

7 Study on “Problems Concerning Creation, Protection, and Use of Intellectual Property in Universities”

In this study, examination was made on various problems concerning IP creation, protection, and use in universities from broad perspectives. Firstly, the significance of IP management for universities was confirmed, and the ideal style of efficient and effective IP management was discussed by introducing examples of actual measures taken by universities and also focusing on development of IP experts. Secondly, accounting-related problems that arise from IP management by universities were discussed. Specifically, budgetary considerations and accounting systems were identified, and tax considerations concerning patent transfer or other technology transfer were reviewed. Thirdly, examination was made on problems related to the patent system, namely problems concerning application of the exception to lack of novelty and problems concerning the attribute of research findings in universities. Lastly, problems concerning joint research were discussed. Specifically, problems in joint research between a company and a university, problems in concluding a nondisclosure agreement with students, and points to consider when concluding an agreement with a foreign company were examined.

I Introduction

Gradual improvements are seen in the environment for universities to manage and use intellectual property (IP).

Many universities throughout Japan manage IP in a centralized manner by establishing an IP policy and related regulations and stipulating that the right to obtain a patent will be transferred from the inventor to the university upon creation of an invention, while also establishing an IP management framework within the university. Furthermore, they promote the use of their research findings in collaboration with technology licensing organizations (TLOs).

In this study, examination was made on various problems concerning IP creation, protection, and use in universities from the following broad perspectives, while considering the current status of environmental improvements regarding the IP of universities. Firstly, the significance of IP management for universities was confirmed, and the ideal style of efficient and effective IP management was discussed by introducing examples of actual measures taken by universities and also focusing on the development of IP experts. Secondly, accounting-related problems that arise from IP management by universities were discussed. Specifically, budgetary considerations and accounting systems were identified, and tax considerations concerning patent transfer or other technology transfer were reviewed. Thirdly, examination was made on problems related to the patent system, namely problems concerning application of the exception to lack of novelty and problems concerning the attribute of research findings in universities. Lastly, problems concerning joint research were

discussed. Specifically, problems in joint research between a company and a university, problems in concluding a nondisclosure agreement with students, and points to consider when concluding an agreement with a foreign company were examined.

It is hoped that this report and discussions in various other arenas will help universities take more effective initiatives based on their own IP policies and promote creation, protection, and use of IP.

II Significance and Ideal Style of IP Management by Universities

1 Significance of IP management by universities

(1) Necessity of acquiring patents for research findings in universities

Research at universities is not originally intended for the acquisition of patents. Nevertheless, it is extremely important to acquire patents for new inventions that result from such research from the viewpoint of utilizing research findings in society.

Moreover, if an invention is protected by a patent, the university will gain a range of choices depending on the type of technology. For example, it would be possible to promote commercialization of the technology by granting a license to a specific company or achieve commercialization in a wide-range of fields by granting non-exclusive licenses for general-purpose technology to multiple companies. In this manner, patenting of an invention will enable the university to promote commercialization of the invention as well as benefit the public.

(2) Necessity and challenges of university engagement in IP management

Since the government has shifted its policy to the principle of attributing IP rights to the organization rather than the individual, many national universities have also adopted this principle and revised their working regulations or provisions on employees' inventions upon incorporation to make the IP developed by researchers attributable to the university (regarding patents, for example, having the inventor transfer the right to obtain a patent for his/her invention to the university).

However, the objective of making effective use of IP in society cannot be achieved by merely shifting from the conventional principle of attributing the rights to the individual to the principle of attributing them to the organization, and having the created IP attributable to the university in principle after taking the necessary procedures. It is critical that the university conduct appropriate IP management after the transfer of the IP. IP can be used effectively in society only if the university establishes a system (institution or framework) for such IP management and takes the initiative in managing the IP.

2 Ideal style of efficient and effective IP management by universities

(1) Approach to IP management according to the progress of universities' engagement in IP activities

This section thoroughly explains the background history, current problems, and the future revision plan of Tohoku University's IP management activities.

The act of obtaining IP for their research findings and using that IP as an organization may become a very significant strategy for universities for achieving their own development as well as for contributing to the growth of Japanese industry. In doing so, it would be effective to choose a phased IP management method that suits the circumstances of the respective universities.

Each university is expected to uphold a mission for achieving its role in the form of a clear policy (university's philosophy, industry-university collaboration policy, IP policy, etc.) and to conduct activities toward achieving this mission by utilizing its organizational power, while respecting the independence of the respective researchers and students.

Therefore, at the present stage when university corporations are still searching for the new path to be opened up for university corporations themselves, IP management by a university needs to be discussed together with the university's research support activities based

on its policy.

(2) Ideal style of IP expert development by universities

Lack of people who can deal with IP is posing a large problem in promoting industry-university collaboration. Therefore, this section summarizes and examines issues on experts that manage and use university IP, including the utilization of external experts and development of experts internally.

The activity pattern of IP management can be roughly divided into two operations: (i) the operation to create IP, acquire IP rights, and maintain/use them; and (ii) the operation to exercise/use IP rights. These two phases require different qualities, knowledge, and skills. The former operation requires an entrepreneurial sense with eyes of a connoisseur, and the latter operation requires a marketing sense and a management sense.

For operations centering on IP management, including discovery of inventions and acquisition/maintenance of IP rights, and for operations involving the use and exercising of those rights, it would be effective to secure external persons, such as ex-corporate practitioners, patent attorneys, and attorneys at law, as ready experts.

In terms of using internal persons, it would be possible to use university officials, graduate students, and undergraduate students for management operations involving mainly office work management. In that case, it would be desirable for the assigned persons to gain work experience through on-the-job training with experienced persons. Use of graduates of undergraduate/graduate courses would be on the premise that they had acquired knowledge on the basics and key domains of IP in their courses.

3 Ideal style of IP management by medical universities

(1) Current status of IP in medical universities

Generally there are prosperous research funds and active research activities in the medical field. However, a high hurdle exists with regard to commercialization of the findings because the findings affect the human body. Thus, an effective strategy for making a business out of the findings is essential. The core of the strategy would be patents, but there are problems with both researchers and institutions regarding patents. The problem with researchers is their low patent awareness. This is because they have rarely needed to rely on patents (except for pharmaceuticals and medical equipment). First of all, efforts must be made to raise the awareness of the researchers. The institutional problem is that patents are not yet granted on treatment

methods in Japan. Therefore, effective business models cannot be developed for cutting-edge technology such as regeneration medicine and gene therapy. As a result, development and commercialization of medical technology are mostly conducted overseas.

(2) Challenges of IP management by medical universities

(i) The IP management system in medical universities must be rationalized due to the size and purpose of establishment of the universities. A possible solution would be to have a small, internal TLO take charge of IP management as well, or to establish a small division that studies medical IP strategies and have the division educate graduate students and supervise the office work. It is important to raise the IP awareness of graduate students of various fields. Such efforts are expected to contribute to developing experts with a good knowledge of both IP and medical technology.

(ii) Ideas are particularly required for affording the cost for patenting basic research findings. It is necessary to value and utilize the research cycle in which high-quality research findings (particularly the IP on those findings) help raise larger amounts of government and private funds and further accelerate development of the research. It will also be important to establish a framework for securing the funds required for acquiring patents as part of the research funds.

(iii) Development of human network and know-how for promoting collaboration with other universities, experimentation and research institutes, companies, the administration, and technology transfer organizations is important for technology transfer. One option would be to effectively use a core TLO specializing in medical technology. In addition, since the surrounding environment is improving, starting up a venture company will become an increasingly important technology utilization strategy especially for promising technologies.

III Identification of Accounting-related Problems that Arise from IP Management

1 Budgetary considerations for universities with regard to IP management

(1) Revenue and expenditure structure of IP management

The structure is verified based on an actual example of a certain national university corporation.

(2) Financial challenges and countermeasures

It would severely damage IP management activities if they were unable to employ persons continuously.

Universities that are reinforcing IP management face the following urgent issues: to secure the personnel cost for IP management staff that are currently sent to their universities from external organizations; and to be able to afford the personnel cost and expenses that are currently covered by the subsidy for the development of university IP headquarters when the term for receiving the subsidy expires. Possible measures for securing funds would be: (i) increasing the influential power in the university's budget compilation; (ii) acquiring revenue from dealings for which conditions can be attached; and (iii) increasing overall revenue. With regard to (iii), the current potential income sources are: (a) royalty income; (b) capital gains through stock dealings; (c) use of venture funds; and (d) overhead costs. Universities must make strategies on how these income sources should be combined and expanded.

2 Identification of accounting frameworks concerning IP management

The differences in the handling of patents in corporate accounting, school corporation accounting, and national university corporation accounting are identified.

(1) Property nature of patents in accounting

Patent rights justifiably have property nature.

(2) Corporate accounting

The patent assessment values in financial accounting are discussed. In many companies, IP rights are processed as expenses, so information on a company's IP cannot be read from the financial statements. An increasing number of companies are creating an "IP report" as a means for disclosing the status of IP to the stakeholders such as investors, and the importance of this report is expected to further increase in the future.

(3) School corporation accounting

The patent assessment values in financial accounting are discussed. In accounting, most private universities do not include patents in their assets due to their conventional accounting practices. However, they may come to include patents in their assets in the future due to the importance and marketability of patents. Nevertheless, school corporations have varied standards regarding the amounts to be included as assets, and patents would be included as assets only when the acquisition cost (filing fee, patent attorney fee, etc.) exceeds the amount specified in the accounting regulations, regardless of whether the patents were externally acquired or internally acquired.

(4) National university corporation accounting

The patent assessment values in financial

accounting are discussed. Regardless of whether the patents were externally acquired or internally acquired, the patents are only included as assets in accounting when the acquisition cost (filing fee, patent attorney fee, etc.) is 500,000 yen or more.

3 Tax considerations concerning patent transfer and other technology transfer

(1) The tax treatment of the royalty on patents attributable to individuals and the tax treatment in the case of transferring an individual's invention to a university are discussed.

(2) The tax treatment of the remuneration or royalty for an employee's invention that will be received by the school staff concerned with regard to a university-owned patent is discussed. Discussion is also made on the case of transferring a university-owned patent.

(3) The New Japan-US Income Tax Convention stipulates that a patent royalty and a performance-based remuneration for an employee's invention will be tax-free in the source country, and they will only be taxable in the country of residence of the recipient.

IV Identification and Examination of Problems related to the Patent System

1 Problems concerning application of the exception to lack of novelty

The patent system provides for an exception to lack of novelty, and the 1999 amendment was established in order to make the system more user-friendly. However, the following problems still remain.

(i) Although applicants must often consider filing foreign applications, the cases to which the exception to lack of novelty is applied differ from country to country.

(ii) In a case where an inventor conducts an act that calls for the application of the exception to lack of novelty, but a third party files a patent application for the same invention, and the first inventor files a patent application after the second inventor by claiming the application of the exception to lack of novelty, the invention will be deemed to be novel and involve an inventive step due to the application of the exception, but it will not be patented since it is a later application.

(iii) The relationship with a separate, third party's act that triggers lack of novelty

In a case where a third party separately conducts an act that triggers lack of novelty after the inventor conducts an act that calls for application of the exception to lack of novelty, and the inventor later files an application by applying

the exception, the invention will lack novelty based on the third party's act.

(iv) There are still aspects that allow room for varied interpretations.

(v) It will give rise to a new point of controversy in acquiring a patent or enforcing a patent.

Accordingly, it would be desirable not to rely on the exception to lack of novelty if possible.

Apart from occasions that arise against one's will, the time for making a presentation or publication of the invention is often clear in advance, so efforts should be made to file the patent application in advance so as to avoid disclosing the invention in a presentation or publication before the filing.

This will be possible if the inventor takes the filing procedure concurrently with presentations made at study meetings.

2 Problems concerning attribution of the research findings in universities

Examination is made on three points: (1) attribution of the rights on an invention made within a university by a university instructor; (2) attribution of the rights on an invention made within a university by a university student; and (3) attribution of the rights on an invention made within a university by a corporate researcher on-loan or an invention made by a university instructor at the site of their secondary workplace

(1) Attribution of the rights on an invention made within a university by a university instructor

It would be a problem to collectively consider all inventions made within a university by university instructors to be employees' inventions. It would be desirable to divide the research within a university into ordinary research activities in which individual initiatives of the instructors should be respected as much as possible and special research activities designed for "protection and use of IP," and to treat inventions in the former activities as free inventions and inventions in the latter activities as employees' inventions. Inventions created as a result of instructors' research activities under the organizational control and protection of the university would deserve, in substance, to be called employees' inventions of the university. While the change of the policy in practice toward attributing inventions to the organization is positively evaluated, in order to achieve the objective of the policy change, which is to effectively use universities' IP, it would be important above anything else for universities to establish a framework for managing and using instructors' inventions, which would satisfy the individual instructors.

(2) Attribution of the rights on an invention made within a university by a university student

An invention made within a university by a university student will inevitably be construed as a completely free invention of the student. Therefore, in order for the university to acquire the right to obtain a patent for the student's invention, it must conclude an individual agreement with the student. In this case, the right cannot be transferred based on a stipulation in advance, so the transfer of the right will be based on an individual agreement after the completion of the invention. Special considerations are required regarding the student's freedom of using the invention for an academic purpose (freedom of making the research findings public) and the remuneration for transferring the right. In order to ensure a rational remuneration for transfer of the right, an amount equivalent to the reasonable remuneration for an employee's invention made by an instructor should be paid to the student.

(3) Attribution of the rights on an invention made within a university by a corporate researcher on-loan or an invention made by a university instructor at the site of their secondary workplace

Whether or not an invention made within a university by a corporate researcher on-loan and an invention made by a university instructor at the site of their secondary workplace can be regarded as an employee's invention must be determined on a case-by-case basis. Therefore, even if a university adopts a policy to gain ownership of such inventions, things may not turn out as intended. Accordingly, in order for the university to gain ownership of such inventions, it would be desirable to also make contractual arrangements in advance with the company of the researcher on-loan or the company for which the instructor works their secondary job, as a preventive measure.

V Identification and Examination of Problems concerning Joint Research

1 Problems in joint research between a company and a university

(1) The University of Electro-Communications

The University of Electro-Communications is considering various measures for resolving the problems with the main focus on the promotion of joint research. Firstly, the university is in the process of revising the content of its joint research agreement. The current joint research agreement has a complicated structure, incorporating a joint patent filing agreement and a

licensing agreement. In order to conclude these agreements smoothly, it is necessary to conclude them individually after systematically organizing the agreements. There is also a problem that the inventors are not identified appropriately. The standards for identifying the inventors should be clearly defined, and whether or not the invention is a joint invention should be appropriately determined. Also, in many cases, the university cannot charge the company all the costs necessary for the joint research. A balance must be achieved between "the joint research fee paid to the university by the company" and "the research findings transferred to the company by the university" in order to promote joint research. Otherwise, it will be difficult to build a trusting relationship between the university and the company.

In the negotiation for a licensing agreement, the following matters should be evaluated for each joint research project, and common ground should be sought: (i) content of the joint research; (ii) scope of application of the invention/patent; (iii) potential of the invention/patent; (iv) license fee; and (v) period of the monopolistic license.

(2) Yamaguchi University

Yamaguchi University conducted a questionnaire survey and an interview survey on companies in order to investigate how companies' awareness of universities has changed with the incorporation of national universities. Companies are placing expectations on the "knowledge of universities." In order for universities to respond to industrial needs, to establish a win-win relationship with companies, and to use their findings for increasing Japan's industrial competitiveness, it would be important for both universities and companies to make cooperative efforts toward resolving problems.

In addition, one must not forget that universities, which are tax funded social assets, are accountable to society. Since the ideal form of joint research costs has not been sufficiently studied in the past, study should be made on this issue as one of the biggest challenges in the future.

2 Obligation of confidentiality of the students

Confidentiality of the results of joint R&D and other relevant information is an important issue for companies engaging in industry-university collaboration. In such collaboration, not only instructors, but also undergraduate students and graduate students could be exposed to secrets relating to joint R&D through factual acts, such as experiments. Therefore, there would be cases where a company will seek to conclude a confidentiality agreement with the

students in order to impose an obligation of confidentiality.

However, the students may suffer a disadvantage through concluding a confidentiality agreement with the company, such as being deprived of the opportunity to present the results of the joint R&D or becoming unable to publicize the results of their laboratory work when job-hunting. Considering that the primary goal of a student is to produce achievements in their learning and research, and that they do not provide services for remunerations like corporate researchers (workers), an agreement that imposes an obligation of confidentiality on students despite the lack of need or reasonableness would likely be deemed to offend public order and morals and judged invalid.

Promotion of industry-university collaborations is an important national task, and in that process, there could be cases where companies and students become inevitably involved with each other. However, the main business of students is to receive education and engage in research; not providing cheap "labor" to certain companies. There is no doubt that a company's act of concluding a confidentiality agreement with students and using them as if they were the company's employees under the confidentiality restrictions is not at all close to the philosophy of industry-university collaboration. Nevertheless, the reality is that when a company imposes an obligation of confidentiality to a student, it is difficult to be certain that the company has no intention of using the students as if they were the company's employees. Both companies and universities must not forget that the promotion of industry-university collaborations will help make Japan an IP-based nation only by fully recognizing the difference between the primary business of students and universities and that of companies.

3 Points to consider when concluding an agreement with a foreign company

While this also applies to an agreement with a Japanese company, the first major point for smoothly concluding an agreement with a foreign company is to clarify the objective of the agreement. Sometimes universities are found to take a stance of valuing the remuneration higher than the fulfillment of the objective (a turf war sticking to the agreement format), but the top priority issue should be the purpose for concluding the agreement. Next, good preparations should be made in advance. A university should look for a desirable joint R&D partner of its own accord based on its regular information sending, information gathering, and information analysis activities. In addition, before furthering the relationship with the potential

partner, the university must confine its assets in a self-defensive measure by getting the assets notarized or filing patent applications in order to prevent confusion over the university's information and the counterpart's information.

In making the agreement, it is desirable to first discuss the items requisite for securing an environment for starting R&D, such as funds, resources, and facilities, and then consider IP-related provisions. In the event the negotiation is made in the reverse order, if an agreement cannot be reached on the key issues it may take more than the necessary length of time and the parties' objective to jointly engage in the R&D may be watered down. In addition, the joint R&D would be launched without building an important trusting relationship, which is an unfavorable situation.

Generally speaking, a university should conduct negotiations and check the written agreements by fully recognizing the weight of the rights and obligations that arise from the agreement. If a university concentrates on pursuing rights, it tends to underestimate the pertaining obligations. Foreign companies are strict on breaches of obligation clauses. Therefore, the university should establish a contract management framework in order to avoid carrying liabilities for damage. At the least, the university must be able to perform its obligation of confidentiality without fail. Otherwise, an agreement with a foreign company would be extremely risky. Another point to note is that the content of the agreement and the items checked vary according to the place of conducting the joint R&D. The university must be careful that if the R&D is conducted in the United States, the content of the agreement must comply with U.S. statute law and case law.

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