
ARTICLES

Problems and Expectations in Industry-Government-Academic Collaborations as Seen by Industry*

The Second Subcommittee,
License Committee

(Abstract)

From the perspectives of freeing Japan from its long-term economic recession and of strengthening Japan's international competitive prowess, etc., various types of laws have been promulgated with the aim of strengthening industry-government-academic collaborations, chiefly in the research and development field. Such laws include, among others, the Law for Promoting University-Industry Technology Transfers and Article 30 of the Law on Special Measures for Industrial Revitalization (this is known as the "Japanese version of the Bayh-Dole Act"). Thus, a new movement is now underway to tear down the pre-existing structure.

However, when one views this trend from the perspective of industry itself, there still remain numerous issues which are thought to require radical improvements. Especially problematic is the issue of the assignment (reversion) of results of joint research between the national government and private enterprise and of research consigned to the national government by private enterprise—especially as this is an issue that is not covered by the Japanese Bayh-Dole Act. In terms of results assignment, one observes in actual practice what one could call an "inversion phenomenon," specifically when one compares the results-assignment status in the above-listed situations with how results assignments are handled in the case of research consigned to private enterprise by the government.

Further, in regards to the framework for, and operation of, Technology Licensing Organizations (TLOs) at universities, etc., as of the current date, there exist slight (but important) differences, in portions that are fundamental, between the Japanese reality and that existing in Western countries (Europe and North America). This is especially problematic, in that these Western countries are intended to serve as the model for the Japanese TLO. Thus, required also is an investigation regarding radical structural improvements to the TLO to enable it to fully serve its intended functions.

Into the future, with the aim of establishing a closely linked cooperative relationship in research that is fully workable, and that can be fully engaged in, by industry, government and academia on the basis of their own (respective) ordinary perspectives and opinions, it is the goal of this report to suggest improvements concerning rights-attribution and the actual practice of collaborative research and consigned research undertaken in industry-government-academic collaborations. It is desired that this report serve as one link in the positive and vigorous communication of information from the industry side.

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1. Introduction

As means for breaking the Japanese economy out of its sense of “stagnation,” there have been calls on one side to foster venture companies, chiefly in information technologies (IT) and biotechnologies-related fields, and on the other side to strengthen collaborations between private companies and public research institutes, chiefly national research institutes and national universities. In other words, this is the argument that research results made at national institutes and universities are not always being fully utilized for commercialization purposes, while, conversely, there is still a sense that, in the current situation — and as viewed by private enterprise, too — national institutes and universities are not considered as particularly appealing collaborative partners.

Against this backdrop, in October 1999, Article 30 of the Law on Special Measures for Industrial Revitalization (the so-called “Japanese version of the Bayh-Dole Act”) took effect. This opened the way for the results of research and development consigned to the national government to revert to the private company that consigned the research. The result (to be described

below within this report) is that — at least so far as this Committee has determined in its survey — operations are underway at each government ministry and agency (with a few exceptions) to have all results revert to the private company side, and mostly along the lines laid out in the newly established legal system.

Nevertheless, in regards to joint research performed between the government and private companies, and to research consigned to the government from private companies, a variety of systemic constraints still continue to exist as hitherto. These constraints are a major factor in eroding the allure felt by private companies to perform joint research with the government, or to consign research to the government.

Further, although investigations have begun towards the transformation of national universities into independent administrative corporations, there still remain unclear portions in terms of just how this movement will be linked in the future with the activities of Technology Licensing Organizations (TLOs). From the perspective of persons in private industries involved in licensing work, while on the one hand there are expectations regarding the orientations the newly established TLOs will finally take, there still remain not inconsiderable worries and just plain doubts.

In this environment, The Second Subcommittee of the License Committee of the Japan Intellectual Property Association (JIPA) performed a survey and investigation to determine problem points, etc., regarding joint and consigned research undertaken in industry-government-academic collaborations, and chiefly in regards to problem points within the current system as seen from the perspective of private industry.

The present report is a mid-term report regarding survey and investigation results achieved thus far. Further, with the aim of raising some issues and problems regarding methods of undertaking industry-government-academic collaborations into the future, also presented herein are problem points felt on a day-to-day basis by persons responsible for licensing work at private companies.

2. Current Status of Operations After the Implementation of the Japanese Bayh-Dole Act

2.1 Background to the Establishment of Article 30 of the Law on Special Measures for Industrial Revitalization

As a measure to fight against the long drawn-out economic recession, the Law on Special Measures for Industrial Revitalization (below, the "Industrial Revitalization Law") took effect from October 1, 1999 (this is a limited-term ("sunset") law for which a revision — including possible abolishment — is slated for 31 March 2003). The aims of the Industrial Revitalization Law are to promote the strategic restructuring of business, to stimulate the pioneering of creative businesses and new businesses, and to revitalize research activities. Article 30 of this Law stipulates the assignment to private companies of patent rights, etc., concerning the results of research consigned to those companies by the national government. Since the model for this was the Bayh-Dole Act of the United States of America, this Law is thus commonly called "the Japanese Bayh-Dole Act."

The U.S. Act was proposed for law (co-sponsored) by two U.S. senators, Birch Bayh and Robert Dole, and became U.S. federal law in 1980. This novel law changed the way research and development results, made using funds provided by the federal government, were assigned: while before such results had become government property, now they were assigned to the entity receiving the consignment - a university, a non-profit organization, a medium- or small-sized company, etc. This in turn is said to have spurred the vigorous commercialization of research results, and to have made other major contributions to improving the competitive prowess of America. In later years, application of the Law was expanded to include large companies, too. The gist of the law was explained when the two senators submitted their proposal to Congress as follows. That is, with the operation under the hitherto system of assigning to the government, under the abstract name of "public benefits," patent rights, etc., that were the result of consigned research, in many cases, the end result was that those patent rights, etc., were

simply "buried away," and never fostered anything. Based on a reflection of those circumstances, it is only by approving the assignment of those results to the private company, rather, and then having these results linked thereby to commercialization, that this in turn can lead to concrete public profit in the form of increased tax income and expanded job opportunities, plus a revitalization of the national economy.

Such expressed aims can be said to be exactly those hoped for from the Japanese Bayh-Dole Act, too. In hearings in September 1999 held by this JIPA License Committee at the (then) Industry Technology Section of the Industrial Policy Bureau of the former Ministry of International Trade and Industry (MITI), a responsible official at MITI presented the following explanation.

"Under the system hitherto whereby results of research consigned from the government to private companies were all assigned to the government, the grave situation existed whereby, in their core technical fields, private companies refused to receive consigned research from the government, and government funds were not being effectively utilized. To breakthrough this situation, borrowing the idea of the U.S. Bayh-Dole Act, we decided to assign the rights for research consigned from the government to a private company back to that private company. It was thought that this would be more desirable to the government than the previous system, inasmuch as, if the private company could use the intellectual property rights of those results to engender profits, then the end result would be an increase of corporate tax income. And that would mean that any criticism that this system served to assign private results derived from public funding back to a private company would be criticism that simply missed the mark. As based on Article 30 of the Industrial Revitalization Law, the fact must be stated in the patent application as published in the Official Gazette, and thus notification of application must be communicated to the government. Although reservation of license for the public benefit is also stipulated within the U.S. Bayh-Dole Act, virtually no cases exist where such reservation was actually executed by the government. In regards to a report on the present status of licensing, we are currently study actual implementation methods."

2.2 Survey of Actual Operation Status, and Survey Results

Despite explanations such as that presented above from MITI (now the Ministry of Economy, Trade and Industry, METI), immediately after the law took effect, worries were heard expressed from some parties on the private industry side: “Operations are not always being performed in accordance with the gist of the article,” and “Aren’t things occurring that are different from how they were originally explained to us?” For these reasons, with the assistance of each member of the License Committee, this Subcommittee performed a present-status survey in summer 2000 to determine to what extent Article 30 has actually been applied since the Industrial Revitalization Law took effect, and how the spirit of Article 30 has been actualized and utilized.

The results of this survey clarified that, both before and also after the Industrial Revitalization Law took effect, within most of the cases of research consigned from the government to a private company, intellectual property rights were handled such that they were all assigned to the consignee private company. Nevertheless, an analysis of each separate government ministry and agency determined that cases exist whereby, through the added burden of excessive reporting and consultation obligations, deviations from the guiding spirit of the system were occurring.

It is worthy of noting, too, that in many cases, operations were occurring such that the desires of the consignee concerning rights assignment were being ascertained (here, in many reconsignment cases, the desires of the private company that is the subject of the reconsignment are ascertained via the primary (first) consignee). The following are hypothesized as background reasons for this type of practice.

i) In the text of the Article, it is stipulated that “the government . . . may choose not to accept transfer.” While, in principle, the government is to receive assignment of the results from the consignee, by permitting exceptional handlings to this principle, a system is place that permits assignment of results to private companies. In this way, a system was adopted such that, on the basis of the desires of the private company side, “transfer is not received” [by the government].

ii) For a portion of cases, one can imagine

examples where it would be more appropriate for the “government to receive transfer.”

2.3 Problem Points Emerging from the Survey Results

Although in regards to the assignment of results, one can evaluate the present situation as moving forward in the operation of Article 30 of the Industrial Revitalization Law (Japanese Bayh-Dole Act), there do exist problems regarding the following two points.

Problem (1) Obligations imposed on the consignee (private company) in regards to agreement execution

Even in the case where there is total (100%) assignment to the private company, there are examples where the following detailed obligations—which are not mentioned at all in Article 30 of the Industrial Revitalization Law—are placed on the private company. Especially in regards to iii) below, in the performance of the ordinary work of the private company that is the consignee, it is thought that the making of such extensive management demands on that company is excessively severe.

- i) The obligation to make a non-compensated assignment of rights at the when there is a the Industrial Revitalization Law.
- ii) The obligation to report the status of results acquisition.
- iii) The obligation to perform prior consultation at the time of a withdrawal or abandonment of rights.
- iv) The obligation to make report when working rights or in the grant of a working license.

Problem (2) Results assignment in the case of reconsignments

In Paragraph 2 of Article 30 of the Industrial Revitalization Law, it is stipulated that this law is also to be conformed to in the case of reconsignments. Yet despite this stipulation, for a portion of the work consigned to cooperative research associations, one sees cases where, in accordance with the internal rule of that association, a portion or all of the rights are being assigned to the association side. Also, even in those cases where the primary consignee is not a member of an association (i.e., in the case of reconsignments via a private company or a uni-

versity), in the same way, there are cases where the results are not being assigned to the private company that is the “reconsignee.”

In regards to these cases, was there not a “mechanical assortment/classification” performed in regards to that portion of companies to which the following explanation was provided, namely that “for consignment agreements, Article 30 is applied, while for subcontracting agreements, Article 30 is not applied”? In fact, there are not a few problems in regards to classification, to “where one should best draw the line.” Certainly there is a fine line that divides a “consignment” from a “subcontract,” and perhaps results assignment should be decided upon in accordance with each actual research case at hand. In general, depending on the research theme handled within the joint research, many private companies will, in more than a few cases, and in order to avoid complications in the relationship between certain rights, not perform the working themselves, but rather make assignment to a research or technical cooperative association. In such cases, in accordance with the spirit of the established law, there is always a thorough principle of private self-management by the companies participating in the research or technical association. Thus, it is thought that there will be comparatively few problems in those cases where each working condition is to be determined on the basis that such constitute fair and appropriate conditions. However, in those cases where that research or technical cooperative association can be viewed as being, in substance, equivalent to a type of national institution, then in the case where working will naturally be accompanied by various constraints, one could say that, in the light of the spirit of the law as established, there do in fact exist cases which could be considered problematic. It will thus be necessary to closely monitor future related movements and trends.

3. Current Status and Related Problems Regarding of the Handling of Results Involving Joint Research with the Government, and Consigned Research to the Government

As seen in section 2.1 above, in regards to the handling of results for research consigned

from the national government to a private company, in tandem with the implementation of Article 30 of the Industrial Revitalization Law (Japanese Bayh-Dole Act), epoch-making operations have begun. However, in regards to joint research with the government, and the consignment of research and development from a private company to the national government, a variety of systemic constraints continue to exist as before. The end result is that, despite the not inconsiderable amount of know-how and funds offered by the company side, in terms of the assignment of research results, one sees the emergence of a state of affairs that could be called a type of “inversion phenomenon”—specifically when one compares the amount of monetary assistance offered in research consigned from the government to the private company side with that provided to the government from the private company side. Although these factors cannot be said to present *major* obstacles in the performance of joint research with the government or in the consignment of research to the government, at the very least, these do constitute a group of factors which serve to dissipate the appeal of such projects. Below is presented a discussion of these problem points, arranged in the form of summary of the actual situation, and of the laws, regulations, and notifications assumed to serve as the grounds for this situation.

3.1 Assignment of Results

In regards to the ownership of intellectual property rights involving the national government, the grounds for such ownership is found in Article 2, Paragraph 1, of the National Property Law: “‘National property law’ is property that has come under national ownership within the performance of national responsibilities, . . . and means patent rights, copyrights, trademark rights, utility model rights and other rights conforming to such (design rights).” Further, although the right to receive a patent is not handled under “national property” (Ministry of Finance Notification No. 4369, 1950), this right is a property right under private law, and it is thought to conform to “national property” as defined in Article 9 of the Public Finance Law. In regards to the ownership of intellectual property rights other than industrial property rights, although such rights conform to industrial property rights, it

appears that sufficient arrangements for such do not yet exist.

(1) Research Consigned from a Private Company to the National Government

There exists no specific “law” in which there is direct statement about the handling of research and development results assignments in the case where the national government has been consigned such work from a private company. Nevertheless, in Article 9 of the Rules for Consignment Work of the former Agency of Industrial Science and Technology (now the National Institute of Advanced Industrial Science and Technology, or the new AIST), it states: “When an invention has been made in research work (consigned from a private company to a national research institute), as for the right to receive a patent, the involved [Agency] employee is considered as the one who is to receive such, and the government shall succeed to such rights or to the patent rights pertaining to such rights.” In the Ministry of Education Notification (dated 1 April 1999) entitled, “Regarding the Handling of Consigned Research,” it states: “In the case of the results of research (consigned from a private company to a national research institute) in that case where rights such as industrial property rights, etc., are generated, there can be no unremunerated transfer or cause of use of such rights.” These, plus the rules and notifications, etc., of/for each separate national research institute, show, in the final analysis, that, in principle, all industrial rights arising from the results of research consigned by a private company to the government are to be assigned to the government. Concepts which serve as the supposed grounds for such handling emerged in statements made by (then) Ministry of International Trade and Industry (MITI) officials in hearings held at MITI in September 1999 by the Second Subcommittee regarding the implementation of the Japanese Bayh-Dole Act. These justifications included the idea that “It is appropriate to consider that such industrial rights were engendered either due to their superimposition on research results that occurred in the past, or to their having been merely the result of the performance of the specific consigned research”; the idea that “When one considers the relative proportion of consigned research funding plus the funds invested on behalf of the government

inventor(s), the government has invested much more funds than the private company”; as well as the idea that “Inasmuch as these are the results of research performed by the government, it is the government that must perform the compensations, to the public employee who is the inventor, resulting from the working of that invention as stipulated in the employee’s invention stipulations of the respective government ministry or agency, etc. Indeed, it would be problematic for a private company to perform such compensations.” Based on such statements, one could infer that the bottleneck of this problem is found in compensations to public servants (government employees).

Meanwhile, private companies were extremely dissatisfied with the concepts delineated above. Here, it was considered that non-working of government results would involve even greater evils. In Article 7 of the Law for Promoting Research Exchanges (which took effect in 1986), there is stipulated the idea that one-half or less of the patent rights and utility model rights (but not the right to be granted a patent, etc.) related to results of consigned research may be transferred by the government to the consignor (“trustor”). Further, it has become possible to jointly own, with the government, copyrights for data bases, etc., created as the result of research consigned for the direct purpose of creating such data bases or programs, etc. Yet from the perspective of the private company, despite the fact that it has itself contributed not an inconsiderable amount of funds and know-how to such work, that company still can’t even know if the rule of (at the very most) one-half of ownership will even be applied. To the private company, this is a doubtful situation at best. In order to receive the application of the above-stated provision (said Article 7), such intention must be included in the original consignment contract signed with the government. There are cases where the contract model style offered by the government (or universities) does not contain such an “intensional” provision, and, in many cases, in order to be eligible for the stated provision, it is necessary to expend large amounts of funds and labor/time for a contract revision. Further, in the case of prefectural governments, there is absolutely no application of the said provision of this law. Thus, with almost no exceptions, everything reverts to (i.e., is as-

signed to) the prefectural government. These facts as described are thought to be the major reasons for the erosion of the desire or intention of private companies to aggressively perform consignments of research work to public research institutions.)

(2) Joint Research

The assignment of inventions engendered from the results of joint research between the government and the private sector is such that there is joint ownership by the government and the private enterprise(s). As for relative share rates, there exist no special provisions in regards to these rates having to be in accordance with the degree of contribution made to the invention; and, in actual practice, it appears that share is mechanically divided equally (i.e., that there is share equivalence), without consideration being given to the degree of contribution made to the invention by the private company side.

3.2 Expense Burdens for Jointly Owned Patents, Etc.

In regards to the government's relative share amounts, considering those applications made during fiscal year 1996, the government bears joint application expenses, etc., in accordance with its share. Also, as a result of the revision of the Patent Law (which took effect April 1999), fees and annual patent fees are exempted. However, the submission of a proof of share portion document is required, and related office procedures are complicated and troublesome. As for representative expenses, in the current state of things, there are many cases where the private company that is a joint owner bears the burden of all such expenses. Here, too, one hears statements from the private company side that "surely this is unfair and one-sided." When the present Subcommittee performed its survey, as described in Section 2.2 above, regarding the present state of implementation of the Japanese Bayh-Dole Act, we even encountered cases where, in the case where the patent application does not reach registration, the private company side is bearing all of the expenses. Further, in the case where foreign application is made, no exemption is made of the government's share portion, and a state currently exists whereby (with the exception of those research cases where a country has consigned research to a private

company) the private company is bearing all of the related expenses. This is therefore a category which the private industry side strongly desires that there certainly be an improvement.

3.3 Working and Use of Results

(1) Priority License Rights

In the rules for reception of consignment work or joint research established by each government ministry or agency, in regards to patent rights, etc., jointly owned by a private entity and the national government, allowed in many cases is a "priority license right" which grants exclusive licenses for a fixed period to the private entity that is the joint patentee or to an entity designated by that private entity. (Although this fixed period was previously "a scope that does not exceed seven (7) years from the date on which the joint research was finished," this was changed from April 1997 to "within a scope that does not exceed 10 years from the time application was made; nevertheless, renewal is possible.")

However, when one compares this with the stipulations in Article 30 of the Industrial Revitalization Law (Japanese Bayh-Dole Act), one must conclude that this state of affairs is something which certainly cannot be readily understood and agreed to. Even if transfer of the entire rights would present difficulties, there surely is enough room here to investigate a way to open this up, so that there is a revision of the term "priority license" to the establishment of an "exclusive license." Currently, permission from the Minister of Education is required in order to establish a priority license for national government owned patents concerning inventions made with a national university. In regards to work performed with the Japan Science and Technology Corporation or with a certified TLO, the permission of the Minister of Education is not required, but only a report of the fact after it occurs.

(2) Non-working Compensations

Article 73 of the Japanese Patent Law states that "each of the joint owners may, except as otherwise prescribed by contract, work the patented invention without the consent of the other joint owners." Yet in the rules for reception of consignment work or joint research established by each government ministry or

agency, in regards to patents that are jointly owned with the national government, within the “Contract Agreement Guidelines for Nationally Owned Patents, Etc.” to be described below, it is stated: “If it is such that a private company may freely work [the patent], then the government which is thus, in principle, made unable to work the patent itself, has thus offered, without compensation, those research results”; thus, a private entity is obliged to pay license fees (i.e., compensation for non-working) to the government. As for the detailed contents of license agreements, such is relegated to the judgment of each involved ministry or agency (National Property Law, Public Finance Law). Considered from the perspective of industry, however, for the entity involved in the actual license work, one has doubts whether or not, in today’s actual situation, it is always appropriate for the concept of compensation for non-working to serve as a grounding principle.

(3) License Fees

In the case of patents jointly owned with the government, within an early 1972 Patent Office Communication entitled “License Agreements for Nationally Owned Patents,” stipulated for license fees were three standard rate types—2%, 3%, and 4%. This stipulation was abolished in the “Contract Agreement Guidelines for Nationally Owned Patents, Etc.” published in 1998; here, only “an appropriate remuneration” is stated. Yet in actual operations thus far and currently, no consideration is made of the plural relevant factors, including internal factors such as the degree of contribution made by the private company, and external factors such as actual market value, etc. Rather, the 1972 standards continue to be relied on, and a situation still exists whereby it is difficult to have reflected the opinions of the private company that is the licensor and, at times, also the joint owner. Nevertheless, originally, the patent license fee is something that should be set, in each individual case, by determining, in a comprehensive fashion, the degree of contribution to the invention as well as the expenses borne, etc., by the licensor—in this case, the private company side; and then by setting the fee at an amount that is appropriate for undertaking the commercial working of that invention. It is worthy of note that in the case of grant of license

for a nationally (government) owned patent in the United States, consideration is also made of the expected profitability, etc., of commercialization, and the license fee rate is determined in a businesslike and flexible manner. In the U.S., there is no distinction of treatment in the case where it is a Japanese company which is to receive the license.

These points are considered to be the major reasons for the dulling of the desire by private companies to actively engage in joint or consigned research with a government research institution. The result is that private companies avoid involvement in industry-government-academic collaborations in core technical fields. And even when joint research is undertaken with the national government, in regard to inventions within the agreement term, these described problem points foster a sentiment whereby the private company does not positively consider patent application. These points constitute moreover a hindering factor in the case where a private company which has a share seeks a grant of license for a patent jointly owned with the government.

As loftily expressed in Article 9 of the Public Finance Law, patent rights and the like “must be employed with maximum efficiency in accordance with the purpose of their ownership.” Moreover, it seems plausible that the more this is linked with wide-spread commercialization, the greater will be the actual public profit, in terms of expanded tax income, job creation, etc. Indeed, this was surely the fundamental aim in the establishment of Article 30 of the Industrial Revitalization Law (Japanese Bayh-Dole Act). One can see no strong reason why there needs to be a difference in the handling of research consigned from the government to a private company, and joint research between a private company and the government. It is desired that there be changes in the government’s actual operation work that would make more businesslike negotiations a real possibility.

4. Problem Points Concerning the Results of Research with National Universities

National universities constitute one type of research institute operated with national funds. Nevertheless, it is a given that the university

professor (teacher) has much more leeway for free discretion than the ordinary public servant who performs research in a fashion whereby "job contents are determined due to guidance and orders from above." Thus the inventions made by a university professor to be discussed below are operated such that, in principle, these inventions are assigned to the individual university professor. Therefore, in the investigation of industry-government-academic collaborations involving national universities, it is necessary to view these from a different standpoint than such collaborations involving, say, a national research institute, etc. The unique problem points concerning national universities are summarized in the subsections below.

4.1 Assignment of an Invention Made by a National University Professor

In regards to an invention made by a university professor, in accordance with the Ministry of Education Notification of 25 March 1978, entitled, "Regarding the Handling of Patents, Etc., Involving the Inventions of Professors at National Universities, Etc.," and "A Partial Revision" of such dated 24 March 1999, the guiding principle is assignment to the individual professor. In actual practice, more than 80% of patents are handled such that they are assigned to the individual professor. This decision is made by an invention committee, one that each national university is obliged to establish. The backdrop against which the above Notification was published included the fact that the university professor has the unique quality of possessing a considerable leeway of free discretion, as well as the fact that, for a national university that is a type of academic research institute, there are difficulties in terms of budgetary and capability limitations in their ability to have a permanently functioning patent management division such as those found at private companies. There was the recognition that any "amateurish" patent application made by a university professor would result in only a "weak patent," one regarding which there could only be a low level of working.

Be that as it may, one must also take into account various other realities. For example, although approval procedures are required for the assignment decisions by university invention

committees, the end result is that, fundamentally, it is the individual university professor who will become the rights owner. Therefore, from the perspective of responsible persons within the private company, there remains the possibility that, in the case where a student of that professor is employed at the company due to an agreement made with the professor, the company may receive the submission of information from, and the support of, that professor, or perhaps the company may benefit in the future from technical guidance provided by that professor. This invites, then, a situation wherein licensing negotiations must proceed in an "unnatural" environment. Further, there are more than a few professors who have the perception that "special consideration has to be given because this is my own invention," meaning that in "objective situations" involving the interpretation of claims of that patent or business-related issues, one has trouble obtaining a sufficient "objective" understanding from such professors. In such cases, it is often difficult to pursue licensing negotiations in a practical and businesslike manner. Further, the fact that the rights are assigned to a single individual professor makes it difficult to form a working team of professors from all related fields within the university, which in turn may serve as a hindrance to the search for a broadening of the industry-academic collaboration so as to build a project that encompasses a wide range of themes.

From yet another perspective, within official-nature joint research or consigned research which involves the intervention of university authorities, there exists a possibility that the rights could be assigned to the government, which means that the working of results in those cases demands even more troublesome work and procedures; here, too, the result is a lack of flexibility in the determination of the license fees.

In the attempt to avoid situations of this nature, one observes a general trend among private companies whereby the general attitude is that, via the company's human networks and its relationships with individual university professors, the company will tend to make choices about the use of universities as research institutes.

It is interesting to note here the situation as it exists at universities in Great Britain and in

the United States. There, in many cases, a system is in place such that, on the basis of agreements signed between a university and its professors, in principle, inventions made by a professor at the university are assigned, in their entirety, to the university. Then, a liaison office (TLO) existing within the university completely takes on itself the responsibility for performing licensing negotiations with private companies. In such cases, it appears that the contract details enable the professor to receive as compensation a certain fixed portion of the license fee income obtained by the university as a result of the patent. In terms, too, of the conditions of a licensing contract, in many cases the discretionary powers of the persons in charge of negotiations are quite broad, and there is considerable flexibility seen in the negotiations such that commercialization can occur without having to face any insurmountable obstacles. The current status of assigning inventions to national universities, as well as the status of exemption of patent-related expenses, are depicted in Fig. 1.

Of further interest is the report made in December 2000 by the "Expert Council" set up to advise the Minister of Education. Therein, a proposal is made to move in the direction such that, in the future, inventions made by university professors are assigned to the university. In the midst of a current movement which aims to transform national universities into independent administrative corporations, it will be necessary to keep watch carefully into the future, to see just how these issues will be finally handled.

4.2 Requests to National University Professors for Guidance in Research

Requests for research guidance (i.e., consulting work) from national university professors constitute one type of the many items requested from private company side. A summarization of the problem points frequently cited by private companies regarding such requests for research guidance would include, on one hand, the problem related to methods of paying remuneration for such guidance, and, on the other hand, the problems related to the "double work duties" of the involved professor. In the final analysis, these problems can be summed up in the ques-

tion of whether such requests fall under the public duties of the involved professor, or whether they constitute activities in an area "outside" of those public duties.

(1) When such research is defined as "public duties"

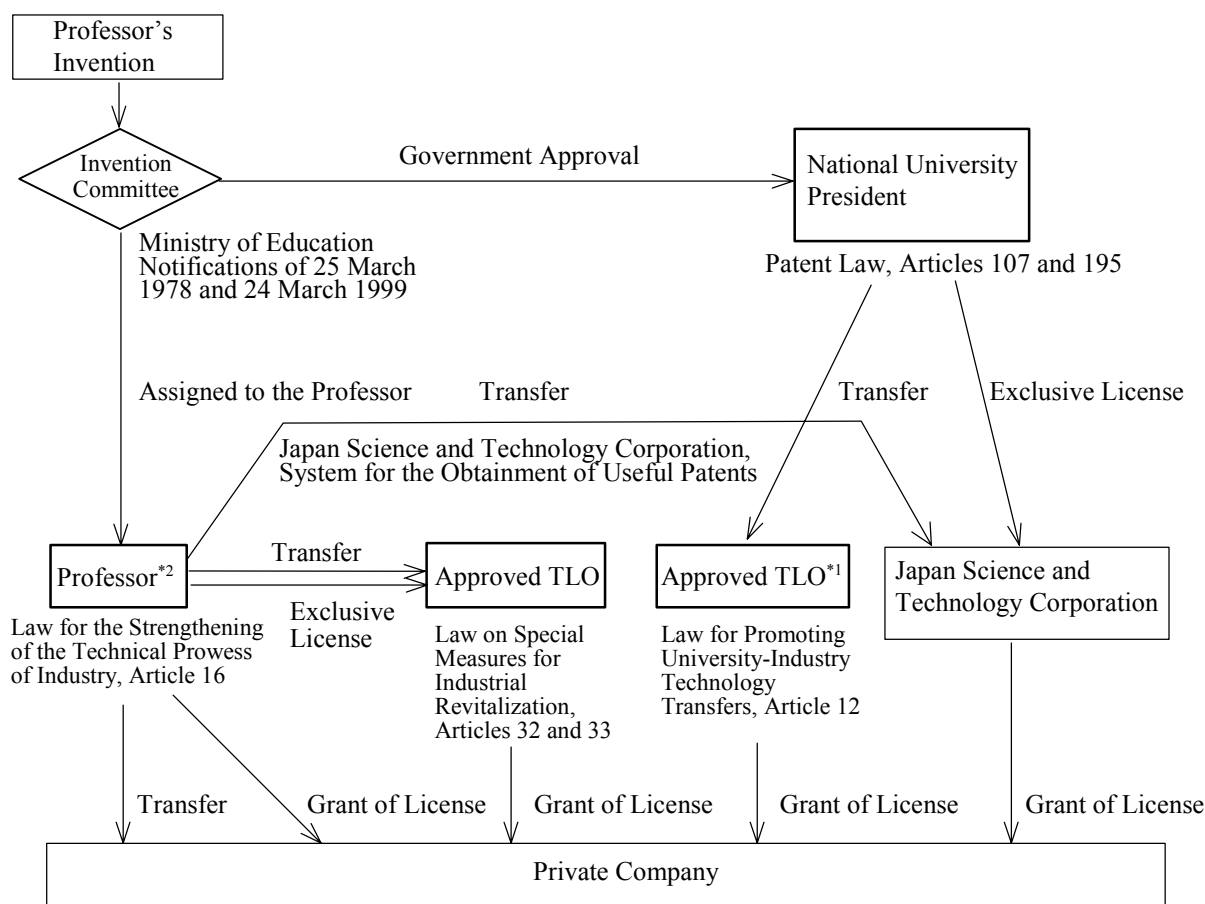
Work that involves the use of university facilities or work performed within working hours are considered as public duties. In such cases, no agreement can be made between the professor and the private company concerning the related research work; instead, a joint research agreement or a consigned research agreement is concluded with the university. All expenses required by the professor in the related work (including transportation fees for the provision of research-related guidance) are paid to the professor from research funds paid by the private company to the university. Any offering of monies to the professor (including "gratuities," etc.) can be challenged as an act of bribery under criminal law, and no such offering is allowed.

(2) When such research is defined as a "non-public duties" (a type of "side-work")

Work that is both work where no use is made of university facilities (such that the work is performed at facilities of the private company, or at the professor's own home, etc.) as well as work which is performed outside of working hours, is work involving "non-public duties" (so called "side-work").

Not all "side-work" of a professor is permitted. That is, only the side-work performed in the cases enumerated below is permitted.

- a. Non-compensated work.
- b. Work compensated as "side-work" (as a company director) for making a contribution to the business of a profit-making enterprise.
- c. Work compensated through participation, as side-work, as a director, etc., of a profit-making corporation.
- d. Work compensated when the individual professor is employed within the research and development work of a profit-making company.



Note 1: Approximately the same handling in the case of TLOs at national research institutes (Law for Promoting University-Industry Technology Transfers, Article 13). No such TLOs have been established thus far.
 Note 2: The same handling in the case of professors at public and private universities, and teachers at technical colleges (Law for the Strengthening of the Technical Prowess of Industry, Article 16)

Exemptions of Patent Fees and Fees:	National government share equivalence is exempted
Reductions of Patent Fees and Fees:	Reduction of national government share equivalence as noted below (“academic discounts”)

- Request for examination fees = 1/2
- 1 to 3-year portion of patent fees = 1/2

Fig. 1 Assignment of Inventions within National Universities, and Expense Reduction/Exemption Measures

- e. Work compensated when the individual professor is employed to provide technical guidance (i.e., in so-called “technical consulting work”).
- f. Work compensated, as side-work, through serving as a director, etc., of a corporation whose purpose is the promotion of industrial-academic cooperation and collaboration, etc.

In order for the professor to perform “a. Non-compensated work,” the prior consent of that professor’s faculty head is required. In the case where a professor performs any of the above listed work types b. through f., the “permission for side-work” of the university president is required, and, to ensure transparency, it is demanded that disclosure of the status of the side-work be made to the university. Neverthe-

less, these items b. through f. can be said to be, “in principle,” permitted. Although certain limitations previously existed (the number of simultaneous side-business cases was limited to seven (7) cases, and the number of hours permitted for the performance of such work was limited to eight (8) hours total per week), these limitations were abolished from fiscal 1997.

Meanwhile, for side-work where permission is obtained, the professor may sign a contract as an individual with the private company.

Payments of monies made to the professor as an individual are not generally permitted, with the exception of cases where side-work permission has been obtained. However, payments are permitted in the cases delineated below, so long as such payments stay within a range that is considered rational by general social consensus.

- a. In the case where a gratuity is paid to the professor for writing a manuscript or for presenting a lecture, etc.
- b. In the case where such monies are paid as remuneration for a patent invention that has been assigned to the individual professor.

4.3 Transfer of Research Results: Desires in regards to Technology Licensing Organizations (TLOs) at Universities, Etc.

Certain limits were recognized in having most research results assigned to the individual professor(s) who performed the research work. One was the trend seen to “prioritize” professors as based mainly on their respective reputations gained from the publication of academic papers and announcements at academic conferences, etc. Another was the fact that there were limits to the extent of the financial burden sustainable by an individual professor for the large monetary amounts required for patent application expenses. It appears that, in general, there has been a tendency hitherto to “postpone until a later time” patent applications for research results made by universities. It is for the purpose of eliminating these difficulties, so as to motivate more aggressive patent applications based on research results with universities, as well as to promote, in the form of grants of licenses for such obtained patent rights, the vigorous transfer to private companies of such research results for commerciali-

zation purposes, that technology licensing organizations (TLOs) are being established within each region, and at a variety of universities, on the basis of the Law for Promoting University-Industry Technology Transfers.

As of the current date, due to the fact that only a short time has passed since the first TLOs were launched in Japan, in many cases Japanese TLOs are still lingering in the stage of determining the basic orientation for their activities. Looking into the future, however, private industry also has major hopes and expectations in regards to TLOs. Among these, industry hopes that TLOs can serve as a means of eliminating the various problems described above currently existing in industry-national university collaborations, that the TLOs will serve their function of aggressively promoting the commercialization of research results—chiefly patent rights—generated by universities, that they will serve the function of securing greater transparency, etc., of license agreement conditions, and that they will serve as a liaison-type office on the university side when private companies pursue either consigned or joint research with universities.

In order for TLOs to perform their original functions, from the perspective at least of private industry, the issues described below still exists as fundamental problems that require improvements.

Issue 1

Rights handled by a TLO are limited to exclusive license rights, etc., and transfers voluntarily made by university professors participating in the TLO. In regards to so-called “certified” TLOs, which have the mission of receiving transfers of nationally owned patents, etc., and performing work to diffuse such, although a legal framework has been put into place for these types of TLOs, there have yet been no examples of a certified TLO having actually been established. The word “TLO” thus commonly refers to an ordinarily approved TLO, one whose objects are patent rights, etc., assigned to entities other than the national government. The background for the existence of this distinction was the fact that, in regards to technical transfers concerning nationally owned patents of national universities, application for such and related licensing work were already being performed by the Japan Science and Technology Corporation;

for this reason, such patents were not to be handled by an approved TLO. It does not appear, however, that the reception by an approved TLO of transfer of a nationally owned patent is forbidden by law (although exemption from patent fees, etc., is not allowed). However, no confirmation has yet been made of exactly how many cases there have actually been of reception by an approved TLO of transfer of a nationally owned patent (in such cases, competitive bidding procedures would likely be required). Such surveys are thus needed in the future. It is worthy of note here that in the above-stated report made to the Minister of Education by the Expert Council in December 2000, proposal is made of an orientation whereby already approved TLOs will be enabled to handle patents owned by the universities themselves; the operation of such must, too, be closely monitored into the future.

Even if a change were to be made in the near future whereby, as recommended in the Expert Council's report, inventions made by a university professor are made to revert to the university, private industry will still be concerned about other important factors: for example, how will patent rights already held by individual professors be handled, and what will be the relationship between the TLOs and the Science and Technology Corporation, which is currently performing transfers and license granting for nationally owned patents? In the current state of affairs, as shown in Fig. 1, one is forced to say that there is a complexity in terms of handling types and liaison offices for national owned patents related to inventions made by national universities. Here, too, rationalization and unification of liaison offices is desired.

Issue 2

There are many TLOs which have been established in the form of a separate corporation from the university, and it is a fact that not all university professors are participating in TLOs. Although it appears that the TLOs themselves are engaged in efforts to stimulate and revitalize joint research with private companies, it is thought that, so long as the currently existing framework is considered as a given, limitations will exist in the degree to which TLOs can fulfill their function of serving as a liaison office for consigned and joint research from private companies, that is, their function as serving as a

“special department of the university that serves the entire university,” a body that thus transcends individual professors. In reality, since the university professor manages the patent that he/she owns individually, there have even been examples of corporations that have been established separately from the TLO. There thus remains a situation whereby TLOs are not able to always, and definitely, represent the university or its professors as a whole. Further, in regards to most TLOs, which are separate corporate entities from the university, including those TLOs that have been established as an internal department within private universities, in the case of a technical transfer accompanied by technical guidance and consultation from the university professor in addition to a grant of a patent license, it is thought that the following points of dispute require immediate clarification.

- In the case where the TLO performs intermediary work concerning technical consultation by a professor, does this not violate Article 72 of the Attorneys Law which prohibits the performance of legal work by a person other than an attorney? (At the very least, there is room to argue that the case where the TLO itself performs the contract creation is problematic.)
- Does not intermediary work between a professor and the university consist of an “act of trust,” one that requires the permission of the proper authorities as designated within the Trust-related Work Law? (Problems are especially thought to be left unresolved in the case where the TLO receives intermediary remuneration in the form of future licensing income, and/or in the case where, at the time when grant of license for a patent is performed, the TLO performs such work while ascertaining the desires of the involved university professor.)

Also, in the case where there is a need for technical guidance, from the professor, to be given to the company that is to receive the actual technical transfer, it is thought that there are limits to the guidance that can be performed as “non-public work duties.” Yet even further considerations and appropriate adjustments are thought to be required: for example, in the case where there is to be an expansion of the framework for the collaborative relationship to the

extent that it transcends that with a private professor alone, but rather involves consigned or joint research between a private company and a university department as a whole, what should then be the guiding concept regarding the payment of remuneration for work performed to so as to fulfill the TLOs functions, as well for as the intermediary work of the TLO?

Issue 3

Concerning the handling of rights by TLOs, one gets the impression that first priority is given to patent rights, etc., while software and know-how, including production technologies, are given a secondary priority within the work of the TLOs.

Yet, with the exception of a portion of the industrial world, such as the pharmaceuticals industry, etc., within which there is a high possibility that a patent can be directly linked to commercialization, most responsible persons in private enterprises entertain a different impression, which may be expressed frankly as: "One of the major factors why a private company turns to the university in its role as a research institute is the intangible know-how and knowledge of the expected inventors (i.e., the professors). Only when the patent rights are united with that know-how in a single "set" can effective technical transfer occur. Even in those industries where the commercialization of patent rights has a significant meaning—and, in certain cases, even in the pharmaceuticals industry where patents are directly linked with commercial business—a different type of strong desire towards the TLO is fostered, especially when the work involves other aspects, such as cases where the university is to be consigned to perform clinical testing, etc., or when a professor is to serve as the consigned individual within pharmaceuticals approval procedures, etc. This type of strong desire may be expressed as follows: "We want to avoid direct transactions with the university professor, but rather hope to secure the transparency of the research consigned to the university by using the TLO as our liaison office."

In other words, it is thought that it is only possible to directly meet the needs of a private company in a technical transfer by either expanding work that is initially sparked by patent rights owned by the university or its professor(s)

to the status of consigned research or joint research with the university, or by performing that technical transfer within a framework of industry-academic collaboration that is accompanied by technical guidance provided by a university professor or professors. If the current situation is kept as it is (i.e., the situation whereby within a framework of an organization separate from the university, engagements are pursued with the major focus on the transfer of, or the granting of license for, patents), one cannot rid oneself of the doubt as to whether a TLO, from its position as an intermediary having a separate organization from the university, can actually fulfill its desired function of serving as an entity that transfers not only patents, but instead a "package of technologies" that includes patents and know-how, etc., incorporated together as a single "set."

Issue 4

According to the experience of responsible persons in private companies thus far in the performance of licensing negotiations with a TLO serving as the liaison office, it appears that, with the use, as is, of the currently existing guidelines for nationally owned patents to determine the conditions and agreement details for the grant of a license for patent rights or for the transfer of patent rights, there have even been cases where inflexible demands were made by the TLO side or where the negotiations lacked a sense of flexibility and give-and-take. One must take for granted the fact that there are going to exist major differences between TLOs in terms of their degree of experience and maturity in license negotiations, and in their relative extent of understanding of the common business practices and customs of private industry. Into the future then—and especially from the perspective that, for commercialization to occur, the setting of tolerable conditions is always indispensable—it will be necessary to continue to emphasize the necessity of performing fair and flexible negotiations that also take into consideration the actual license-related work that is to be performed on the industry side.

Issue 5

There also still remain fears regarding the fiscal underpinnings of TLOs. Certainly there are a portion of regional TLOs which have adopted a membership system, such that mem-

bership fees are paid in, and where the provision of information and the TLO's liaison functions are emphasized. And it is true that there exist certain private university TLOs, etc., where operations are being performed within the university's original budget. Nevertheless, one can imagine that most of the university TLOs have the desire to use the licensing income and transfer income generated by the patents owned by that university/TLO as their main source of operating funds. That means that one cannot say that, at least after the initial five (5) year period following establishment when assistance funding is paid in by the national government, the concerned TLO will never face a financial impasse in the future. And that includes even those hypothetical cases in which the university and its TLO serve as the main drivers in the formation of a spin-off company on the basis of university-administered and/or -owned technologies (here, the stockholding method adopted is one where the university and/or the TLO are the stockowners). In such cases, certainly a considerable amount of time will have to lapse before positive monetary results are secured.

Inevitably, along the lines of today's pro-patent trends, it seems only natural that both the universities and the TLOs will tend to emphasize simply the aspect of "earning profits through patents." And just as naturally, it seems inevitable that private companies will share an awareness that the TLOs and the universities are patent holders which could indeed become obstacles in the performance of a private company's related business. It bears repetition here that, of course, depending on the business field which the technical transfer relates to, there will be differences in the meanings given to "patents" and "academic-industry collaborations," and there will also be differences in expectations regarding results and functions. And it also goes without saying that the very fact that patent license fees are to serve as a type of "back payment" for research results generated at universities will itself serve to revitalize research activities within universities, and that such will also be linked to a strengthening of the international competitive prowess of Japan. In this sense, this is surely a desirable direction in which to go.

However, with the existence of this difference in the character of patents depending on industrial field, if there is a continuation of the

stipulation of unrealistic restrictive conditions concerning the results of joint research performed with private companies, plus standardized license fee rate settings, etc., without any consideration given to the functions that a patent wields in the commercialization process, any strengthening of the trend for the "active use of university patents" to serve as the only existing concept will indubitably lead to unfortunate results, for both the industry and the academic sides.

As for the financial underpinnings of TLOs, surely long-term, stable operations could be ensured by establishing the TLO budget as that for a single university department within the operating budget for the university as a whole, and by adding thereto income collected from private companies for joint research projects. This point is surely one of the key points that require resolution within any revision of the system framework.

4.4 Desires in regards to Operational Improvements for Consigned Research and Joint Research: Towards the Change from National Universities, Etc., to Independent Administrative Corporations

Just a short while ago—namely from April 2001—the movement began to transform a certain number of national research institutes into independent administrative corporations. Now, investigations are underway regarding the same type of creation of independent administrative corporations from existing national universities. No one can predict right now just what framework will end up being finally established. Be that as it may, it is thought that, in order to raise the effectiveness of academic-industry collaborations, a move in the direction described in the proposals presented below is worthy of investigation. As we come to a knowledge of movements and trends in the Western countries which have had a head-start on Japan in terms of industry-academic collaborations, we learn that the situation as it exists in Japan cannot be sufficiently improved simply by performing minor revisions, nor through small but ingenious revisions that merely extend the currently existing system along its original lines. Rather, one believes that what is required instead is drastic systemic revision, including in regards to the

raison d'être (or working modes) of universities. Further, improvements of the relationship with national universities also have the latent possibility of serving as a trigger for readjustments and revitalization of cooperative relationships with private universities, public universities, and public research institutes.

Proposals regarding Improvement Orientations (Tentative Proposals)

Proposal 1

Just as for a private company, a prerequisite condition for a university is that it have the functions of appropriate research management, and appropriate operational management for patent management, etc. On this basis, inventions made by individual professors, as well as the various types of rights based on those inventions, should, in principle, revert to the university (with the prerequisite being the conclusion of a contract between professors and their universities so that the individual professor can also expect to enjoy remunerative payback), and the university should perform uniform management of such inventions and rights. It would also be desirable to reform the system such that existing TLOs are gradually absorbed into the university organization, such that the TLO can serve as a specialist department dedicated to handling all aspects of licenses concerning the university's seed technologies, plus as a liaison office on the university side for all consignment research and joint research with private companies.

Proposal 2

It is desirable that the framework of submissions between universities and private industries within research and development work no longer be considered as a one-way flow of technical transfers from the university to the private company, chiefly in the form of patent rights, but rather that the key priority be given to policies for joint research with companies, and policies for research consigned from private companies. Through such type of joint research work with private companies, the university, too, will be enabled to set research themes that are firmly grounded in actual market needs, and it is expected that this will have multiplied positive effects for both industry and academia. It would also be desirable to create mechanisms that

would enable the formation of research teams comprised of professors from all concerned university divisions, depending on the character and contents of each specific joint research project. The university could also expect merits from such a system, in that private funding generated via such research projects could be used as expenses for research-related activities.

5. Remaining Investigatory Perspective Points

As we enter an era of megacompetition on a global scale, and with the speeding up of technical development plus the current environment of ever increasing R&D expenses, whether one likes it or not, we are collectively moving in the direction of accelerated industry-academic collaborations in research and development. While on the one side, we are seeing in Western nations as represented by Great Britain and the United States industry-academic collaborative engagements that are changing the nature of the pre-existing framework, at long last, here in Japan, too, we are seeing the beginning of epoch-making movements, such as the implementation of Article 30 of the Industrial Revitalization Law (Japanese Bayh-Dole Act). Viewed, however, from the perspective of private industry, in addition to the problem points described above, there are more than a few remaining issues and problems that still require resolution. One issue that could be raised, for example, is the mismatching seen between the research seeds of national government, etc., and the research needs of private companies. Certainly at the present time, one sees the beginnings of movements to form data bases, such as those at national research institutes, etc., that encompass researchers, research fields, and research results. Yet as of the current date, there still exist numerous cases where the opportunity for private companies to learn of the research seeds created by national research institutes, etc., is limited to previously existing routes, such as the company's human-relationship networks with individual researchers, academic conferences and academic publications, etc. These days, one further sees the trial beginnings of person-to-person introductions and intermediary-work services performed by Technology Licensing Organizations (TLOs) at

universities, etc., by patent distribution advisors, and by the Japan Science and Technology Corporation (JST). As of the current date, however, one has the impression that there still exists only a one-sided flow, namely that from the national government (chiefly patents) to private companies. One reason for this is the fact that, in the current state of affairs, national research institutes and universities have few opportunities to learn of actual needs on the industry side. One can expect that the activation of joint research projects with private companies will help to bridge this gap existing between industry and academia.

Further, although the Minister of Education Notification of December 1996 opened the way for university professors to become involved in private company research and development in the form of "side-work" undertaken as individuals, various obstacles remain, such as the need to obtain the prior permission of the university president, limitations regarding research activities, time-period (term) limitations, etc. For these reasons, at the current time, it is imagined that there have been only few practical results generated from such "side-work." Certainly, serious consideration should be given to moving in the direction of more widespread exchange options, such as through improvements of the Law for Promoting Research Exchanges, etc., and the establishment of a framework, while referring to examples in various foreign companies, for the activation of everyday personal exchanges between researchers in

the national government, etc., and researchers in private enterprise.

At the same time, in tandem with moves to strengthen industry-academic collaborations, it will also be necessary to create guidelines for such things as, how should a balance be achieved between public profits and the profits of individual researchers and specific companies, and, to what extent should the collaborative relationship be permitted to extend to? Of course, one cannot deny that extremely complex and sensitive problems remain, such as the question as to just what extent a social consensus can be obtained. Yet so long as no revision is made of the existing framework, the current state of affairs will only spur on the trend by Japanese companies to, first and foremost, strengthen their research collaborations with foreign universities, etc. In regards to this point, it appears that the Western countries are already undertaking the creation of standards. While using these standards, too, as a reference, a consensus that conforms to the customs and practices of Japan should certainly be created among industry, academia, and government. This Subcommittee would be extremely pleased if the present report, which presents problem points actually raised by persons in private companies responsible for licensing work, can serve as the "first arrow" of information communicated from the industry side.

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