

Japan's governmental intermediary patent platforms for open innovation



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1 Introduction - the issue of dormant patents

The issue of how to facilitate domestic entities, including companies, universities and research institutes, to efficiently acquire and commercialize various patents for innovative technologies is an important part of national innovation policy in advanced economies worldwide.¹ In Japan, especially within the past five years, the government has intensified its efforts to promote the utilization of valuable intellectual property (IP) as part of its innovation policy by creating various IP ecosystems.

A high level of IP expertise is required to file and gain necessary patents for a certain core technology. Many patents that are mutually relevant but difficult to use individually scatter among different patent owners such as companies, universities and research institutes in an increasingly complex landscape. This has increased the relevant transaction cost for the entities wishing to gain all the required patent licenses for their product development. For patent owners, it is often difficult to assess the value of their patents, and discover to which domestic or foreign entities they should license their patents for the purpose of monetizing those patents. This situation has resulted in a growing number of “dormant patents”, i.e. patents that remain unutilized by the owners.

The Japan Patent Office estimates that roughly half of Japanese corporations' 1.46 million patents are dormant. It may be true that some of those dormant patents have served, to a certain degree, as a deterrent against possible patent litigation by foreign companies. However, enclosing dormant patents only for such a defensive purpose deprives companies of many potential business chances. Businesses that monopolize their patents even risk stunting the market for their own products, and run the risk of seeing rival technology become the consumer's favorite. As a hedge against this danger, some Japanese manufacturers have recently started adopting a more open approach to their patents, as in the case of Toyota Motor's opening up its patents for fuel cell technology to other manufacturers in order to speed up efforts to build the hydrogen-supply infrastructure.²

At the same time, many of the universities' internal IP departments and TLOs (Technology Licensing Organizations), especially those located in local regions, have difficulties commercializing their university-owned patents³. Only 30 percent of all the patent rights owned by the Japanese universities (20,000 patents in total) are commercialized through the licensing of their patents to companies.⁴ As for universities' international patent business, the number of the technology licensing cases between Japanese universities and foreign companies is less than one percent of that of the technology licensing cases

¹ Since 2010, other countries such as South Korea and France have moved to establish sovereign patent funds (SPFs), a new type of investment vehicle intended to acquire strategically important intellectual property assets and, in doing so, promote national economic objectives. Intellectual Discovery in Korea (<http://www.i-discovery.com/>) and France Brevets (<http://www.francebrevets.com/>) are such examples.

² In January 2015, Toyota Motors decided to make its roughly 5,680 patents related to fuel cell technology available for free to other manufactures.

³ TLO is a company founded by a university or co-founded by universities as an intermediary patent platform for the commercialization of university-owned patents through open innovation and industry-academia collaborations. There are currently 38 TLOs certified by METI, and many of them have had some difficulties in patent commercialization due to their lack of expertise.

⁴ The total amount of the revenues from the licensing of the university-owned patents is JPY 2.2 billion (SEK 150 million) in 2013, while the aggregate sum of the revenue of Tokyo University (JPY 600 million or SEK 40 million) and that of Kyoto University (JPY 400 million or SEK 27 million) accounted for about the half of that total amount.

between Japanese universities and Japanese companies.⁵ In 2013, there were only 210 collaborative research projects between Japanese universities and foreign companies, while there were 17,881 such projects between Japanese universities and Japanese companies.⁶ These facts indicate the importance of promoting the internationalization of Japanese universities' practices in their industry-academia collaborations and patent commercialization.⁷

From a policy perspective, activating dormant patents is a promising area that can provide domestic companies and universities with a variety of "open innovation" opportunities. This could increase the efficiency and effectiveness of their R&D activities and/or commercial practices by combining internal technology sources with external capabilities, and to produce economic synergies on many fields.⁸ For example, licensing potential dormant patents to domestic SMEs in local cities can have a positive impact on the stimulating of local economies and can provide those SMEs with opportunities to grow to be a "global niche top company."⁹ Licensing dormant patents to foreign companies can lead to expanding the overseas patent commercialization chances of domestic companies and universities across the borders.

This short report gives some examples of Japan's policies and government-supported actors that are actively stimulating a better utilization of patents through various open innovation schemes.

⁵ Information from the interview with Mr Ohinata of the Center for Intellectual Property Strategies of JST.

⁶ http://www.mext.go.jp/a_menu/shinkou/sangaku/icsFiles/afiedfile/2014/11/28/1353580_01.pdf (Japanese only).

⁷ Some major Japanese universities are vigorously trying to establish overseas branch offices to advertise their technology seeds, research capabilities, and ongoing or future research projects to foreign countries. For example, Tokyo University has established its branch offices in major cities of the world: <http://www.u-tokyo.ac.jp/en/about/international-activities/other-universities/olo/kyoten.html>. Kyoto University opened its European Representative Office in London in 2009: <http://www.kyoto-u.ac.jp/en/about/profile/facilities/london.html>.

⁸ Dr Henry Chesbrough of the Haas School of Business at the University of California Berkeley, who is a world-famous promoter of the idea of open innovation, states in his book titled "Open Innovation: The new imperative for creating and profiting from technology" (Harvard Business School Press, March 2003) that open innovation is "a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology".

⁹ According to METI, a global niche top (GNT) company is generally defined as a SME which has secured a 10-20% or more global share within the past three years, even just for one year. There are hundreds of GNT companies in various local cities in Japan. One of the important policy targets of METI is to turn as many SMEs as possible into GNT companies. See http://www.meti.go.jp/english/press/2014/0317_01.html.

2 Japanese policy for governmental intermediary patent platforms for open innovation

The question of how to solve the issue of dormant patents through open innovation schemes has recently been an important policy agenda in Japan. In its policy paper titled “Intellectual Property Policy Vision” published in June 2013, the Intellectual Property Strategy Headquarters of the Cabinet Office of Japan says, “*As open innovation accelerates, the necessity of utilizing intellectual property held by others is increasing. In order to strengthen Japan’s industrial competitiveness, it is necessary to further promote the circulation of patents. Therefore, it is necessary to support the intellectual property fund for public-private partnerships so that it contributes to creating innovation or new industries through smoothing the circulation of patents.*”¹⁰ And, in the policy paper titled “Japan Revitalization Strategy” published in June 2014, the Cabinet Office also points out that “*the Government will seek to create an environment that will strongly promote open innovation, aiming to facilitate agile innovation that will allow companies to break free of their overemphasis on self-sufficiency and self-containment in technology.*”¹¹ The Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Economy, Trade and Industry (METI) have used the concept of open innovation in many of their policy papers on the promotion of industry-academia collaboration.

Within the last five years, Japanese policymakers have increasingly responded to the problem of dormant patents by way of creating and promoting intermediary patent agents. Some of these agents are conventional in that they are public research funding entities that have programs specifically for IP support. Others are relatively new forms such as the sovereign patent funds organized through a public-private partnership scheme. Some local municipalities such as the Kawasaki City Government also try to function as an intermediary patent agent for connecting technology seeds and needs. They all function to reduce transaction costs and create various patent commercialization opportunities. They also provide professional IP advisory services regarding the filing of patent applications for the Japanese and foreign patent offices, the evaluation of patent values, and the creation of valuable patent portfolios.

From Japan’s IP policy perspective, it is important for such intermediary patent agents to be a “governmental” or “public” entity, because this implies that they will not act like a “patent trolls” contrary to the benefit of Japan based on patents gained from Japanese companies and universities.

Following is an overview of five governmental intermediary patent agents that have played a significant role in strategically promoting the commercialization of high-value company-owned and university-owned patents.

¹⁰ Intellectual Property Strategy Headquarters of the Cabinet Office of Japan, “Intellectual Property Policy Vision” (3rd June 2013).

¹¹ The Cabinet Office of Japan, “Japan Revitalization Strategy” (24th June 2014).

3 Case studies of actors and their activities

3.1 IP Bridge and LSIP

The first example of governmental intermediary patent agents in Japan is two patent funds, namely, IP Bridge (established in July 2013) and the Life-Science Intellectual property Platform Fund or LSIP (established in August 2010). Both of them are public-private partnership funds co-created by the Innovation Network Corporation of Japan (INCJ)¹², a public financing component of METI, and several commercial companies. IP Bridge Fund is currently capitalized at JPY three billion (SEK 200 million) and can be capitalized at up to JPY 30 billion (SEK 2 billion) upon request from IP Bridge to INCJ, while LSIP is currently capitalized at JPY one billion (SEK 70 million). The operation of LSIP is managed by Intellectual Property Strategy Network, Inc., a Japanese IP consulting company in the pharmaceutical development field, while the operation of IP Bridge is managed by IP Bridge Inc.

LSIP focuses on patents in the life science field (biomarkers, ES/stem cells, cancer, and Alzheimer's disease), while IP Bridge focuses on patents in the electronics field. Both LSIP and IP Bridge are managed by an internal team of about five to ten IP experts with expertise in their respective technology fields, most of whom have previous experience of working for major Japanese pharmaceutical or electronics companies. Both LSIP and IP Bridge are promoted through wide-ranging networks with various Japanese companies and universities from which to gain information on their valuable technology seeds and relevant dormant patent information. In order to gain information on university-owned patents, LSIP has a special partnership agreement with the Japan Science and Technology Agency, JST, a research funding agency of MEXT.

LSIP purchases patents at prices corresponding to their financial values, bundle them into patent packages, and license them mainly to domestic companies, while IP Bridge purchases patents at a low fixed price, bundle them into a patent packages, and license such patent packages mainly to foreign electronics companies.¹³ Both LSIP and IP Bridge have strong sales capabilities based on their networks with potential customers for patent licensing in their respective technology fields. Profits from licensing are split with the original patent owners. LSIP and IP Bridge also provide financial assistance not only for the filing of patent applications for the Japanese and foreign patent offices, but also for the promotion of research projects at companies and universities.¹⁴ They sometimes file patent applications to the Japanese and foreign patent offices as a co-applicant.

Both LSIP and IP Bridge have already received many applications for patent transfers, patent sub-licensing or for financial assistance for the filing of domestic and international patent applications. In this regard, LSIP has so far received 530 applications from companies and 70 applications from universities, and accepted 90 applications in total after evaluating them. On the other hand, IP Bridge has purchased various dormant patents from

¹² INCJ was established in July 2009 as a venture capital fund based on a public-private partnership between METI and 26 private corporations. INCJ is capitalized at JPY 300 billion (SEK 20 billion), with the Japanese government injecting JPY 286 billion (SEK 19 billion) and 26 private corporations providing a further JPY 14 billion (SEK 900 million). INCJ will be operated for a period of 15 years. See <http://www.incj.co.jp/english/>

¹³ About 90% of the licensees regarding the patents licensed by IP Bridge are foreign companies.

¹⁴ For example, LSIP recently provided research funds and covered the patent application fees for a core technology regarding stem cell owned by a local national university Okayama University.

large enterprises such as Panasonic and NEC. For example, Japanese IT giant NEC has recently transferred roughly 200 dormant patents for semiconductor technology to IP Bridge. IP Bridge has also purchased 3,000 patents from several local universities in Japan.

By purchasing dormant patents, IP Bridge and LSIP can also proactively prevent those assets from being acquired by foreign competitors, and thus function to protect domestic firms from aggressive litigation by foreign competitors, or so called “patent trolls”, which are patent assertion entities that acquire a large number of patents and generate revenue through aggressive patent-infringement litigation.

3.2 Japan Science and Technology Agency (JST)

The Japan Science and Technology Agency (JST) is one of Japan’s largest national research funding agencies with an average annual budget of JPY 100 billion (SEK 7 billion). JST also functions as a governmental intermediary patent agent for open innovation by promoting the acquisition of patents for innovative technologies by universities, and the utilization of those university-owned patents through the collaboration with companies. JST’s activity in this respect encompasses a broad array of IP-related activities promoted by its internal division named the “Center for Intellectual Property Strategies (CIPS).”

Since 2014, JST is running a one-stop platform for university-owned patents under the project titled “Innovation Super Bridge,” which is annually financed with JPY 2.5 billion (SEK 200 million) by MEXT.¹⁵ In this scheme, JST purchases the ownership or the sub-licensing right of patents from universities, bundle those patents into packages, and license those packages not only to domestic companies, including regional SMEs, but also to foreign companies. JST routinely conducts pitches for patent licensing towards various domestic and foreign companies. Profits from licensing are split between JST and the universities. JST has already received from about 20 universities applications for patent sales or patent sublicensing regarding about 200 technology inventions.

JST additionally provides a free-of-charge consulting service for universities regarding the evaluation of technology seeds and patent values, the filing of patent applications to the Japanese and foreign patent offices, and the creation of valuable patent portfolios. JST also provides financial assistance of up to JPY 5 million (SEK 300,000) per company or university research project for the filing of domestic and international patent applications and research grants of up to JPY 8 million (SEK 500,000) for a research project at companies and universities. Like the above-mentioned patent funds, JST sometimes file patent applications for the Japanese and foreign patent offices as a co-applicant.

JST engages in a variety of bridging activities to support the matching of research output from universities with industry needs by establishing various meeting points for industry-academia collaboration. One of JST’s efforts in this respect is its J-STORE database¹⁶, which is a comprehensive source of information on research output, technology seeds or university-owned patents that can be used freely at the research stage and can be licensed

¹⁵ This activity of JST in the Innovation Super Bridge project has been based and developed on its own successful experience of licensing the patent rights regarding an innovative IGZO (Indium Gallium Zinc Oxide) technology developed by Professor Hosono, a world-famous material science professor of the Tokyo Institute of Technology, to foreign companies in the USA, China, Taiwan, and South Korea. JST has calculated that the revenue from this licensing will amount to several billion yen (several hundred million Swedish Krona).

¹⁶ <http://jstore.jst.go.jp/>

to companies at the product development stage. In order to provide universities with opportunities to advertise their technology seeds and relevant patent information, JST also holds 60 meetings under the title of the “New Technology Presentation Meeting” every year. In addition, JST yearly holds an exhibition titled “Innovation Japan” in collaboration with NEDO (New Energy and Industrial Technology Development Organization), a public research funding agency of METI. In the “Innovation Japan” 2013, about 400 Japanese universities made presentations on their technology seeds and relevant patent information for industry-academia collaboration.

JST also holds a variety of educational programs to upgrade the IP management expertise of those who work for IP divisions within universities or TLOs.

3.3 DBJ Capital

DBJ Capital Co., Ltd. is an investment company established in 2010 by the Development Bank of Japan, which is a strategic investment bank solely owned by the Ministry of Finance of Japan. DBJ Capital manages a venture fund capitalized at JPY 4 billion (SEK 3 billion) to invest in or give loans¹⁷ to promising venture firms across various business fields. Although not directly purchasing patents by itself, as in the cases of the patent funds LSIP and IP Bridge, DBJ Capital also functions as an intermediary patent platform by connecting technology seeds at universities and industry needs through various industry-academia collaboration schemes, with its expertise in patent evaluation and commercialization.

As an example in point, together with the Kyushu Institute of Technology (KIT) and a Japanese patent broker, DBJ Capital has co-established a venture company named “LP Techs” based on a new biomass technology developed by Professor Nishida of KIT. In this scheme, KIT transferred its patents to that technology to LP Techs, in return for stocks in that company. Since the establishment, the patent broker has been promoting the licensing of the patents to domestic local SMEs, while a patent agent in the USA hired by DBJ Capital has been promoting the licensing of the patents to American companies.

DBJ Capital also deeply engages in the START program (Creating STArt-ups from Advanced Research and Technology), which is a university-oriented business incubation project annually budgeted at JPY 2 billion (SEK 150 million) by MEXT since 2012.¹⁸ The purpose of START is to promote business incubation projects based on university-owned technologies and patents, with the participation of outside business consulting companies as a project promoter. The fees for those companies are paid from the budget of the START program. So far, eleven business consulting companies, including DBJ Capital, have participated in START as project promoters for various university-oriented business incubation projects, and have provided expert advice on patent management, technology marketing and exit strategy. DBJ Capital, as a core member of this consulting group, has supported nine projects within this START project scheme.

3.4 Kawasaki City Government

Kawasaki City, located just outside of Tokyo, has one of the largest numbers of SMEs in Japan. Many of them are subcontractors to large enterprises and lack R&D capacity to develop their own products from scratch. And, there are strong needs on the part of those

¹⁷ DBJ Capital loans money to companies while taking their high-value patent rights as collateral. DBJ Capital is Japan's first companies to start this type of patent-based loan scheme.

¹⁸ <http://www.jst.go.jp/start/en/index.html>

SMEs to develop their own products with their own brands, by taking advantage of high-value technologies and relevant patents owned by large enterprises at low costs. To support the SMEs in this respect, the Kawasaki City Government (KCG) has developed a scheme for upgrading the competitiveness of local SMEs by promoting the technology and patent transfer from large enterprises to those local SMEs. KCG's approach to open innovation with the aim of activating dormant patents for the benefit of the local economy is now called the "Kawasaki Model." It is its Industry Policy Division, which has hired several IP experts who are retirees from large enterprises, that has taken the lead in establishing this policy scheme within KCG.

In this scheme, on the supply side, KCG has created a consortium of 14 large Japanese enterprises (Fujitsu, Panasonic, Hitachi, NEC, Nissan, etc.) that continuously provide KCG with information on their technology seeds and relevant dormant patents in such fields as electronics, new material development, and life science. On the demand side, KCG routinely receives from local banks and other industry promotion organization such as the Kawasaki Industry Promotion Foundation various information on promising SMEs that have potential to grow and are therefore strong candidates for further governmental assistance. KCG visits those SMEs and collects as much information as possible about what kind of technologies they need for their own product development. On the basis of the information from both the supply and demand sides, KCG conducts a free of charge match-making to promote the low-priced transfer of technologies and patents from large enterprises to local SMEs. KCG operates a variety of prize-giving systems targeting at advanced SMEs, which provides SMEs with incentives to create innovations based on technology seeds from large enterprises.

This "Kawasaki Model" is unique in the sense that Japanese local municipalities do not usually have such a systematic open innovation system based on effective networks with SMEs, large enterprises, local banks and other SME-related organizations as KCG does. So far, in this scheme, twelve new technologies (e.g., car navigation, photo catalyst, etc.) have been developed and commercialized by local SMEs on the basis of 21 patent license contracts with large enterprises such as Fujitsu and NEC. About 30 local municipalities have already visited KCG, trying to model after the "Kawasaki Mode" for their SME promotion policies.

4 Interview list

- Dr. Hiroshi Akimoto, CEO, and Mr. Yasuo Horikoshi, CFO, Intellectual Property Strategy Network, Inc.
- Mr. Kenji Kimura, Deputy Director, and Mr. Kouichi Takahashi, IP Advisor, Industry Policy Division, Kawasaki City Government
- Dr. Motoki Korenaga, Corporate Planning Councilor, Innovation Network Corporation of Japan.
- Mr. Mitsuhiro Nishida, Deputy Director, Industry-University Collaboration Office, Ministry of Economy, Trade and Industry (METI)
- Mr. Takuji Ohinata, Manager, Center for Intellectual Property Strategies, Japan Science and Technology Agency (JST).
- Mr. Ryo Shimizu, Corporate Planning Manager, IP Bridge, Inc.
- Mr. Yasuhisa Yamaguchi, Managing Director, Investment Department, DBJ Capital Co. Ltd.