

Article

International Group Innovation: Attempts to Apply Dynamic OLI Cycle to Open Innovation

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Abstract

In Japan, in the past two decades, industry-government-academia collaboration has expanded, with analysis of group innovation among SMEs (small and medium-sized enterprises) often including introduction of the concept of “*Open Innovation*” even though the mechanism of international innovation has yet to be fully explained. Because it is necessary to advance knowledge creation, both within the smaller organizations as well as the large enterprises, it is of great importance to understand more fully the mechanism of knowledge creation, not only between individual organizations but also among multiple organizations. Therefore, this paper attempts to clarify a mechanism that can explain innovation among international businesses by usage of both current theories and empirical researches.

In domestic group innovation, Takagaki (2017) focused on the factors of “*funding*” and “*trust*” in addition to “*place*” and “*leadership*,” and clarified that these four factors are significant in case analysis and questionnaire survey. As explained in this paper, through the use of these four factors, it is possible to expand the scope of group innovation to international business.

Used here, as a framework for analysis of international business, is a modified version of an established model. “*Dynamic OLI Cycle*,” (Takagaki, 2019a), is based on the “*OLI Paradigm*” (Dunning: 1979), which is often used in empirical research of multinational companies. The use of the “*Dynamic OLI Cycle*” enables analysis of innovation in various types of foreign operation, not limited to the manufacturing industry.

In the first part of this paper, by referring to current international trends, we will explain the necessity for introducing a modified version of “*OLI Paradigm*”, and then “*Dynamic OLI Cycle*.”

In the second part of this paper, we grasp the current situation in industrial clusters in Japan and introduce an analytic framework of domestic group innovation based on Takagaki (2017). Based on our previous investigation of innovation among SMEs in the Tokyo metropolitan area, we expect similar patterns to have occurred in international business.

In the third part of this paper, by combining the above two models, we clarify a research method of the international innovation model and propose possible hypotheses.

The fourth part of this paper will be postponed to the following issue. Originally, we had planned one-year questionnaires and interview surveys both for multinational companies in Japan and for other companies engaged in joint-innovation activities overseas. However, because of the shortage of research budget and the unanticipated impact of the COVID-19 pandemic, the original research schedule has been delayed. Nonetheless, relevant research will continue later this year by the personal expense of the author.

1. Modified Version of OLI Paradigm

1.1. Choices of International Business Expansion

Corporate growth often means international expansion. Companies choose from several options to find the best way to enter foreign markets or build a base in another country. These options include exports, foreign direct investment (FDI), licensing and franchise agreements, etc. In FDI, there are joint ventures, a wholly owned subsidiary, and the acquisition of existing companies and the establishment of new ones from the vacant lot from the viewpoint of shareholding and management control to subsidiaries. Here are some options for how to enter the country. According to Root (1984), it depends on “the degree of ownership and control” and “the degree of investment and risk”.

Most international business research has been focused on the manufacturing industry. This is because the manufacturing industry was the leading role in international business. However, industries other than manufacturing, such as retail and restaurants, are also increasing.

Japanese FDI's participation in foreign business was largely a joint venture rather than a wholly owned subsidiary, and development from green-field rather than acquisitions was the mainstream, and the acquisition was slightly due to the few knowledge of acquisition.

Recently, as a method of expanding into foreign countries, companies using M&A have also come out (Takagaki, 2019b). In addition, as a company that does business internationally since the early days of its founding, "Born Global Company", which is not based in a specific country, has emerged.

1. 2. Dynamic OLI Cycles as an Analytical Method

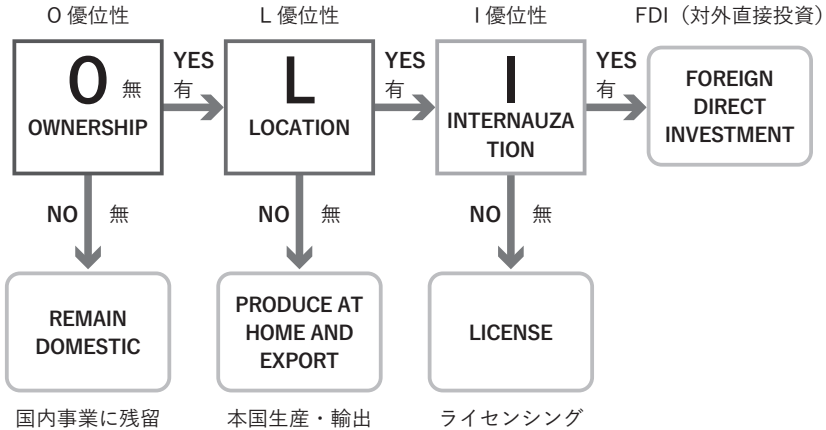
1. 2. 1 Verifying the OLI Paradigm

Dunning's "*OLI Paradigm*" is an analytical framework for companies operating outside of home country. The OLI paradigm consists of three elements: (1) possessive special elements (O: Ownership advantage), (2) location-specific elements (L: Location specific advantage), and (3) internalization elements (I: Internalization). The special element of ownership is that a company can have an advantage over local competitors by possessing "*intangible assets*" such as technology, knowledge, know-how, and product differentiation capabilities. In addition, if it is more efficient to use such intangible assets in home country, the strategy of export is selected. However, if foreign use is more advantageous, it is carried out to hold a subsidiary through FDI (foreign direct investment). It is explained that foreign countries are more advantageous than domestic. If this intangible asset is not available through the market, the company shall own its own subsidiary in a foreign country. Figure 1 shows how to enter international business and the "*OLI Paradigm*".

The main purpose of foreign direct investment (FDI) is to manage and control subsidiaries. "Foreign indirect investment" is securities investment

DOES THE COMPANY HAVE AN ... ADVANTAGE?

優位性は有るのか？



Source: Author's modification based on Root (1982)

Figure 1 How to Enter International Business and OLI Paradigm

or portfolio investment, which refers to the transfer of funds to a foreign country for the purchase of foreign shareholdings. Therefore, whether a wholly owned subsidiary or a joint venture subsidiary with a partner is the first and greatest decision in making a foreign direct investment, and it will affect the end as long as the subsidiary operates. Human resources (human resources), goods (equipment, etc.), money (funds), technology, trademarks, management know-how, etc. are understood as management resources, and foreign direct investment is regarded as a collective international transfer of management resources. The original purpose of FDI is to put management resources transferred to foreign countries under the control of the parent company of the home country and to develop management activities using those management resources.

In international economics, research attention is concentrated on the process of international transfer of management resources. However, we do not pay much attention to the aspects of the control and use of internationally relocated management resources. When analyzing MNEs (multinational en-

terprises) in a management aspect, it should be not only the international transfer of management resources, but also the control and use of internationally relocated management resources, that is, the management of foreign subsidiaries. A foreign subsidiary is not only transferred from the parent company of the home country, but also the management system is transferred from the parent company of the home country. Production management, personnel/labor management, and even management philosophy will be transferred to subsidiaries. In addition, a management system, including internal promotion systems, job stability measures, and personnel policies, will be shared between the parent company and the subsidiary. On the other hand, there is also a transfer of management resources in the opposite direction from a foreign subsidiary to the parent company of the country, and the horizontal transfer between foreign subsidiaries, which is expected to attract further attention.

1.2.2 Concept of Dynamic OLI Cycle

The “*Dynamic OLI Cycle*” is a modified version of “*OLI Paradigm*”, mainly as shown in Table 1 (Takagaki, 2018). The reason for the modification is to enable dynamic analysis whereas the OLI Paradigm is static analysis. In particular, in Table 1, (1) and (4) are mainly for Born Global and M&A, with options that are not FDI (foreign direct investment), such as franchising, which is common in restaurants and convenience stores.

1.2.3 Analysis by Dynamic OLI Cycle

As a model for analyzing foreign direct investment (FDI), “OLI Paradigm” by Dunning(1979) is often used as the international business theory.

Recent trends include (1) the food service business, (2) retailing business, and (3) Born Global Company (BGC), (4) M&A, etc. Based on this, we proposed a model of the development type called “*Dynamic OLI Cycle*” so that we can analyze the four recent trends (Takagaki, 2019a).

International business research has focused mainly on the manufacturing

Table 1 Concepts Dynamic OLI Cycle

<p>(1) <u>Ownership Advantage</u> may not necessarily be your own.</p> <p>(2) <u>Internalization Advantage</u> is considered to define not only FDI but also entry mode.</p> <p>(3) <u>Location Advantage</u> is considered in combination with the superiority of ownership.</p> <p>(4) Add the concept of resource-based perspective (RBV) and <u>dynamic capability to Ownership Advantage</u>.</p> <p>(5) The consideration of “O to I to L” may be started from anywhere in the three elements, it is sufficient to consider the three elements.</p> <p>(6) The consideration of “O to I to L” will not only be considered when entering the market, but will continue to be subject to review it after entering the market. “O to I to L” may be referred to as a <u>cycle</u>.</p> <p>(7) The consideration of “O to I to L” is considered organically with other regions, not just the countries in which the country is eligible for the expansion.</p>
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Source: Takagaki (2019a)

industry, with a focus on FDI (foreign direct investment) by MNEs (Multi-national Enterprises). In the manufacturing industry, the globalization of production is progressing, and more and more, companies are becoming a part of the value chain in foreign countries (Takagaki; 2013, 2018). When the need to explain a new trend arises, it is likely to become a case-by-case model, however, the “*Dynamic OLI cycle*” as a general analytical model may explain it because it integrates based on the existing theories.

In Japanese manufacturing companies, there are many combinations of trade and foreign direct investment (FDI). Since there are few cases of licensing and franchising, it is thought that the company has chosen a method of foreign direct investment (FDI) by its subsidiaries, considering the superiority of internalization. We explored the possibility of analyzing recent trends (retail, food service industry, etc.) using the “*Dynamic OLI Cycle*” (Takagaki, 2019a).

In recent years, companies that operate restaurant chains in Japan have been making foreign direct investment (FDI) by improving their ownership advantage. It should be noted that the alternative sparing foreign direct investment (FDI) is combination with licensing and franchising. Foreign direct investment (FDI) is carried out when these are difficult. In the case of the

restaurant industry, there are cases of store expansion by combining franchise with subsidiaries. This is because franchises can expand a large number of stores in a short period of time. The superiority of the aforementioned ownership has been established, and appropriate franchisees are found in the field, and it is considered that franchising is superior to the superiority of internalization.

2. Group Innovation

2.1. Situation of SMEs in Japan

Although the amount of R&D (research and development) investment in large enterprises is high, the derived innovation generally fails to produce effective results (profitability). On the other hand, some SMEs, depending on their firm size, are keen about innovation activities. It is important to recognize that within Japan, the presence of SMEs is substantial (about 99.7%) and those SMEs are responsible for creating 70% of jobs.

However, SMEs are limited in their management resources, such as human resources, material resources (production and sales), financial resources, knowledge and information. This limitation has been described in a governmental white paper on SMEs (2015) as being the “*scale wall for SMEs*” because the firm size is comparatively small. Nonetheless, that smaller size also provides advantages enabling proprietors to excel at enterprise creation, entrepreneurship, and the culture and speed of decision-making.

Though innovation has been recognized as a significant feature evident among the leading Japanese corporations, innovation itself has not always been accompanied by success. Despite their desire to maintain continuous control of the market, major companies are vulnerable to losing their dominant position to those competitors who can successfully introduce a source of threat, such as a totally new impression, as was anticipated by Christensen (1997).

In this manner, SMEs that become innovators can provide significant competition for market leadership and its rewards. Inasmuch as SMEs are small

organizations, they typically have comparatively limited resources and capabilities. Nonetheless, by co-operating among themselves, along with successfully sharing their resources and capabilities, they greatly increase their potential, both to create new products and to develop a new market.

In support of this possibility, and as part of an effort to stimulate the domestic economy (an undertaking that began more than a decade ago), the Japanese government has taken steps to promote the development of active SMEs by introducing nationwide its Cluster Projects. The aim of such projects has been to stimulate innovation among active SMEs.

2.2. Open or Closed Innovation

Here, the discussion puts focus on solely or jointly established team formation of R&D project activities, and so on.

For SMEs to undertake R&D independently rather than jointly with others suggests that they anticipate independent development to be more profitable than what might be possible in association (in a jointly developed system). However, if suitable partners cannot be found, or if management resources are insufficient for undertaking independent development, the result is likely to be the abandonment of R&D.

By contrast, if SMEs undertake R&D jointly rather than solely, that means that they have realized, or have come to anticipate, the advantages obtainable through utilization of their own management resources combined with, or enhanced by, those of others. The validity of such judgment is supported by the acquisition of competitive predominance through the creation of new knowledge.

The expression “*open innovation*” (Chesbrough, 2003) is applicable as a description of a procedure applicable to team or partner selection. The concept of open innovation essentially implies the exchange of information with everybody and everywhere. However, as Chesbrough illustrates in his book, some industries are more suitable for open innovation than others, and conditions are usually applicable in the successful adoption of open innovation. If

team members are to be selected openly, candidates for team membership interact with others to determine relevant and applicable criteria until suitable members for a project of joint development can be found. Until that point team-establishment, the dissemination of information is relatively open. However, once established, the group obtains both stability and effective channels of communication through the closure and containment of team members. This condition or stage can be identified as “*limited open innovation*”.

In the case of joint development, “*boundary of the firm*” exists in the R&D team. Among participating member enterprises, there may be concern about the risk of leakage of their management resources; however, without providing the other, cooperating members adequate access to one’s own knowledge, the desired creation of new knowledge becomes limited and restricted. Contracts, such as for maintaining confidentiality, are surely necessary in such cases, but reliance on “*trust*” serves to reduce the “*transaction cost*”. The availability of sufficient investment funds for starting and maintaining joint development is also necessary.

Gassman and Enkel (2004, p. 6) introduced three types of innovation process. Firstly, external knowledge comes into firm’s organization across boundary of firm, and innovation occurs inside of firm. Secondly, the innovation is transforming to partners organization. Thirdly, the knowledge from outside is come to internal knowledge, and new development is performed, and fruit of innovation is transformed to the partner. Open innovation is this third category of innovation.

Once a joint-development project is initiated, there develops a “*spiral of knowledge creation*,” as Nonaka and Takeuchi. (1995) suggest (the SECI model). When this occurs, the effect is similar to the path of successful knowledge creation within one enterprise. However, joint development tends to result in the establishment of a project entailing a period-limitation, often one of about 3 years. If the R&D project is within a single enterprise, the initiation and the termination of the project are both determined by the pro-

prietor. In addition, however, there are often difficulties concerning financial resources for SMEs, especially so in the case of joint development. If the R&D project exhibits or develops some difficulty, one or more of the cooperating proprietors may decide to withdraw from or terminate the project. This may, however, appear also in other membership enterprises. The Spiral of the SECI model functions best when applied to short-term projects.

When a project team is formed, the establishment of “*ba*: place” and “leadership” is necessary, as Nonaka and Konno (1998) have suggested. “Place” is the location for implementation, such as for an experiment of R&D, an experimental production, measurement and evaluation, implementation, and meetings, etc. A suitable location should be provided in an area and a place both appropriate and convenient for maintaining the objectives of the established “group innovation,” and is best situated where participants can communicate readily, frequently, and comfortably “on an equal basis.”

In the case of an R&D project within an independent enterprise, determination of the leader is relatively clear. In the case of joint development, however, it is generally assumed that the members from the participating enterprise will each be in charge of one part of the project. Though the leaders from each participating enterprise may be the proprietors of those enterprises, the root problem is not one of maintaining a perceived “pecking order,” but how to establish and maintain a successful, mutually inspiring, creative, and interdependent relationship with each other which contributes to the successful attainment of the shared goals of their cooperative alliance.

The major problem is to determine who can best serve as a leader for the entire project, enabling maintenance of “trust” as well as a sense of expectation of the project’s subsequent success. Essential to the achievement of a jointly conceived project is the persistent maintenance of the ambience of “trust” among the participants. Trust is indispensable for maintaining a mutually cooperative relationship, and functions as the core or fulcrum about which everything else must be in balance.

2.3. Limited Open Innovation

Here the process of innovation is examined through use of the concept of KM (Knowledge Management), especially as introduced in the SECI model by Nonaka and Takeuchi (1995). Subsequently, Nonaka and Konno (1998) identified the significance of *leadership* and *place* ('*ba*') within that creation/formation process of innovation.

Although many empirical studies concerning innovation have been introduced, most of the discussion and studies have been limited/restricted to considering individual corporate organizations, for which reason co-operative or shared knowledge creation, such as between or among several corporations, has not been as well investigated.

In the case of joint development in technology, "boundary of the firm" exists in the R&D team. Among participating member companies, although there is risk of leakage of management resources among the participants, failure to provide the other member companies with sufficient access to one's own knowledge results in both restraint and restriction in the creation of new knowledge. For productive and effective collaboration, of course, though contracts (such as for maintaining confidentiality) are generally understood as necessary, it is principally reliance on "trust" that serves to reduce the "transaction cost".

Himmelberg and Petersen (1994) analyzed American research-oriented SMEs and obtained similar results. Carpenter and Petersen (2002) investigated research-oriented firms and concluded that there was no evidence of outside funding. Not only has financing been recognized as important, but also political cooperation or assistance from the relevant country or countries is seen as a necessity.

Thus, the four factors ("*place*", "*trust*", "*investment fund* (capital)" and "*leadership*") are surely candidates for a list of significant factors for the success of any joint development premised on open innovation.

Those four influential factors can therefore be formulated as four Hypotheses. If those four Hypotheses can be verified by means of empirical study, it

may be possible to establish a new '*group knowledge creation*' (innovation) model applicable between or among several corporations, a model which can then be subsequently tested and modified.

The main subject and final goal here is to identify those factors which account for the *mechanism of innovation among cooperative enterprises*. From the literature review, which follows in Section 2.4, the four factors ("place", "trust", "investment fund (capital)" and "leadership") are surely to be recognized as candidates for inclusion in a list of success factors for any joint development premised on open innovation. In tentative conclusion is the proposed OPTIL model.

The author's survey (in 2016) undertaken in the Tokyo Metropolitan area, where one of the large-industry clusters in Japan is located, introduced in Takagaki (2017). A questionnaire survey, developed and conducted by the author, provided the basis for qualitative analysis supplemented by interviews with SME top management personnel and local bureaucrats. The results of analysis of both the survey and the interviews indicate that the model proposed here is appropriate. Nevertheless, because the sample size was limited in that exploratory investigation, similar investigation and analysis was considered desirable, particularly for inclusion of large-scale firms and "giant-and-dwarf" pairings, and possibly also encompassing non-Japanese firms.

Supplementary investigation undertaken by the author (2017 through early 2018). Analysis of both the author's questionnaire-surveys and his interviews with large-scale firms, including non-Japanese firms, indicate that the model proposed here is appropriate for '*group knowledge creation (innovation)*'.

After Chesbrough (2003) proposed the concept of "*Open-Innovation*," the Japanese government tried to support joint development projects for the purpose of stimulating economic reform. In particular, joint research projects by SMEs have often been introduced, but without the mechanism of innovation being sufficiently explained.

This paper serves as a sketch of features relevant for successful joint innovation. Though the groundwork is not laid out in detail here, these observations derive not only from extensive investigation of relevant literature but also from years of on-site investigation of Japanese corporations and interviews and discussion and questionnaires given to a range of corporate leaders, as indicated in the references. After considering here the theory and arguments concerning joint innovation, selection will be made of factors that may affect, and affect, successful innovation. Those factors have been ascertained, examined, and verified by means of questionnaire-survey responses and the in-person interviews identified in the references here listed for the present author.

2. 4. Summary of Literature review of 4 factors

Four factors (“*place*”, “*trust*”, “*investment fund*” and “*leadership*”) would be a candidate for the success factors in any joint development premised on open innovation. Concerning those four factors, the relevant previous literature is examined here.

As Nonaka and Konno (1998) and Hayashi (2008) have argued, “*place*” and “*leadership*” are key issues for the success of group innovation. When the boundary-management ability of the organization by the established leader is low, the associated project may not succeed (Ancona D.G. and Caldwell D.F., 1997). Here, boundary management generally concerns such matters as familiarity and acquired skills appropriate to different sections, as well as established job, educational and cultural backgrounds. “These *arguments* are on the project team (or task team) in one enterprise.”

Shamah and Elsawaby (2014) investigated open innovation in the supply chain of the Egyptian automobile industry and concluded “relationship of mutual trust” is influential. Bengtsson et al. (2015) investigated the French software industry and concluded that partners of different kinds (researchers/consultants, clients and competitive persons in other industries) can provide positive effects, but many partners can have a negative effect. Selection

of trust-worthy partners is important.

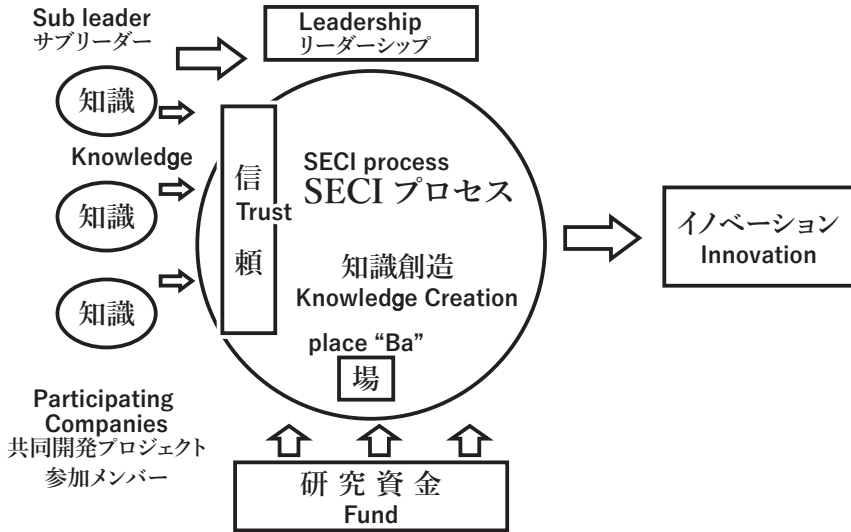
Hall (1992) confirmed that R&D investment in American large enterprises depends on the inner cash flow, and Himmeoberg and Petersen (1994) also analyzed American research-oriented SMEs and found similar results. Carpenter and Petersen (2002) investigated research-oriented firms and concluded that they were not being financed from outside. Therefore, the importance of financing “investment fund” has been recognized. There is also, however, the value or necessity of acquiring and maintaining political help at different levels, locally and regionally within the country.

2.5. The concept of OPTIL

Takagaki (2017) presents the author’s proposal for a new model for ‘group knowledge creation’ (innovation), between or among several corporations, introducing here new modifications to *leadership* and *place* from the SECI model, along with the addition of two influential factors: *trust and investment fund*.

To sum up, four factors (“*place*”, “*trust*”, “*investment fund*” and “*leadership*”) appear to be essential for the success of joint development that begins on premise of “open” innovation. It is hypothesized here that those four factors are not only effective, but essential for the success of group innovation projects. A successful group innovation project involving limited open innovation can therefore be characterized by the acronym OPTIL as shown in Figure 2. It begins by establishing a goal or framework of Open innovation, with open discussion and exchange of ideas and enthusiasm. Next is the necessity of establishing a suitable Place (“Ba”) for interaction and exchange. Also necessary factor is the existence of an Investment fund that enables the concepts, ideas, and dreams to be realized. But without effective and reliable Leadership, the optimistic plans and infectious enthusiasm may amount to little more than figments of imagination. However, the fulcrum of the structure is central, for it is the establishment and cultivation of Trust.

Together, those letters form the acronym OPTIL, a neologism that sug-



Source: author

Figure 2 The concept of OPTIL

gests two similar words, optic and optimum, words which are appropriate in this context because “optic” suggests vision and foresight, and “optimum” suggests a condition of “best fit.” OPTIL therefore neatly characterizes the progress and results of successful group innovation of the kind that has been discussed in this paper.

3. Combination of two models

3.1. Concept of International Innovation

The mechanism for international innovation in small organization is combined with two models as follows.

First, for international business, “*Dynamic OLI Cycle*” (Takagaki, 2019a) is used. In particular, BCG (Born Global Company) will be the main subject of discussion. The company’s size is small, and it demonstrates its international competitive power and is internationalized in a short period of time. Even if it is not internationalized at present, Unicorn companies and active SMEs

are also included in discussion, because they will internationalize sooner or later.

BGC's management resources are mainly based on the personal knowledge and experience of its founder and members. There are many insufficient resources, and they may try to get from others by making full use of personal networks. Key issue is to identify what kind of information is necessary and what management resources are incorporated into the business.

“Dynamic Capability” introduced by Teece (2009, 2014) should be understood as a relocation of management resources within a company, as well as the availability of external management resources. Resource relocation is a major challenge for small international organizations.

Hennart (2009) introduced the concept of CLAs (Complete Local Assets). Emphasize that in the overseas operations of multinational companies, their management resources (FSAs: Firm-specific-advantages) are combined with their own, if not owned. It is called the *Banding Model*. FSAs are knowledge resources in a broad sense that give companies a competitive advantage over ideas, different types of information, and new products, production processes, and management technologies. On the other hand, CLAs refer to information on land, labor force, distribution network, local market, etc. The *Banding Model* is based on the fact that these FSAs and CLAs link MNEs to realize overseas operations. The starting point of this model is close to Dunning's OLI paradigm, which presents a combination of ownership and location advantages. CLAs assume management resources owned by specific local partners. Not only CLA belong to other companies, but it can be said that it is the entrepreneurial spirit of the management to plan and execute these combinations.

Several success factors have been pointed out in Takagaki (2017) regarding innovation, and it is called the “*OPTIL paradigm*” because it is leadership, place, and trust, and is a limited open innovation. This paper targets cooperative relationships among several SMEs in Japan, but it is assumed that the same can be said between international organizations. In innovation between

different companies, there are “*Boundaries of Firm*” within the group. In international group innovation, there are even more “*Boundaries of Nations*”.

From this, among the four success factors, the importance of “*trust*” may increase, so we will take it up further deepen the discussions so far. It has been verified that “*trust*” is a success factor of innovation (joint research projects, etc.), but considering innovation in chronological order, we confirm that “*trust*” is a success factor before, during, and after implementation. In addition, from an organizational level perspective, we confirm that “*trust*” is a success factor among individuals, groups organizations, and member companies within the company. Since it has been confirmed (Takagaki, 2019b) among SMEs in Japan, we will shift our attention to the trust between internationals. Details will be discussed in the next issue.

3. 2. Hypothesis and OPTIL for international business

3. 2. 1 Four Hypothesis of limited open innovation

In the Tokyo metropolitan area, the questionnaire survey was conducted in 2016 for manufacturers (about 270 companies) and government subsidy recipients (about 80 companies under the jurisdiction of the Kanto Bureau of Economy) among TAMA association member companies, and has already been reported (Takagaki, 2017). Interviews are also conducted. And similar survey in international group innovation is now conducting.

Verification of open innovation hypothesis

H1: Place influences innovation success

H2: Trust influences innovation success

H3: Investment funds influence innovation success

H4: Leadership influences innovation success”

3. 2. 2 Trust Hypothesis

The “trust hypothesis” has also been verified from the same questionnaire survey and interview survey in Takagaki (2019b). And similar survey in in-

ternational group innovation is now conducting.

The time series

H1: Before the start of the project, *trust* in partner companies is a success factor

H2: During project execution, *trust* in partner companies is a success factor

H3: After the completion of the project, confidence in partner companies is a success factor.

Organization Level

H4: Trust at the individual level is a success factor

H5: Confidence at the team level is a success factor

H6: Confidence at the organizational level within a company is a success factor

H7: Trust at the organizational level of a joint project is a success factor

4. Empirical Analysis

Empirical analysis of this paper will be postponed to the following issue. Originally, we had planned one-year questionnaires and interview surveys in 2020 both for multinational companies in Japan and for other companies engaged in joint-innovation activities overseas. However, because of the shortage of research budget and the unanticipated impact of the COVID-19 pandemic, the original research schedule has been delayed. Nonetheless, relevant research will continue later this year at the personal expense of the author. Empirical analysis will appear in next issue, entitled as “International Group Innovation : Empirical Analysis”.

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