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# Developing a platform for high-tech start-ups

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Tenant Services - Value Adding Aspects

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# Developing a platform for high-tech start-ups

#### **Executive summary**

High-tech start-ups are key players in Science and Research/Technology Parks (SRTPs). The mission of SRTPs is to commercialize innovative technologies and develop new services by nurturing businesses that can contribute to regional vitalization. Thus, SRTPs are expected to welcome new start-ups, then to foster their development into established companies. SRTPs make up or act as elements of an "ecosystem" as they fulfill their missions. Such "ecosystems" consist of different layers of professional support, from accountants and management to investors and institutions providing industrial support. Conventional "ecosystems" focus on supporting existing companies. This paper, however, proposes that their functions be expanded to the cover planning phase of start-ups, such as in the idea generation stage. First, this paper describes the situation of new stat-ups in Japan using data. Second, it examines four important "ecosystems" for the facilitation of new start-ups, with examples and discussion of lessons learned.

This paper aims to contribute to discussions on business acceleration and incubation, as well as mutual cooperation among SRTPs to develop new "ecosystem" for start-ups.

# 1. Introduction

The history of Science and Research/Technology Parks (SRTPs) began approximately half a century ago. The purpose or mission of SRTPs is to commercialize innovative technologies and services by creating businesses, to help nurture such businesses, and thus to bring vitality to regions in which SRTPs are located. To achieve such purposes, SRTPs must implement various functions, and this requires many partners.

One of the most important SRTP functions is to support the development of high-tech start-ups. In the past, such start-ups would first emerge from a university related to an SRTP, and the SRTP would then provide space and professional management services for them. A start-up might also receive funds from venture capitalists.

However, we now live in a different world. Today, it is not so easy to support the foundation of high-tech start-ups at an SRTP. This is partly because of the stagnation of IPO stock markets, partly because of the diversification of technology, and partly because of economic slowdown. These factors are evidence of the change in the business environment facing SRTPs.

SRTPs should develop functions to cope with environmental changes. This paper presents several important attempts by Kyoto Research Park (KRP). First, an operating model for SRTPs is described. Then, several environmental changes observed in Japan are discussed, followed by an examination of how KRP copes with changes and several lessons learned from its activities.

# 2. SRTP operating model

One possible example of an operating model for SRTPs is presented below (Figure 1).



Figure 1 SRTP operating model

- The knowledge source is frequently a university located in or close to an SRTP, and it is a trigger to form new start-ups.

- SRTPs provide various forms of support for start-ups. Some support is provided from outside SRTPs.

- Such support include the following:
- > Investment from angels and venture capitalists

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> Professional advisory services from accountants, lawyers, and management consultants

Mentor services

Compensation for such services is paid either in the form of cash from angels or investors, or as stock options. These support systems can be called an "ecosystem." Such an "ecosystem" has no independent preexistence, but rather is developed based on the birth, growth, and success of start-ups in SRTPs. The role of such an "ecosystem" is to support early-stage start-ups.

- Once a start-up becomes mature, it often files for an IPO (Initial Public Offering). Achieving an IPO is one goal of an SRTP seeking to form an established company. It is also a chance for investors and service providers to receive returns.

The abovementioned factors are critical for SRTPs that expect to establish sustainable management. Start-ups are weak in terms of management, and the role of the "ecosystem" is to support the growth of such start-ups. Since start-ups often have difficulty paying for business operations and various consultation services, angels and venture capitalists invest in these companies. The investors receive sufficient returns if a start-up conducts an IPO. Silicon Valley in California, U.S.A. provides examples of successful STRPs that have followed this pattern.

Today, however, various changes in the environment surrounding SRTPs are underway. Such changes pose new challenges for SRTPs seeking to preserve their roles and missions. The next chapter examines such environmental changes in Japan.

# 3. Analysis of start-ups in Japan

1) Establishment of start-ups

Figure 2 shows the trend of business establishment and closure in Japan.

The rate of business establishment is calculated by the following:

The rate of business establishment (%)

= newly registered companies / the number of companies last year

The rate of businesses closure is calculated by the following:

The rate of businesses closure (%)

= (the number of companies last year + newly registered companies - the number of companies this year) / the number of companies last year



Source: 201 White Paper on Small and Medium Enterprises in Japan Figure 2 Rate of business establishment and closure

Figure 2 shows a declining trend for business establishment over five decades, and almost equal rates of business establishment and closure over the past decade.

Figure 3 shows a comparison of the rates of business establishment in Japan and in the U.S.A. It shows that the rate of new business establishment in Japan is almost one third of that in the U.S.A.

Figure 4 shows the total number of new start-ups emerging from universities, while Figure 5 shows numbers of such new start-ups per year.



Source: 201 White Paper on Small and Medium Enterprises in Japan



Figure 3 Rates of business establishment in Japan and the U.S.A.

Source: 201 White Paper on Small and Medium Enterprises in Japan Figure 4 Total number of start-ups emerging from universities in Japan

Figures 4 and 5 show that the number of start-ups emerging from universities increased drastically between 1997 and 2004, followed by a sudden decrease. This means that SRTPs cannot "wait for and welcome" start-ups in Japan, but rather must "make every effort to establish and find" start-ups today.



Modified from Figure 4.



#### 2) Funding

Figure 6 shows how entrepreneurs acquire funding for start-ups.





Figure 6 shows that there are two types of sources of funds for start-ups—those that require payment of investment returns, and those that do not. All forms of borrowing correspond to the latter.

One of the reasons why the relative number of new start-ups is not so high in Japan can be find in the fact that companies needing to borrow money account for a very high percentage of all start-ups . Since borrowing is enabled with collateral, it is often the case that entrepreneurs are requested to offer security for borrowed funds by providing their own assets, such as houses, land, and bank savings. The credit of business is evaluated based on the physical assets of entrepreneurs, rather than the potential of the business. This means that the entrepreneur may lose all of his or her assets if the business fails. This is the big difference from the case in the U.S.A., for example. It would not be an exaggeration to say that the U.S.A. is a "fail-free" in new business start-ups while Japan is a "fail-end". Here, "fail-free" means that there is another chance for an entrepreneur even if he or she fails once, while "fail-end" means that no failure allowed in new business start-ups.

When we look at the amount of funds raised, however, it comes to around five million yen. This means that if we could implement new measures to provide this amount money to entrepreneurs, there might be chance to change the situation of new start-ups.

Next, the situation of investment provided by venture capitalists in Japan is examined. Figure 7 shows the number of venture capital fund raised. We observe that the figures have been declining over the past five years.



Source: Venture Enterprise Center, Japan Figure 7 Number of raised venture capital funds

For a different perspective, Figure 8 shows annual investment in the U.S.A., Europe, and Japan. Figure 8 shows that the total amount invested in Japan is low, and the figures are decreasing. One of reason for the low levels of investment is the IPO situation in Japan.



Source: Venture Enterprise Center, Japan Edited from NVCA yearbook (U.S.A.) and FVCA yearbook (Europe) Japan: fiscal year; U.S.A. and Europe: calendar year Figure 8 Annual investments in the U.S.A., Europe, and Japan

# 3) IPOs

Figure 9 shows the numbers of IPOs per year in Japan. The figures decreased after 2007, but a recovery trend seems to have started in 2009. However, the numbers are still low, at approximately one fifth of the levels for the past two decades. Not only are these figures decreasing, but the total amount of money procured by IPOs is also decreasing. Initial PER (price earning ratio) is also low (around 12%).

Figure 10 shows a comparison with the U.S.A. After the 2008 financial crisis, the number of IPOs declined in the U.S.A. Recovery in the U.S.A. is, however, strong. Within two years, the number had returned to the level it had been at before the financial crisis, while Japan still suffers from low levels. The number of IPOs in the U.S.A. during the past two years is almost eight times larger than the figure for Japan. When we look at the scale of economy by GDP, the GDP of the U.S.A. is two times larger than that of Japan. Although GDP is not an appropriate measure for the number of IPOs in a nation, we can expect more IPOs in Japan.

Fewer IPOs than the U.S.A. means that "exit" conditions for investments in Japan may be insufficient. Here, the term "exit" refers to the point at which investors receive returns. Further discussion is required regarding the development of new "ecosystems" in Japan that can cope with such low IPO figures.



Figure 9 Number of IPOs



Figure 10 Number of IPOs in the U.S.A. and Japan

# 4) The oversea market

Turning to overseas markets as opportunities for start-up growth, Figure 11 shows GDP trends in the U.S.A., China, India, the ASEAN nations, and Japan. The trend in Japan has been almost flat since the mid-1990s, while the U.S.A., China, India, and the ASEAN nations are showing strong growth. This graph implies that the market in Japan is saturated, generally speaking; thus, the importance of overseas markets for start-ups is growing.



Figure 11 GDP growth

This chapter observed situations of new business establishment, fund raising, IPOs, and oversea markets. The results of these observations are summarized as follows.

a. Activity of new business establishment is declining.

b. Fundraising depends on borrowings of around 5 million yen, which represents a risk for entrepreneurs. This means that entrepreneurs take more risks with money than lenders.

- c. Investments by venture capitalists are declining.
- d. The number of IPOs per year has been low over the past few years.
- e. The overseas economy is expanding while the domestic market remains saturated.

These factors relate to one another. For example, the factor described in "a" leads to a decreasing number of targets for investment. Less investment leads to fewer IPOs. This kind of vicious cycle should be broken. If there are many new business start-ups each year, then SRTPs can welcome some of them and put effort into making them grow. If there are not so many new business start-ups each year, however, SRTPs cannot just wait for and welcome them, but instead must put much effort into their discovery. In addition, SRTP efforts at growth should take changes in the business environment into account, as described in this chapter.

The following chapter describes how KRP copes with changes by describing our efforts to discover new business start-ups and facilitate their growth. The chapter also examines some of the lessons that KRP has learned from its experience in this area.

# 4. Developing a platform for high-tech start-ups

This chapter examines some of the systems that KRP is developing. Those systems are divided into two categories and four activities:

- a. A system to support creation of start-ups
  - -Business plan contest
  - -Industry-academia-government liaison activity
- b. A system to support growth of start-ups
  - -Seed funding
  - -Providing a gateway to foreign markets

The following sections describe the purpose of each activity, followed by information on activity at KRP and lessons learned. Detailed explanations will be provided for the first two activities because they have already generated valuable experience. This paper only offers brief descriptions of the second two activities because we are still in the middle of system development.

# (1) Activity 1: Business plan contest

KRP hosted the "Technology and Business Plan Contest in Kyoto" last December. One of the characteristics of this contest is its focus on "technology." As a business plan contest conducted by a research park, we expect applications for new business (product and service) development utilizing advanced technology. This contest was conducted with the cooperation of SARR LLC, one of the tenants of KRP.

# <Purpose>

The purpose of hosting business plan contest is to support entrepreneurs seeking to start new businesses, and to provide an opportunity for entrepreneurs to become famous.

# <Activity at KRP>

If there are new start-ups appeared in rapid succession, there would be no need for special arrangements. As we saw at the previous chapter, however, activity for new business start-ups remains muted in Japan. Considering this situation, we implemented a contest with the following characteristics.

# a. Collaboration for announcement (July 2011)

Contest announcements are circulated not only by KRP's network, but also by regional universities (liaison offices), business incubation networks (incubation managers), local governments, and institutions that provide industrial support.

We emphasized cooperation among these bodies, even if some of them had their own business plan contests. This was partly because we found that the role of contests could be differentiated (our contest focused on new technology-oriented business while others focused on regional resources or other issues), and partly because collaboration across organizational borders is essential given the situation facing new business start-ups in Japan today.

#### b. Hosting an opening event (August 2011)

Application forms were made available on our web site starting in July 2011. The opening event was held in early August. The purpose of the event was to publicize the contest and to give guidance to contest applicants.

Considering that this business plan contest focused on new technology, we assumed that some (or many) applicants would be technology-oriented persons who are not familiar with business plan development. We hosted an opening event to support those applicants, and the way to fill in the application form was discussed in detail with the use of examples.

### c. Advising on plan update (October, 2011)

We assumed that the guidance described in b. would not be sufficient for remove anxiety or easing the difficulty of filling the form for applicants. Therefore, we decided to provide advice on submitted business plans to meet the needs of applicants seeking to brush up their business plans. This advice was provided based on applicant requests. The result was that many applicants wanted to get advice. This advice was not on "how to pass the contest," but rather on "how to make the plan attractive for investors." This is because that the latter factor is much more important than most applicants realize. Such advice would be valuable even for applicants that failed to win the contest.

#### d. Coaching on interviewing (November, 2011)

The next step for plans that passed the evaluation based on the submitted form was the applicant interview before the selection of the contest finalists. There were several purposes to the interview.

The first was to evaluate the applicant as a person. The character of an entrepreneur is important, especially when it comes to start-ups. A simple review of the form provides little information on the applicant as a person, and therefore direct communication is important.

The second purpose was to give applicants the opportunity to make presentations in a very limited amount of time (five minutes). This was intended to enhance applicant capability to express the core essence of a business plan. The so-called "elevator pitch" is famous in the world of venture investment, requiring an entrepreneur to rapidly describe the core essence of the business plan in clear and concise words. If those words reach the hearts of investors, the entrepreneur will be able to achieve investment; otherwise, the entrepreneur may receive nothing. We intended to provide a similar lesson for applicants.

The third purpose was to provide feedback for applicants on their fulfillment of the first and second purposes above. This was a kind of coaching for start-up candidates.

#### e. Following up (Since Jan 2012)

The final event of the contest was held in early December 2011. Evaluators selected several award winners

at the final event. This was not, however, the end of our process.

To follow up on the plans that received awards, we provide occasions for entrepreneurs to receive concrete and detailed comments and advice on their plans. Several people are invited to follow-up meetings for discussion. Some are experts on the relevant technology, while others are authorities on management.

These meetings allow for longer presentations than the contest did. The speaker is able to take an hour for his or her presentation, while the contest allows only nine minutes. This is because the purpose of a follow-up meeting is to validate the reality or potential of a business plan from various viewpoints.

Questions are posed on how to realize the plan. Some example of such questions are: "How much money do you need right now, and why?" and "How far can you go with the money?" We should say that these are common questions for start-ups. The speakers are, however, often embarrassed about the answers. This shows the need for entrepreneurship seminars and training before starting a company. The follow-up meetings can be viewed as virtual meetings for fundraising, and they are still ongoing.

#### <Lessons learned>

The final stage of the contest is similar to that of other contests. Selected finalists make presentations, and evaluators pose questions to them. We have heard that presentations by finalists have been highly evaluated, and we believe that the advising and coaching provided for the plans contributed to these positive evaluations.

Below is an examination of lessons learned from the contest and related activity.

#### a. Necessity of support for entrepreneurs

We sent out a questionnaire for contest participants, and the results showed that advising and coaching were effective and highly evaluated. This suggests that in general, entrepreneurs require more information to develop their business plans.

In Kyoto, a number of seminars are held to support entrepreneurs. There may be a need for domain-specific support for entrepreneurs, especially in cases in which the new business is technology oriented. For example, there are learning opportunities for those who want to start up new business in services. However, there seem to be fewer occasions for those who want to start new businesses using advanced technology. One reason could be the need to cover more ground in entrepreneurial seminars, such as intellectual property. Such knowledge is closely related to the technology in question. It is, therefore, not so easy to provide such opportunities for high-tech start-ups. This could be a chance for SRTPs to support resident companies.

#### b. Contest as an occasion for communications

We invited people from universities (liaison offices), incubation facilities (incubation managers), local government, local industrial support institutions, venture capitalists, and financing firms along with general public to participate as audience members during the final event of the contest.

After the contest, we held an informal meeting of such audience members and the finalists. The meeting was not just for chatting, but to review the contest in general, to review finalist plans, and to discuss the prospect of supporting new start-ups. This showed that a contest can work as a "platform." Here, the word "platform" means a communication locus at which many professionals with different backgrounds get together and discuss new value creation. One of the merits of using a contest as such a platform is that concrete business ideas (i.e. finalists' business plan) provide effective stimulus to discussion. Such discussion covers cooperative announcement of the contest (how each institution collaborates in the announcement of a contest) and application for the contest (how each institution can support applications using its conventional services).

As we observed in the previous chapter, the situation of start-ups in Japan is different from that abroad, such as in the U.S.A., for example. We believe that it is essential in Japan that all relevant institutions (universities, incubation facilities, local governments, financing institutions, and the like) should cooperate with each other using their own functions.

#### c. Contest as a gateway to foreign markets

This contest allows multiple applications, meaning that applicants of this contest can be award winners of other contests.

We believe that this condition is important in designing a contest because the purpose of such contests is to discover potential new business plans and to support their realization. No contest should close its doors to award winners from other contests. Good plans should be rewarded anywhere, and this should be a simple rule for designing a contest. This is because enhancing visibility is important for start-ups, which are seeking opportunities to make themselves famous. Contests can contribute to this goal. Winning an award in a contest in Japan will provide entrepreneurs with a good chance at publicity, but this does not seem to lead to the acquisition of large amounts of capital. If an applicant is able to apply for a contest in the U.S.A., and if the applicant is receives an award there, he or she will have a better chance of receiving funds than would be possible in Japan.

A contest should facilitate the establishment of new start-ups. If several contests cooperate with each other to welcome good business plans, they will be able to work as another platform for start-ups.

# (2) Activity 2: Industry-academia-government liaison

<Purpose>

The purpose of industry-academia-government liaisons is to invite professionals in specific areas from industry, academia, and government to discuss new business ideas and to evaluate the potential of new businesses and industrial initiatives.

While business plan contests ("Activity 1") focus on concrete new business ideas or early stages of new businesses, liaison activity starts from the creation of new business ideas.

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### <Activity at KRP >

KRP's liaison activities cover regenerative medicine, ICT (information communication technology), design applications, electronics, and energy. This section describes our recent activities in ICT and design applications.

#### a. ICT: ICT science café

Kyoto University is one of the most distinguished universities in Japan and the world. Much advanced research on ICT is underway at this institution. It has been noted that there should be more occasions for regional SMEs (small and medium-sized enterprises) and start-ups to use or collaborate on research.

The university has strong relationships with established companies, but does not seem to have strong ties with SMEs.

The "ICT science café" tries to enrich the relationships between the university and start-ups and SMEs. The operation is described below.

-Speakers: University researchers (professors)

-Participants: Management and technology persons involved with start-ups and SMEs.

-Facilitation: University professionals serve as facilitators. The role is to explain or ask the meaning of technical terms and presentation contents. Professors are good at technical presentations, but not familiar with presentations towards non-experts. Business chances, however, often arise not from a given technology per se, but rather from its applications. Therefore, conveying messages to non-experts are important. Presenters should make every effort to make their presentations easy to understand. Facilitators support or compensate for the communication gap between speakers and participants.

-Alcohol: Even if facilitators try to ease communication between researchers and participants, it is not so easy for audiences to ask questions. This may be one of the characteristics of Japanese culture. To ease the situation, we decided to serve alcohol during the presentation. Alcohol sometimes helps people to break such a barrier.

-Networking: The third factor for enhancing communication is to have a networking session after the "café." Serving alcohol during the presentation helps the working session to be more active in terms of communication.

We held six "ICT science cafés" until January 2012, and found that several discussions were initiated between the university and participants about collaborative work.

#### b. Design applications

We use the word "design" to mean not only illustrations, but the development of new products.

Kyoto is an ancient capital of Japan, and has a history of over1200 years. There are many traditional forms of craftwork that are still practiced in Kyoto. The survival of these traditional crafts means that they have proven themselves throughout their long histories, and there are still markets (and customers) for them. The market is, unfortunately, not expanding. This means that there is a gap between established

technologies/techniques and markets.

A "design workshop on traditional crafts" was held to bridge the gap. KRP invited a distinguished product designer as facilitator for the workshop. The role of facilitator was to help fill in the gap described above. Several traditional business firms spent almost one year to develop new products using traditional technologies or techniques. Some of the examples include using exotic non-Japanese wood for new furniture, and using tie-dyed fabric for modern clothes. The resulting products were displayed at an exhibition last September. Some participants planned to exhibit the results at international exhibitions, with the hope of breaking into new markets abroad.

#### <Lessons learned>

We found that the role of facilitator is a critical factor. New business opportunities often exist where there are gaps. For examples, there was a gap between university professionals and non-experts in the "ICT science café" and between traditional technologies/techniques and the market in terms of design applications. The former means a communication gap (less communication) between them, and the latter means a gap between traditional goods and conventional or modern market. University professionals often focus their activity on researchers, and traditional craftsman often focus on traditional customers. If they look at different societies or other parts of the world, there will be great chance to create new value. It is not easy, however, for them to do so. Facilitators help in these situations. The role of facilitators is to translate the words and concepts of one society into the words and concepts of another society.

In the traditional "ecosystem," the role of management consultants, accountants, lawyers, venture capitalists, and mentors is considered to be important. Today we have to factor the "facilitator" into the "ecosystem."

This concludes the explanation of first two activities described at the beginning of this chapter. The following explanations relate to the second two activities. As is noted, the author provides brief descriptions of these activities because KRP is still in the middle of system development.

#### (3) Activity 3: Seed funding

#### <Purpose>

The purpose of seed funding is to provide small amounts of money (like a few dozens of thousands US dollars) for start-ups. As we saw in Figure 6, entrepreneurs in Japan experience burdens when borrowing money. Seed funding may also present a burden, but the amounts involved are not so large. We see this as an opportunity to develop new funding system.

#### <Activity at KRP >

KRP is still holding discussions about seed funding. During the discussions, we have thus far discovered the following two issues to be overcome as lessons learned.

<Lessons learned>

We found that there are two issues we must overcome.

The first issue is how to gather the candidates for investment targets. Seed funding is investment in start-ups at the very early stages, and therefore investors should assume that the probability of success of such start-ups is lower than that of investment targets for venture capital. How to get returns by the investment is important for those who put money into a seed funding. Considering the probable outcomes, many candidates are needed. It is not so easy to find such candidates, but we believe that business plan contests and liaison activities can contribute in this regard. The provision of new funds should be accompanied by several measures to facilitate the foundation of a new start-up.

The second issue is how to find follow-up investors. Seed funding raises only small levels of money for start-ups, meaning that another party is needed to provide additional funding. One concern is that there might be a gap between seed funding and conventional venture capital. We observed several examples in which seed funding was established in Japan and the U.S.A., and we hope to learn how such funding can be linked with conventional funding or other sources of money.

#### (4) Activity 4: Providing gateway to foreign markets

#### <Purpose>

Figure 11 showed the GDP growth in Asia and the U.S.A. It shows that foreign markets are growing while the Japanese market is saturated. High-tech start-ups have potential to grow internationally. Therefore, providing a gateway function for foreign markets is important issue for SRTPs.

<Activity at KRP >

The development of global business is an important issue as a startup matures. SRTPs can play important roles in this regard. A startup often tries to find a partner abroad by itself, but this is not an easy task. This is partly because the startup may be unfamiliar with the foreign market, and partly because its resources are limited. SRTPs can help in this situation because SRTPs are involved with various opportunities—sometimes bilaterally, and sometimes multilaterally. KRP conducted four international business matching, three bilaterally, and one multilaterally between 2008 and 2011.

#### <Lessons learned>

Some issues we learned from our matching experiences are summarized below.

- Preliminary communications among organizers (i.e. SRTPs) and participants are important.

- Communication among participants is not easy, because of technology and language barriers. It is not easy for people in SRTPs to discuss technical issues. Language barriers also pose communication problems.

- A solution will enhance the communication between organizers. Developing a tool among SRTPs (for example, a technology database) will ease the situation. This requires SRTPs to cooperate and

communicate with each other to share information on resident companies. For this kind of communication, additional forms of facilitation beyond liaison activity are necessary.

# 5. Conclusions

This paper described "ecosystems" that facilitate the generation of start-ups. First, this paper investigated the business environment facing start-ups in Japan, which resulted in five observations. These observations highlight the need for measures to facilitate new start-ups. Then, this paper explained some of KRP's activities to facilitate new start-ups and their growth. The relationships among the five observations and KRP activities can be summarized as below.

Observation	Activity
The establishment of new businesses is	Business plan contest
declining.	Liaison activity
Entrepreneurs take risks with money in	Seed funding
starting up businesses.	
Investments by venture capitalists are	Seed funding
declining	
The number of IPOs per year has been low	(We expect that IPO situation may improve if
over the past few years.	there is good progress with the activities
	discussed herein.)
Overseas markets are expanding while the	Providing gateway to overseas markets
domestic market remains saturated.	

One important note is that these activities should work together as a system. Such a system will form a platform for high-tech start-ups, which will result in an expansion of the "ecosystem." This paper described the need for such expansion based on an analysis of the business environment in Japan. The author believes that there is a chance for international cooperation in this area. Increasing new start-ups will contribute to the activities and operation of STRPs, and is therefore worth discussion by an international body such as IASP.