

1 Intellectual Property Rights System Contributing to Creation of Innovation

This study is designed to produce basic materials for considering a patent system that is the most effective for creating innovation. As the patent system entails a large number of problems, this study takes up and considers three challenges that are thought to require urgent solutions. Regarding “problems regarding universities as new patent system players,” the introduction of the easier requirements for patent application filing dates to be accorded in line with Article 5 of the Patent Law Treaty and the extension of the grace period between the disclosure of research achievements and relevant patent filings are expected to help protect inventions at universities appropriately, and contribute to promoting innovation. Regarding “problems related to technology standards,” some organized mechanism is proposed to restrict the exercise of patent rights incorporated into technology standards that have a certain or higher level of public nature. As for “problems regarding research tool patents,” this study reached a conclusion that the present guideline-based approach has produced some results, while whether to restrict the effect of research tool patents must be considered further.

I Introduction

As international competition has intensified on the globalization of the world market in recent years, enterprises have globalized their operations and striven to create new added value. Meanwhile, rapid information technology development has allowed people throughout the world to immediately share new academic and technological information through the Internet. The environment surrounding innovation as the source of added value has changed dramatically.

In line with such changes, innovation forms have expanded their diversity to include the so-called “broadly defined open innovation,” where enterprises take advantage of others’ business resources for research and development operations, as well as so-called “closed innovation” where enterprises utilize their own business resources for such operations. In recent years, open innovation has made further progress across walls between enterprises and universities, and across national borders. At the same time, forms for protecting R&D achievements have been diversified to include the management of such information as business secrets, as well as the utilization of patent and other intellectual property rights systems.

In the meantime, intellectual property rights have expanded their roles not only in protecting relevant R&D achievements, but also in mediating the utilization of licenses and others’ business resources (as the technological currency). Inventors’ objectives for acquiring new rights have shifted to their future enforce of these rights or their licensing at home and abroad to

expand their profit.

However, as users and uses of intellectual property rights are diversified along with innovation forms, whether the current patent law framework created 50 years ago could work to promote innovation over the coming decades has been questioned. Similar questions have come from industry and other people about the U.S. and European patent systems.

This study aims to create basic materials for surveying and analyzing the effects of intellectual property rights systems on R&D and other innovative operations in view of cutting-edge overseas studies on innovation and intellectual property and for thoroughly considering the most effective intellectual property rights system for creating innovation.

II Innovation and Intellectual Property Rights System

Chapter II first outlines U.S. and Japanese intellectual property policies. Next, the chapter reviews major economic studies focusing on the relationship between the patent system and innovation, in an attempt to analyze effects of the patent system and pro-patent policies on innovation. Lastly, the chapter discusses problems with the intellectual property rights system under the open innovation strategy that a large number of enterprises have proactively promoted. It also explains reasons for adopting key points to be discussed in detail in the later chapters.

III Responding to Diversification of Patent System Players

1 Universities and research organizations as new players

Under the closed innovation paradigm, large enterprises chose to be independent for research and development, establishing in-house research centers to cover from R&D to commercialization. However, as technologies have grown more complex and advanced with the technological development accelerated the importance of open innovation has attracted attention. Under the open innovation paradigm, it is important for enterprises to efficiently introduce resources from others. In this sense, universities' role as suppliers of technologies (inventions) has grown more important.

In line with relevant legislative developments including the enactment of the TLO (technology licensing organization) law and the Japanese-version Bayh-Dole Act, universities and the like have established rights to their research achievements and developed systems for transferring research achievements to the industry sector. Statistical data show an increasing number of joint and contract research projects at universities, indicating steady progress in academia-industry cooperation. But utilized patents' share of total university-owned patents has declined, indicating the absence of progress in the utilization of university-owned patents. It has also been found that many universities have been agonizing over how to balance the disclosure of research achievements and relevant patent applications.

Based on this situation, this study considered how best to promote universities' patent applications without affecting invention incentives for university R&D staff, and a patent system that promotes higher-valued patents.

(1) Relevant systems in Japan and foreign countries

Japan has admitted a grace period of up to six months between the disclosure of research achievements through academic conferences or publications and relevant patent filings. A one-year grace period has been set up under the first-to-invent principle in the United States. In Europe, no such grace period is adopted in regard to the disclosure of research achievements through academic conferences or journals, although some special exemptions exist for the

loss of novelty.

The United States has a provisional patent application system in which formal patent claims are not required. The Patent Law Treaty has a clause providing for the relaxation of the requirements for a patent application filing date to be accorded. A patent claim scope does not have to be submitted to allow such filing date to be accorded. Requirements regarding language for a description are also eased (Article 5, Patent Law Treaty). The European Patent Treaty includes a clause similar to Article 5 of the Patent Law Treaty, allowing a patent application to be filed without any formal patent claim.

(2) Overseas interview survey

The survey found that U.S. universities are proactively taking effective advantage of the provisional patent application system and the grace period to acquire useful (valuable) patents. As soon as inventions are reported, U.S. universities file provisional patent applications to secure filing dates. Next, they conduct additional tests while receiving advice from TLO (technology licensing organization) staff and other experts on the commercialization of inventions. These universities reflect the test data in descriptions for formal patent applications to improve relevant patent values. They also look for enterprises as their potential licensees and review patent policies through communications with these enterprises in a bid to acquire patents meeting business strategies. U.S. universities are striving to take advantage of the provisional patent application system and the grace period to acquire more valuable patents.

(3) Domestic interview survey

The survey of universities in Japan focused on the grace period and the U.S. provisional patent application system. It found that every Japanese university views the grace period as an exceptional tool. Few universities have proactively taken advantage of the grace period. Some universities said that when it is difficult to decide whether to file patent applications for specific inventions, they would publish the inventions through academic conferences and watch the industry sector's responses before making decisions. If enterprises make inquiries about the published inventions and indicate their potential commercialization, relevant universities may utilize the provisions for exceptions to lack of novelty of invention to file patent applications.

If no response comes from enterprises, they do not file patent applications.

Two patterns for utilizing the U.S. provisional patent application system were identified. The first pattern strategically takes advantage of the system to secure filing dates and the first-to-file status under Article 102 (e) of the U.S. Patent Act. This pattern is used for cases where many U.S. rivals conduct research in biotechnology and other areas featuring fierce research and development competition. In the second pattern, universities choose provisional patent applications as an emergency measure, when they have no sufficient time to prepare formal applications with the presentation of inventions at academic conferences scheduled to come soon.

(4) Consideration and proposals by the committee

Based on the above survey results, the committee has considered patent systems to promote universities' patent filings for their research achievements and enable their acquisition of useful (valuable) patents. It compiled the following proposals:

- In order to promote universities' patent filings, Japan should consider easing the requirements for filing dates to be accorded. In a potential measure to ease the requirements, Japan may introduce a patent filing system based on Article 5 (filing date) of the Patent Law Treaty. Taking into account benefits to Japanese universities, relations with foreign applicants and adverse effects on the patent application screening procedure, Japan should consider an optimum system to promote innovation.
- The period in which exceptions to lack of novelty are accepted should be extended from the present six months to one year.
- The academic organization designation system should be abolished.

IV Responding to Diversification of Technology Utilization Forms

1 Technology standards problems

(1) Problems

As open innovation makes progress, technologies are being standardized mainly in electronics, information and communications areas. Patented inventions incorporated into technology standards may not be substituted for any other technologies as far as the standards are

used. If patent rights are enforced against technology standard users after the development and diffusion of the standards, the so-called "hold-up problem" may emerge.

(2) Patent pool

If patented inventions are incorporated into technology standards, technology standard users will have to be licensed by patent holders to implement the relevant patented inventions. If more patented inventions are incorporated into technology standards to expand the number of patent holders, separate licensing negotiations on individual technologies may be painful for both technology standard users and patent holders. In order to solve this problem, patent pools have been formed and utilized effectively.

As representative patent pools, this report outlined the MPEG patent pool, the DVD patent pool, and the 3G patent platform.

The patent pools for blanket licensing for standardized key patents have played a key role in facilitating the utilization of standard technologies, working effectively to promote innovation. A problem with patent pools is that the fairness cannot be secured between faithful licensees and those that use technology standards while failing to be licensed to do so. Another problem is that the total royalty fees for one product using multiple technology standards can be very high, even with a licensing fee for each patent pool set at low levels, because technology standards are established on a technology-by-technology basis.

(3) Technology standards and outsiders

If an enterprise has an indispensable patent for a technology standard, refuses to take part in a patent pool, and independently enforces the relevant patent against users of the technology standard, the hold-up problem may emerge. Hereinafter, such an enterprise is referred to as an "outsider."

Outsiders are divided into the following four categories, with different countermeasures for each:

- (i) Enterprises committed themselves to endorse RAND (reasonable and non-discriminatory) terms and conditions upon the creation of the relevant standards, but refused to take part in patent pools and have imposed higher royalty fees on licensees.
- (ii) Enterprises take part in the standardization, refrain from disclosing their patents in violation of the rules of relevant

standardization organizations while knowing the possible adoption of the patents for the relevant standards, and enforce the patents after the standards become popular.

- (iii) Enterprises have not been engaged in the standardization but reinforce patent rights after the creation of relevant technology standards.
- (iv) Enterprises do not cooperate in the standardization.

Holders of indispensable patents for standards are so diversified that R&D specialist enterprises, universities, patent management companies and other entities that do not implement patents are included into holders of indispensable patents for standards. If these entities refrain from taking part in patent pools and enforce patents against users of technology standards after the development and spread of the standards, the hold-up problem may emerge. At the same time, however, these entities are actually viewed as holding valuable patents and contributing to promoting innovation. In discussing the hold-up problem, therefore, the treatment of such entities must be considered prudently.

(4) Solutions to hold-up problem: Utilization of compulsory license system

This study looked into foreign countries' compulsory license systems cited as one of approaches for solving the hold-up problem. Many countries including Japan have regulations to force patent holders to enforce patents for public interest, when their patents are effectively used without being enforced. Some countries including the United States and Britain have regulations on the utilization of patented inventions for national projects.

In Japan, relevant working groups and research studies have considered the utilization of the compulsory license system to solve the hold-up problem. Given the absence of cases for the utilization of the system and the problem of coordination with foreign countries, however, many people are cautious of utilizing the compulsory license system.

(5) Competition law-based approach

In 2005, the Fair Trade Commission published an antimonopoly law-based approach on the formation of patent pools for the technology standardization, specifying its view on patent pool outsiders. According to the approach, if patent holders have made proactive efforts to have technologies subject to their patents incorporated

into standards, irrespective of whether they had participated in the standardization and refuse to license others to use relevant patented technologies, it may constitute private monopoly or refusal to deal. Patent holders that did not take part in the standardization but have left technologies subject to their patents to be incorporated into the standards may have no problem, even if they refuse to license others to use these technologies.

(6) Consideration and proposals by the committee

Based on the survey results, the committee considered the relevant problems and reached the following conclusions:

- Patent holders for technology standards that have a certain or higher level of public nature should be restricted from exercising patents incorporated into the standards, irrespective of whether they are outsiders having no relations with the technology standards.
- In restricting patent holders from exercising their patents incorporated into technology standards, Japan should consider an organized mechanism in addition to the utilization of the compulsory license system and the theory of rights abuse.
- Under the organized mechanism:
 - * A certification organization will certify technology standards meeting certain requirements as public technology standards.
 - * The certification organization will take measures to secure technology standard users' utilization of patented inventions (technologies) incorporated into the relevant standards.
- A legal ground for the above organized mechanism should be considered.

2 Problems regarding research tool patents

(1) Problems

Life science research tools including genetically engineered plants/animals and screening methods are universally used to make contributions to the promotion of research. At the same time, many of them are not very substitutable. Patents on such upstream life science research technologies could become very strong and wide rights, greatly affecting subsequent research and downstream R&D operations.

(2) Relevant Japanese and foreign systems

Article 69-1 of Japan's Patent Law provides that a patent right shall not be effective against the working of the patented invention for "experimental or research purposes." But the interpretation of "experimental or research purposes" is not clear. The general interpretation of "experimental or research purposes" in Article 69-1 of the Patent Law must depend on academic theories in the absence of sufficient judicial precedents.

A commonly accepted one among academic theories is the so-called Someno theory that classifies experiments or research by target and objective and limits the experimental or research purposes to "technological development."

Although Europe as well has regulations regarding the exception of experimental or research purposes, the regulations seemed to have been strictly interpreted in judicial precedents.

(3) Past consideration

Relevant working groups and research studies have considered the problems with research tool patents, and concluded that the commonly accepted interpretation of "experimental or research purposes" has had no problems. Most of problems with research tool patents have no relations with the use of patented inventions themselves for research purposes. Therefore, the application of the exception for "experimental or research purposes" in Article 69-1 of the Patent Law is denied. The utilization of the compulsory license system has also been considered. The conclusion says that it is not appropriate to revise the compulsory license system or its operation at a time when the essence of the problem has yet to be specified, and that we should carefully watch progress in relevant discussions at home and abroad, find a specific direction of the relevant issue, and take a prudent approach.

(4) Guideline-based approach

At present, guidelines are developed and publicized for facilitating the utilization of research tool patents. In Japan, the Council for Science and Technology Policy has published the Guidelines for Research Licenses for Intellectual Property Rights Stemming from Government-Funded Research and Development at Universities, and the Guidelines for Facilitating the Use of Research Tool Patents, in a bid to secure the smooth use of research tool patents.

(5) Consideration and proposals by the committee

Based on the above survey results, the committee has considered relevant matters and reached the following conclusions:

- We must continue to consider whether restrictions should be imposed on the effects of research tool patents.
- The guideline-based approach is thought to have produced certain results at present.

V System to secure public examination

1 Public examination system issues

(1) Information system

Japan's patent system has adopted an information system to accept information from the general public, to secure the accuracy and promptness of patent examination. Under the information system, anyone can inform the Japan Patent Office commissioner that a patent filing corresponds to a reason for refusal and that some patent constitutes the ground for invalidation. The information system has apparently contributed to improving patent examinations, by allowing public-provided information to be effectively used for real patent examinations.

(2) Early patent examination and information systems

The JPO may adopt an early patent examination system to give priority to patent applications meeting pre-fixed conditions, as has been requested by patent applicants. As requests have increased for subjecting patent applications to the early examination system, meanwhile, the number of cases in which patent applications are examined before their publication has been increasing. Some people have noted that if the early examination system is proactively used and if the number of cases where patent applications are examined before their publication increases, it may reduce the opportunities for public examination of patent applications before the issuance of patents.

(3) Consideration and Proposals by the committee

Based on the above survey results, the committee has considered relevant matters and reached the following conclusions:

- If an early examination is requested without a relevant patent application being published, the

applicant should be required to request the patent application to be published at the same time as the early examination request is made (Article 64-2, Patent Law). (Or, the patent application should be published forcibly upon the early examination request, even if the request is made within 18 months after the filing date.)

- In the following cases, the introduction of the procedures for examining the validity of rights after their issuance should be considered. But the procedures should be considered carefully, so as to prevent the procedures from becoming excessively heavy burdens for patent holders:

-- An applicant does not want the patent application to be published earlier than usual.

-- A super-early examination is requested.

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