broadband technologies such as WiMAX and LTE – there is much more than just the latest iteration of wireless development to consider.

By integrating multi-megabit speeds into a far broader set of devices within the ecosystem, 4G has the potential to transform the telecommunications industry. This makes the technology an ideal candidate for a patent pool-licensing model. Simply put, it achieves all the goals

necessary for a technology to succeed in a patent pool setting: the technology is standardised, there are many different essential patent owners (not just a handful), there is a strong interest in participating in a patent pool among the essential patent owners and there are potentially thousands of willing licensees.

The current 4G wireless technologies are both standardised and ratified by the international community, plus those engineering standards bodies that serve to unify design specifications. WiMAX and LTE are based on well-documented international standards – WiMAX on IEEE 802.16 and LTE on 3GPP-LTE. And as such, the task of identifying essential patents for these technologies is easier than in some other instances.

On the flipside, IP rights ownership in the 4G world is still very broad. Whereas third-generation (3G) technology is limited primarily to silicon and mobile handsets manufactured by a handful of companies, 4G technology has the potential for integration into a wide array of computers and consumer electronics, as well as data-intensive applications such as telematics, smart grid applications for the utility industry, healthcare applications, machine-to-machine applications and much more. This implies that the number of companies developing products and associated new patents in 4G is significantly greater than that found in 3G. Scope and complexity rise commensurate with the secondary and tertiary markets spawned by a given technology.

Looking ahead, there is strong interest on the part of essential 4G patent holders to participate in a patent pool. Organisations such as the OPA ([www.openpatentalliance.com](http://www.openpatentalliance.com)) represent a collective body of member firms in this interest. Additionally, there has been significant activity in promoting an LTE pool from three patent pool companies and the Next Generation Mobile Networks organisation ([www.ngmn.org](http://www.ngmn.org)). This surge of interest on the LTE side would not exist had there been no demand on the part of the essential LTE patent holders to create a patent pool.

Beyond this instance of patent pool members, there are potentially thousands of willing licensees for 4G technologies. As noted, the market for 4G products is extremely broad in scope – particularly when contrasted to 3G, with its emphasis on mobile handsets. The consumer electronics and computer industries are two examples of large industries that were

noticeably absent from 3G, but are expected to embrace 4G to develop new and innovative products. To accomplish this, they will need to license the necessary 4G patents to develop these new products.

#### Leading a global IP strategy and balancing innovation

The implications for patent pools span many dimensions of modern commerce – but, more aptly, they change the economic structure of how intellectual property gains global adoption. Most companies can no longer compete in a standalone fashion if they intend to broaden their reach in effectively short amounts of time. While reducing time to market of technology is a sought-after benefit, the real cause for patent pools exists in how they foster collaboration which leads to higher profitability sooner rather than later. And this collaboration among participating patent holders enables other firms to proliferate technology that would otherwise remain anchored in limited designs.

Our latest research into the performance

of patent pool models over the past 20 years reveals positive results for leading innovation in emerging markets. These embryonic seedlings of upstart technology require the cooperation and nurturing that only a larger community can provide – and a cost schedule that is both feasible and quick to produce new products. While 4G is a strong example of the need for patent pools in the technology ecosystem, the broader scale of patent pools can be far reaching in other industries such as aerospace, biotechnology and consumer technology.

As the world has witnessed, the globalisation of intellectual property means that innovation will succeed in places where it has otherwise failed. How an organisation charts its own course towards participating in a patent pool will depend on where it envisions the future of a given marketplace. The choice of whether to participate hinges on a decision of carefully balanced needs and economics facing your firm. But clearly, patent pools have made their mark in setting the stage for a global entrance. **iam**

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*Advancing Investment Cases for Pools*, will be available from 1st February and explores the economic strategy that patent pools play in supporting growth of commercial innovation. Readers can download a complimentary copy of the report at the Open Patent Alliance website ([www.openpatentalliance.com](http://www.openpatentalliance.com)) or by emailing OMNI Consulting Group direct at [information@ocg-us.com](mailto:information@ocg-us.com)

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