1. The objective and background of the Project

Recently, expectation for startups has been raising both domestically and internationally to serve as an engine for economic growth and become a new leader of job creation. Startup ecosystem which provides seamless support from launching to development of business is required to be built in Japan accordingly.

Being exposed to severe competition it is necessary for startups to fully recognize the importance of intellectual property in early stage. However, support measures currently provided by Japan Patent Office are targeted for small and medium sized companies and not focused on startups. This Project aimed to figure out current problems and issues of startups and discuss the effective way to support them in aspects of intellectual property based on studies of actual support measures provided in foreign countries.

2. Current situation and issues of startups in Japan

The questionnaire survey within the Project conducted in Japan indicated the result that majority of startups have little interest in intellectual property. Only 21% of startups in machinery, electric/electronic and IT sector incorporate intellectual property into their business strategy before launching a business. The proportion declines to 12% among IT sector alone, and the proportion remains less than half even among bio/medical sector in which intellectual property may become a critical asset. The result shows the reality that Japan lags behind in awareness of the importance of intellectual property.

Startups consult mostly with experts such as lawyers and/or patent attorneys to introduce Intellectual property strategy (IP strategy). However, advanced startups which incorporate IP strategy from initial business plan often ask for advice from other startups or entrepreneurs as mentors, meaning that information given by entrepreneur communities are important as well.
<Proportion of startups incorporating intellectual property in their business strategy before launching a business>

The interview survey in the Project identified the factor to enhance startups' awareness and recognition regarding the importance of their intellectual property. The factor could be broadly categorized to three cases such as (1) Head of the company had experience working on intellectual property in their former job, (2) Member and/or staffs of the company were conscious or had experience working on intellectual property, (3) Developed their awareness through communication with experts outside. Since these factors are all regarded to be incidental, it can be considered that many university-launched startups founded by those who have no experiences working in private company may have been missing the opportunity to enhance awareness and recognition of the importance of intellectual property.

Many comments were offered to claim that intellectual property experts (IP experts) those understand about business management as well as intellectual property were not enough, while other comments claimed that they had difficulty in approaching right IP experts with required skills. Comments concerning startups supporting entities pointed out that few supporting entities understood and had skills to support about intellectual property.

As for needs concerning support relating to intellectual property, focused on seminars, not only introductory level contents to learn about basic knowledge but also practical contents to study about intellectual property as an effective business tool were required. Startups have various needs for consultation with experts from general entry-level consultation to specific deep discussion with experienced entrepreneurs in each business fields. Consultation regarding monetary support for PCT application was highly required as well.
3. Current situation and issues of Startups in foreign countries

(1) Utilization of intellectual property

Similarly to Japan, internet service startups in most foreign countries tend to give priority to business growth over IP strategy such as taking patent or have little interest in intellectual property. In Israel and India, many startups introduce IP strategy from initial stage of business as a standard. Startups conscious of global competition tends to be sensitive to intellectual property, as particularly in Israel startups regard patent as a key factor to confirm global development of business, while in Russia startups planning to expand their business to US markets are keen to acquire patents. Universities are also getting more conscious of protecting and taking advantage of their intellectual property. Nanyang Technological University (NTU) in Singapore gives instruction to consult immediately with NTUitive (Department of investment and IP management) about new inventions. TUM Forte (Company established by NTU to support technology transfer and spin-off of researchers and students) of Technical University of Munich encourage researchers and students to consult with TUM IP technical manager about their idea before launching a business.

While jointly held patent is regarded as problematics in Japan, it is not causing problem for business activities by startups in foreign countries. In foreign countries, jointly held patent is avoided usually and in case of joint ownership rights for commercialization tend to be negotiated in advance by contracts among co-owners. Therefore “carve out issues” do not emerge as a problem when a researcher spin-off from a university. As for public university in Sweden, commercialization is further easier since ownership for rights belong to researchers themselves. Shenzhen University of China also allows researchers to buy patent from the university when they decide to spin-off.

(2) Creating Community

As networking and communities are regarded to be very important for startups in foreign countries as well, creation of ecosystems for startups has been underway. Skolkovo in Russia is an ecosystem led by government while the ecosystem in the State of Bavaria in Germany has been led by industry-academia-government cooperation. In United states Mason Enterprise Center (MEC) which is an incubation center of George Mason University is contributing to organize ecosystem by collaboration with the university and regional economic development agency etc. In France, startup

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1 Research on publically available data and interview survey were implemented for US, Singapore, France, Germany and China. As for Israel, Sweden, India, England and Russia, research on publically available data and questionnaire survey were implemented while interview survey to the embassy or proper organization with contact in Japan were implemented additionally, in case sufficient information were not offered.
ecosystems have been led in local level in thirteen cities including Lyon and Bordeaux taking advantage of local industry in each region along with branding strategy of “French Tech.” In Stockholm of Sweden, government plays the leading role in construction of networking infrastructure and subsidy for universities and incubators, while successful entrepreneurs offer supports for young people. Besides strong venture capitals (VC) and accelerators are creating their own ecosystem attracting domestic and foreign startups with potential abilities regardless of their nationality. Meanwhile ecosystem is not essential for startups in Israel since they have strong community tie and informal relationship developed during military service. It should be noted that there are variety of ecosystem in different levels and scales.

Not only entrepreneurs but also various supporting entities, experts and business staffs are expected to join the community which can be encouraged by pro bono activities. While pro bono is relatively unknown in Japan, pro bono activities to support startups are getting popular in foreign countries which seem to play important role in creating communities. On the other hand, it is equally essential to provide the place for entrepreneurs and pro bono to meet up directly, thus co-working spaces have been established increasingly. Station F established in France since July 2017 drew attention as one of world’s largest campus for startup ecosystem.

(3) Supporting measures for startups in foreign countries

Supports by weak ties have been provided actively in foreign countries. While seminars and workshops are regarded beneficial, networking among startups and various supporting members including experts encourages early awareness of the importance of intellectual property. Communities play important role in promoting interaction between startups and IP experts.

Exploit Technologies Pte. Ltd. (ETPL) in Singapore offers boot camp and mentoring for researchers interested in spin-off to enlighten the importance of intellectual property. Oxford University offers accelerator programs for startups to give initial information such as the importance of intellectual property. Instituto Nacional da Propriedade Industrial (INPI) of France implements “pro-pro support” (supports by experts offering their specific knowledge and know-how to experts specialized in different fields) for CEOs of incubation center aimed to support startups so as to raise their awareness in aspects of intellectual property. “Pro-pro supports” by IP experts toward VC and accelerators through weak ties are considered that supporting entities should realize the importance of intellectual property.

Hands-on supports are provided usually in team. IP experts who understand the business model specific to startups and have thorough knowledge of individual industry are rarely found in foreign countries so as in Japan. On the other hand VC or accelerators familiar to startup business are not always familiar to intellectual property as well. Therefore VC and accelerators collaborate with
lawyers and patent attorneys to ask for expert’s advice if necessary. Fraunhofer Venture Lab provides supports for Fraunhofer-launched ventures in a team when it comes to strong tie stages. The team includes a pair of experts specialized in management and law. Shenzhen city of China issues voucher for professional service directed to startups. The vouchers can be used for payment to lawyers or patent attorneys registered in the city or district.

Financing by VC and matchmaking support for M&A are strongly emphasized. In Europe, number of launched startups and amount of fund raised are key benchmark for successful startup ecosystem. Thus how to attract potential VC abroad has been a critical issue prior to matchmaking of startups and VC.

When and how to provide support for startups in aspects of intellectual property in various business stages differs according to each cases. Generally workshops and seminars are held in weak tie stages, then hands-on supports appropriate to their business model are provided in strong tie stages dispatching IP experts if necessary. In India and Israel, VC and accelerators give advice for IP strategy in early stages. In some cases they start supporting entrepreneurs before launching a business and advise the timing to apply for patents.

IP strategy and time schedule cannot be considered separately in order to make full use of intellectual property as both aggressive and defensive business tools for startups in any stage of business including initial, weak ties, and strong ties stages. The awareness for the importance of intellectual property could be brought to startups themselves through communication with their supporting member, or to their mentors in early stage. Effective collaboration with IP experts in appropriate timing is necessary but there is no need to accompany them constantly. Flexible ecosystem to connect various staffs surrounding startups is required to achieve such business environment. For instance, Skolkovo in Russia supports fund raising process, while it also offers required supports in legal aspects due to the funding process through Skolkovo Intellectual Property Center (Skolkovo IPC)

4. Supporting measures for Startups in aspects of intellectual property

(1) Basic suggestion

This Project studied actual weak and strong tie supports provided in Japan and other countries and found that supporting measures are organized by needs of startups in different stages. To develop weak ties, it is necessary to support creation of community which helps networking with experts and promote awareness of the importance of intellectual property. When creating a community, a flag person or a leader should be arranged in order to keep community together. Especially for community focused on intellectual property, to place a key person specialized in intellectual property
is essential. Technical University of Munich (TUM) allocates professors who have working experience in private company as “Entrepreneur Ambassador (Ambassador to act as a human billboard in aspect of launching a business)” in each department so that students and researchers interested in launching a business can easily get advice.

As for support measures through weak ties, ideas, such as holding seminars and workshops on topics reflecting needs of startups relating to intellectual property, to offer more chances for entrepreneur, startup supporters and IP experts such as lawyers or patent attorneys to interact each other are required. Pro bono activities by IP experts are offered effectively in this stage in foreign countries. In the United States, pro bono activities by lawyers are offered based on legal grounds of America Invent Acts article 32, enhancing supporting functions led by USPTO. Besides, there are programs prepared by law students.

It is considered desirable to share various best practices making use of intellectual property assets in weak tie stages. To store and deliver contents regarding intellectual property is also required. As “awareness of the importance of intellectual property” is not merely applying for patent but to recognize that intellectual property assets work as bargaining chip for business operation. Thus mechanism to absorb and store necessary contents through community is required.

Constant cooperation with experts who know the reality of startups and business fields is required for hands-on supports in strong tie stages. As experts specialized in both business and intellectual property are currently limited in Japan, hands-on support shall be operated by team including both business experts and IP experts as it is in foreign countries. Such team may cultivate IP experts familiar to startup business.

(2) Specific images of supporting measures

Comparing to advanced cases in foreign countries, interaction between community of entrepreneur and startup supporting entities and community of IP experts seems to be less active in Japan. Therefore “IP consortium (intellectual property consortium)” can be organized to enhance relationship between each community and lead to the awareness for the importance of intellectual property by startups and entrepreneurs.

Screening of startups is recommended in order to provide appropriate supporting measures according to their interest. For those who have less interest in intellectual property, support by weak ties would be preferable mainly focused on promoting awareness of the importance of intellectual property, while strong ties hands-on support would be more effective for those who have difficulty in handling issues regarding intellectual property in spite of their awareness. For those who need further specialized consultation relating to intellectual property, effective function as a bridge approaching lawyers and patent attorneys would encourage further achievement.
In the medium- and long-term, it is expected that startups and their supporting entities would improve awareness and understanding of the importance of intellectual property, while pro bono activities become much popular and IP supports would be provided as a standard in seamless supporting system throughout launching to development of business.