JPO's response to letter C.8940 regarding Technology Transfer

The JPO is pleased to send the following inputs on its initiatives for technology transfer in Japan.

Japan's initiatives on technology transfer are divided into international and domestic ones.

1. International Initiatives

(1) Japan's contributions to WIPO GREEN

WIPO GREEN is a platform to advance the transfer of technology and has been developed based on the concept proposed by the Japan Intellectual Property Association (JIPA). Up until now, Japan has been greatly contributing to developing this framework. At present, more than 1,400 users from all over the world have registered more than 3,600 technologies at its database. Many Japanese companies have already participated in WIPO GREEN, and Japan is ranked No. 2 in terms of the numbers of users and registered technologies.

Also, the JPO, under the support of the "Funds-in-Trust Japan Industrial Property Global" (FIT Japan IP Global or the Japan Funds), has been conducting various support activities for WIPO GREEN, such as promotional activities that encourage Japanese companies to make greater use of WIPO GREEN.

In addition, the JPO participated in WIPO GREEN as partner in February 2020. As a result, the number of participants from Japan as partner of WIPO GREEN is 19.[1] Going forward, the JPO, in cooperation with the WIPO Headquarters and the WIPO Japan Office (WJO), is committed to actively supporting the activities of WIPO GREEN, and to promote the wider use of environmentally sound technologies (ESTs) worldwide.

(2) Support to Developing Countries for Improving Operations of IP Systems

When developing and improving the intellectual property (IP) system, the transfer of technology from developed countries to developing countries can be advanced. The JPO has

[1] Asia-Pacific Industrial Property Center - Japan Institute for Promoting Invention and Innovation, Canon Inc., Daikin Industries, Ltd., Fujitsu Limited, Hitachi, Ltd., Honda Motor Co. Ltd., Japan Intellectual Property Association (JIPA), Japan Patent Attorneys Association (JPAA), Konica Minolta, Meiji University Center for Polymer Science, Panasonic Corporation, Sumitomo Electric Industries, Ltd., Team E-Kansai, Teijin Limited, Toyo Aluminium Ekco Products Co. Ltd., Toyota Industries Corporation, Toyota Motor Corporation, Waseda University Environmental Research Institute

been contributing to advancing the transfer of technology by conducting the following cooperation to further improve IP systems worldwide:

Until now, the JPO has voluntarily contributed approximately CHF 80 million in total to FIT Japan IP Global (including predecessor WIPO Funds-in-Trust / Japan) for 32 years and has supported WIPO's initiatives to develop intellectual property systems in developing countries through the fund. In2019, JPO's contribution amounted to CHF 5.78 million, and the JPO has been assisting WIPO, through the fund, to advance initiatives for enhancing technical and knowledge infrastructures, including training course, dispatch of experts, computerization support and workshops. Making effective use of these voluntary contributions the JPO has been implementing a variety of assistance programs for developing countries. The JPO has sent 403 experts to 38 countries in the Asia - Pacific and Africa regions, and has invited 1,862 people from 65 countries to Japan over the 23 years from 1996 to2019.

In addition, as a JPO's independent cooperation apart from cooperation through the FIT Japan IP Global, in its invitational training courses in 2019, the JPO, for example, held a Training Course on Academia-Industry Collaboration and Technology Transfer in August 2019. For this course, the JPO invited 24 individuals involved in IP management at universities and research institutes from 11 countries. In the course, through lectures on how industry-academic collaborations and the transfer of technology have been advanced in Japan, the JPO introduced the efficient and effective ways and initiatives for managing IP. Also, the trainees had discussions with each other about what are needed to solve issues that their organizations are facing.

2. Domestic Initiatives in Japan

(1) History of the laws related to technology transfer in Japan

In Japan, universities and academic research institutes have been major research sources. However, although they achieved many outstanding research results that showed great potential as “seeds” of new industries, these outcomes were not fully used in actual industries. In those days, companies, especially manufactures, had already in-house “intellectual property departments” to manage their IP, apart from the research departments. Meanwhile, universities did not have such departments specialized in IP issues. Under these circumstances, there has been a growing need for Technology Licensing Organizations (TLOs) to promote granting patents for research results at universities and transfer these successful achievements to industries, i.e., handle licensing agreements with companies. As a result, the “Act on the Promotion of Technology Transfer from Universities to Private Business Operators” was enacted in May 1998 and came into force in August 1998, in order to support establishing TLOs at universities as a government policy.

In addition, in the past, when research and development (R&D) activities in Japan were supported by the national government’s funds, and if IP rights, such as patent rights, were granted to the results arising from these specified R&D activities, such IP rights were owned by the national government. Nonetheless, after having discussions based on suggestions proposed by the private sector and the current state in the U.S. on this matter, the Japanese government determined its policy in 1999 that “in order to increase the incentives of individuals (inventors) involved in R&D activities and promote the wider use of the research results arising from the government funding, the Japanese government would conduct an initiative to allow the individuals to retain IP rights for inventions arising from government-funded R&D activities.” Based on this, the Japanese government established the Japanese version of the Bayh-Dole Act (the Patent and Trademark Law Amendments Act of 1980) as Article 30 of the Act on Special Measures for Industrial Revitalization (Article 17 of the present-day Industrial Competitiveness Enhancement Act).

(2) Case Example

One good example of a technology created at a university that later evolved into a business is the development of blue light-emitting diodes (LEDs).

In the 1960s, Red and yellow-green LEDs were developed. On th other hand, it was believed that commercialization of blue LEDs was difficult. However, in 1986, Mr. AKASAKI Isamu, a Japanese professor at Nagoya University at that time (professor of Meijo University and of

Nagoya University now), and his assistants succeeded in finding techniques for systhesizing high-quality single crystal gallium nitride (GaN).
In 1987, "Manufacturing blue light-emitting diodes of GaN" project began as a commissioned R&D project of the Research Development Corporation of Japan (JRDC) (Current Japan Science and Technology Agency (JST), a national R&D agency under the Ministry of Education, Culture, Sports, Science and Technology). In this project, Mr. AKASAKI and Toyoda Gosei Co., Ltd. conducted research and development, and realized the world's first blue LED using GaN. In 1995, a blue LED was commercialized by Toyoda Gosei Co., Ltd.

Now, blue LEDs are widely used not only in lighting devices, such as light source of display for personal computer and traffic lights, but also in the areas of communications and healthcare. They have been greatly contributing to saving energy worldwide and promoting technological innovations in each industry, which have become essential in our lives.

The study report issued by the JST reported the following:

- From 1987 to 1990, the JST committed 550 million yen (about 4.86 million CHF) to conducting development of blue LED manufacturing technology. (The funds were already returned to the JST.)

- From 1995, commercial production of blue LEDs was started. The total sales of application products using blue LEDs from 1997 to the end of 2005 reached around 3.6 trillion yen (31.8 billion CHF), including the sales of cellular phones and large-sized full color displays. When looking at the direct impacts on the overall economy in Japan, the blue LED products created the new added value of nearly 350 billion yen (3.10 billion CHF) in Japanese industries and around 32 thousand employments. Also, they brought the JST about 4.6 billion incomes (40.7 million CHF) from the license fees from 1995 to 2005.

(3) (References) Laws related to technology transfer

A. Act on the Promotion of Technology Transfer from Universities to Private Business Operators (Act No. 52 of May 6, 1998)

Article 9 (1) The Minister of Education, Culture, Sports, Science and Technology and the Minister of Economy, Trade and Industry shall, in order to promote the transfers of Specified Research Results to the private sector, endeavor to facilitate close cooperation between universities and the private sector in regard to research and development. In this case, the

Ministers must always take into consideration the characteristics of learning and academic research at universities.

(2) The Minister of Education, Culture, Sports, Science and Technology and the Minister of Economy, Trade and Industry must endeavor to effectively promote policies to further the acquisition of knowledge and technologies necessary for the private sector to utilize Specified Research Results.

B. Industrial Technology Enhancement Act (Act No. 44 of 2000)

Article 17 (1) In order to stimulate technology-related research and development activities and promote effective utilization of the results thereof in business activities, if the patent rights or other rights specified by Cabinet Order (hereinafter referred to as "Patent Rights, etc." in this Article) pertaining to the result of technology-related research and development entrusted by the national government, or of software development that the national government has contracted (hereinafter referred to as the "Result of Specified Research and Development, etc." in this Article) falls under all of the following items, the national government may decide not to take over the Patent Rights, etc. from that entrusted party or contractor (hereinafter referred to as "Contractor, etc." in this Article):

(i) The Contractor, etc. promises that, in cases where the Result of Specified Research and Development, etc. is obtained, it will make a report to that effect to the national government without delay;

(ii) The Contractor, etc. promises that, in cases where the national government finds it particularly necessary for the public interest and makes a request, making clear the reasons therefor, it will grant the national government the right to use said Patent Rights, etc. without charge;

(iii) In cases where the national government recognizes that the Contractor, etc. has not utilized said Patent Right, etc. for a considerable period of time and does not find any justifiable grounds for it having not done so for a considerable period of time, and when the national government finds it particularly necessary for promoting the utilization of said Patent Right, etc. and makes a request, making clear the reasons therefor, the Contractor, etc. promises that it will grant a third party the right to use said Patent Rights, etc.;

(iv) The Contractor, etc. promises that, in cases where it intends to transfer said Patent Rights, etc., or give consent to the establishment or transfer of the right to use said Patent Rights, etc. specified by Cabinet Order, it will receive the approval of the national government in advance, except for in cases where said Patent Rights, etc. are transferred as a result of a

merger or a split, or in cases specified by Cabinet Order as being unlikely to hinder the utilization of said Patent Rights, etc.

(2) The provisions of the preceding paragraph apply mutatis mutandis to the following relationships: in cases where the national government has provided funds to another corporation to have it perform technology-related research and development, and where said corporation entrusts all or a part of that research and development to another party, the relationship between said corporation and said party which has been entrusted to do said research and development; and in cases where the national government has provided funds to another corporation to have it conduct software development and where said corporation contracts out for all or a part of that development to another party, the relationship between said corporation and said contractor for the development.

(3) When the corporation set forth in the preceding paragraph seeks the granting of the right set forth in paragraph (1), item (ii) or item (iii) that is applied mutatis mutandis pursuant to the preceding paragraph, the corporation is to do so in accordance with a request from the national government.

(4) Initiatives to support university-industry collaboration including technology transfer

Since 2016, the JPO and INPIT (National Center for Industrial Property Information and Training) have been conducting "Dispatching Service of Intellectual Property Advisor for University-Industry Collaboration" to support universities in the management of intellectual property for university-industry collaboration projects aimed at commercialization as a core service. We are dispatching advisors well-versed in IP to universities with technology seeds to be licensed to companies to form university-industry collaboration projects and to be commercialized.

The advisors provide the support activities related to university-industry collaboration including following items for technology transfer, with the agreement of the university officials in charge of university-industry collaborations.

- Discovering and evaluating technology seeds and launching of university-industry collaboration projects
- Searching for partner company candidates
- Formulating intellectual property strategies bearing business models in mind
- Extracting / filing / patenting of inventions from the results of R & D activities and constructing of patent portfolio
- Advising on contracts for commercialization with partner companies, etc.

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