Patent Licensing of Standardized Technologies through a Patent Pool

Hiroshi Watanabe†

Abstract

Since companies that use standardized technologies usually declare their conformance to relevant standards, licensing such technologies should provide the patent holder with royalties. When applying for patents, one must be aware that royalties are distributed according to the number of patents and that the distribution also depends on the countries in which the relevant patents have been filed. Moreover, a company that starts a business that makes continuous use of some patented technology must be careful because there may be a charge for the on-going use of the patents. This article describes patent licensing of standardized technologies through a patent pool.

1. What is a patent pool?

Standardized technologies, which are based on discoveries and developments in leading-edge technologies, generally involve many patents. Recently, many enterprises and research institutes that participate in technical standards conferences have begun to express their intention to license technologies adopted as standards not for free but on reasonable and non-discriminatory (RAND) conditions. Naturally, patented technologies cannot be used unless a license is granted even if they are standardized technologies. Therefore, if standardized technologies are to be used widely, it is not sufficient to work on technical standardization alone: it is also necessary to determine how the patented inventions should be licensed.

Even if a standardized technology involves many patented inventions, that fact will not pose a major problem if the number of enterprises or research institutes owning the patents concerned is limited. In such a case, any enterprise that wishes to use the standardized technology can receive licenses from all the patent owners. However, if the number of patent owners is large, several problems arise.

First, any user who wishes to use a standardized technology must negotiate licenses with many owners. Since it often takes a long time to conclude a licensing negotiation successfully even with a single owner, if the technology involves many owners, the problem multiplies. For example, in the case of MPEG-2 Visual, 24 patent owners spread around the world have been identified.

Moreover, if there are many patent owners, the accumulated royalties can be very high. Usually, royalties account for a few percent of a product's price. If the royalty paid to each patent owner is one percent of the product price and there are 24 owners, then the total royalties will amount to an unrealistic figure of 24%.

For MPEG-2 Visual, the above problem was solved by adopting a form of one-stop shopping for patents. As shown in **Fig. 1**, a contact company (called an agent) was appointed and entrusted with the licensing of all patented inventions involved in the standardized technology. Someone wishing to use MPEG-2 Visual only has to deal with the contact company to receive all the necessary licenses. This collection of jointly handled patents is called a "patent pool".

2. Establishment of a patent pool

To emulate the success of the patent pool for MPEG-2 Visual, patent pools have been established for other standardized technologies, including MPEG-4 Visual mentioned later. The process from the formulation of technical standards to the licensing

† NTT Intellectual Property Center
Musashino-shi, 180-8585 Japan
E-mail: watanabe.hiroshi@lab.ntt.co.jp

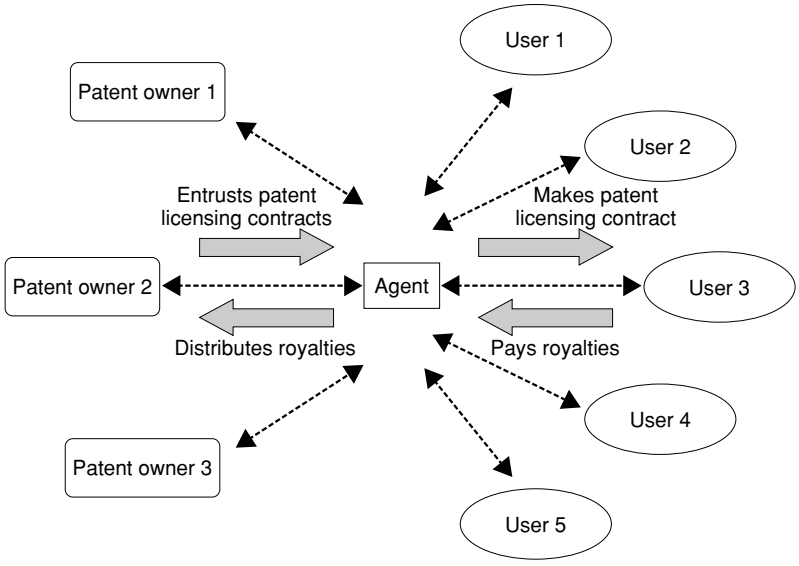

Fig. 1. One-stop licensing.

of the relevant technologies through a patent pool is as follows.

2.1 Formulation of technical standards

When a standard has been finalized, the relevant technical specifications are made public.

2.2 Call for essential patents

Relevant patent owing enterprises and research institutions make a joint call for the declaration of essential patents. Alternatively, a third-party company that wishes to be awarded the job of patent pool agent may make such a call. Essential patents are those that will necessarily be infringed if the standardized technology concerned is implemented. They are determined on the basis of the specifications of the standardized technology. Generally, the determination of essential patents is entrusted to patent lawyers.

2.3 Conference of patent owners

After the essential patents have been identified through the call for the declaration of essential patents, the owners of the patents involved in the standardized technology are determined. The patent owners then hold a conference. The licensing conditions are determined with a view to enabling users of the standardized technology to conduct their business without an excessive burden of royalties. If there are many patent owners, the royalty rate payable for each patent is set much lower than the level for individual licensing. However, standardized technology is likely to be widely used throughout the world, so this will compensate for the low royalty rate.

2.4 Distribution of royalties

Patent owners must also determine how the royalty revenue should be distributed among themselves. Royalties are generally allotted according to the number of essential patents held by each patent owner. For example, suppose that a certain patent pool has earned 100 million yen, and that there are 20 essential patents involved. If NTT owns two of these patents, it will be allotted 100 million yen divided by 20 multiplied by 2, i.e., 10 million yen, as a royalty.

One patent application may include more than one claim. Since each claim is an invention *per se*, one patent application may include multiple essential. However, even in such a case, the number of owned inventions is counted as one. This means that, when preparing applications for patents related to standardized technologies, it is advantageous to separate the invention of a thing from the invention of a method, or to separate the invention of a transmitter from the invention of a receiver, and to prepare a separate patent application for each invention.

In today's global economy, it is not unusual for a product to be manufactured in one country and sold in another. An example of how royalties are distributed in such a case is illustrated in **Fig. 2**. Company A manufactures a certain product in China and sells it in Japan. Suppose that the royalty for the product is

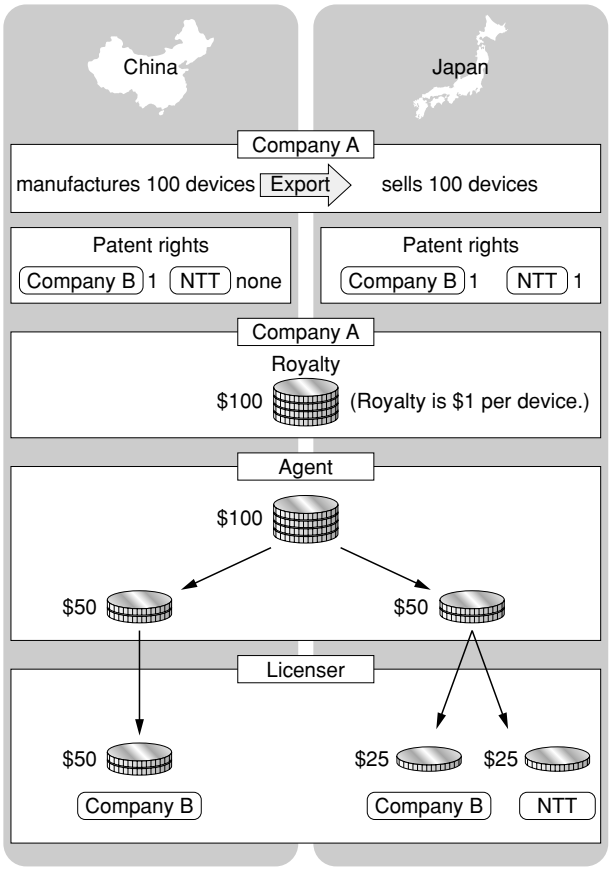

Fig. 2. Example of royalty distribution between a manufacturing country and a selling country.

one dollar for the manufacture and sale of each device. There is one related patent in China, which is owned by Company B. There are two related patents in Japan: one owned by Company B and the other by NTT. Assume that Company A manufactures 100 devices in China and sells them in Japan. Generally, in order not to discourage the international division of labor, a patent pool takes the position of international exhaustion*. This prevents, in the above case, the royalty from being levied for both the manufacture in China and the sale in Japan. Accordingly, the royalty that Company A pays to the licenser (agent) is 100 dollars. The paid royalty will be distributed among the patent owners in China and Japan in proportion to the number of patents that each owner has. In the above case, Company B will receive 75 dollars while NTT will receive 25 dollars.

Although this is not the only method used for royalty distribution, there might be a situation where a company owning one-third of the number of the essential patents receives only a quarter of the royalty paid, as shown in Fig. 2. Therefore, applications for any patents related to standardized technologies should be filed in foreign countries as well as at home. Consequently, it is important to determine which countries are likely to become manufacturing and selling countries when deciding where to file patents.

2.5 Start of licensing

When the licensing conditions, other deals between licensers (royalty distribution, etc.), and deals between the licensers and the agent (agent's fee, etc.) have been agreed on, licensing based on a patent pool can be started.

3. Advantages of a patent pool

One advantage of licensing through a patent pool is that royalties can be received more easily than with other forms of licensing once patents concerned are evaluated as essential to the standardized technology. For example, when NTT discovers a possible infringement of one of its patents, it is rare for the alleged infringing company to pay the appropriate royalty without objection. The alleged infringer first asserts that it has not violated the patent concerned. To refute that assertion, NTT must find and provide sufficient evidence, which is often difficult to do. Even if NTT successfully proves the infringement, the violator may then claim that NTT's patent is invalid. Although a patent is granted only after a stringent examination by the Patent Office, the examination is not always perfect. If the violator succeeds in finding earlier literature, the granted patent is annulled. Alternatively, the infringer may redesign its product to avoid using NTT's patented technology.

In contrast, in the case of a standardized technology, it is important to use the specified technology if conformance to the standard is to be claimed. Therefore, the user neither asserts non-violation of the concerned patents nor tries to avoid using these patents. Although a company may suspect that a particular

* International exhaustion: If a person/company has bought a patented product and re-sells it within the same country, he/it is not considered to have infringed the patent right (a theory called exhaustion). The idea is that the purchase of the product has exhausted the patent right. Patent rights are established in each country. If a product is exported, patents pertaining to that product may exist in the importing country as well. International exhaustion is a principle, related to international trade, that considers that patent rights, including those of the importing country, have been exhausted upon the purchase of the product.

Table 1. Characteristics of licensing patents for standardized technology.

Possible actions by the patent user	Ordinary patent licensing	Patent licensing of standardized technology
Claim no infringement	Probable	Impossible
Claim the patent is invalid	Probable	Unlikely
Avoid using the patented technology	Probable	Impossible

essential patent in a patent pool is invalid, it must prove that all of the patents in the pool are invalid if it wants to avoid paying the royalty. It is extremely difficult to invalidate each and every one of the patents in a pool (See **Table 1**). However, the licensing conditions for a patent pool are usually reasonable, so users of standardized technology would rather choose to receive a license than resort to legal proceedings to try and invalidate a large number of patents.

4. Latest issues related to patent pools

4.1 Charging for the use of patented inventions

The establishment of the patent pool for MPEG-4 Visual attracted widespread attention because it prescribed a clear policy for charging for the use of patented inventions. Conventionally, the patent right of a licensed product for which a royalty has been paid has been interpreted as being exhausted, and the purchasers could freely use the product for their business. However, manufacturers who directly bear the burden of the royalty are unhappy about the fact that the companies that do business using the patented product do not contribute to the royalty in a manner commensurate with the profit they make from the product.

The patent right is the right to implement the patented invention exclusively, and the manners of implementation include not only manufacture and sale but also the use of the patented product (Section 3, Article 2 of Japan's Patent Law). Some patent owners have focused attention on the use of patented inventions by keeping the royalty for manufacture and sale low and levying a royalty on the use, thus collecting lower royalty fees from a larger community. Specifically, the owners of the patents related to video coding devices using MPEG-4 Visual have granted licenses to manufacturers and sellers only for manufacture and sale and separate licenses to users (CATV operators, satellite broadcasters, providers delivering videos over the Internet, etc.) only for the use of the patents, thereby collecting royalties from both parties (**Fig. 3**). Thus, one must be careful when considering the business of delivering content (videos, images, music, etc.) encoded using patented inventions.

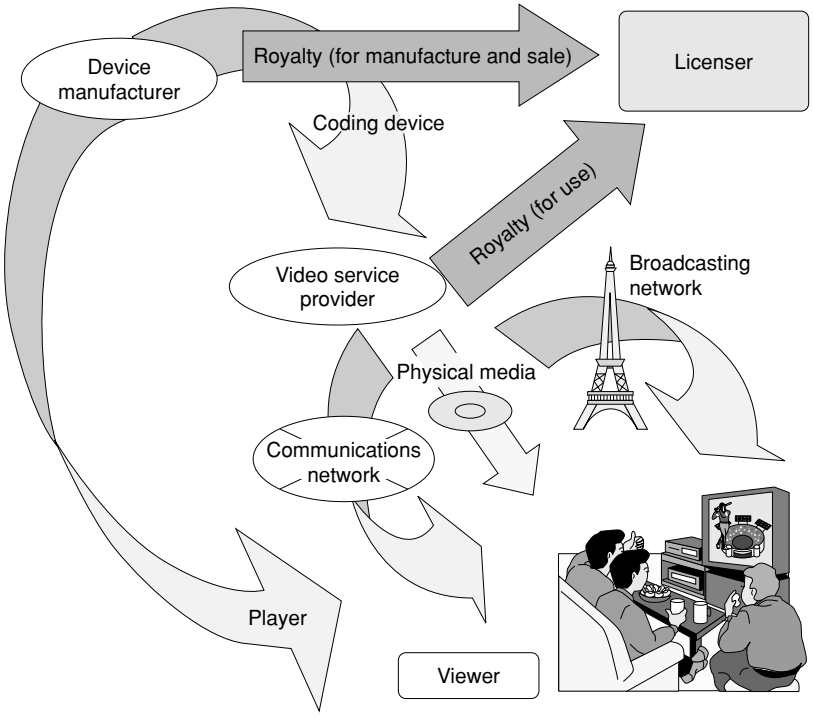

Fig. 3. Royalties for patented inventions.

4.2 Restrictions on the exercise of rights

Patented inventions included in a standardized technology are generally owned by enterprises and research institutions that have been involved in the standardization effort. However, there may be cases where a technical standard infringes upon patents owned by entities that have not participated in the standardization work at all. In such a case, the establishment of a patent pool for one-stop licensing does not solve the complexity of obtaining patent rights. Moreover, those patent owners who have not been members of the standardization work may not license the patents free of charge or under RAND conditions for their implementation and may actually ask for an exorbitant royalty. To prevent this, many parties have suggested there is a need to restrict the exercise of patent rights that prevents standardized technology from being widely used.

The issue here is how to deal with enterprises that offer to license their patents under RAND conditions but do not agree to the royalty conditions defined for the patent pool and seek to license their patents independently. An enterprise that has offered RAND conditions can still determine what it believes to be the "reasonable" level of royalty. However, since it is not obvious what a reasonable level is, perhaps the exercise of the enterprise's right should be restricted on the grounds that it is preventing standardized technology from being widely used. Although encouraging wide use of standardized technology is important, discussions are necessary to ensure that benefits do not go only to specific types of rights owners.

5. Future trend

The role of patent pooling will increase in importance as a means of encouraging the widespread use of standardized technology. It will be important to perform strategic coordination between the efforts to achieve technical standardization and the efforts to obtain rights for the technology involved in order to protect the revenue from licensing royalties after standardization has been completed.

Hiroshi Watanabe
Associate Manager, Licensing Group, NTT Intellectual Property Center.
He received the B.S. and M.S. degrees in physics from the University of Tokyo, Tokyo in 1990 and 1992, respectively. In 1992 he joined NTT Basic Research Laboratories. He moved to the Multimedia Business Department in 1995 and to the Intellectual Property Center in 1998.