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Knowledge transfer for sustainable growth: The role of boundary spanning managers

Yoshimi Igawa*

Abstract

This study explores the factors that sustain synergistic knowledge transfer in the supplier consortium. In this study, the supplier consortium is defined as the supplier community where multiple companies share and utilise knowledge based on the Community of Practice theory. Synergistic effects occur when the knowledge formed in the community is transferred to participating companies and changes over time. The study pays particular attention to the horizontal boundary changes in the network brought about by boundary spanning managers and their actions that bring the knowledge formed by the community to their company. It is proposed that the work of boundary-spanning managers has a considerable influence on the sustainable development potential of synergistic effects.

Keywords

Knowledge transfer, supplier community, boundary spanning managers, sustainability, networks

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1. Introduction

This study examines the sustainable impact of boundary spanning managers, who are members of different organisations, on the knowledge transfer in a supplier consortium¹. In the Japanese manufacturing industry, a supplier consortium organised by multiple companies for the same purpose has been analysed in various ways, including KAIZEN activities and the actual state of joint research. However, there is a limited discussion regarding the effect of a consortium on companies when knowledge generated is transferred to each company and in what manner the effect transforms the respective companies over time. Similarly, there are varied group activities consisting of different types of business entities, such as industry-government-academia collaboration activities. For the effective use of limited management resources, information about the factors influencing cross-organisational knowledge transfer will be of great interest to the management for the optimum use of the knowledge generated by the consortium and formed by enterprises with different backgrounds.

Previous studies have emphasised knowledge transfer because knowledge creation and sharing within an organisation differentiates it through innovation and improved management efficiency. This study considers a supplier consortium as a supplier community where knowledge is transferred within a certain framework for a common purpose. Knowledge transfer in the community is done in a closed world, but its important factors are as follows: 1. an informal network of members; 2. Trust; and 3. the characteristics of knowledge. It is believed that highly accurate knowledge transfer is possible if the members of the consortium build close relationships and trust over a long period of time. However, the implicit premise is that the industry environment (external environment) and the effect of knowledge transfer by the consortium do not change over time.

Based on Wegner (1998)'s, Community of Practice theory, Yokozawa (2018) regards a group of multiple companies that share and utilise knowledge with the same purpose and awareness of problems as a "corporate community". This study uses the discussion of this corporate community to raise the view of the "supplier community", which is a group of companies that exist for the purpose of collaborating, sharing, and utilising knowledge among outsourced companies, including a head company. Knowledge transfer in a supplier community (formed by different enterprises) is considered to be more complicated than in a single enterprise because

¹ In this paper, the supplier consortium is defined as the outsourced company cooperation association. The outsourced company cooperation association is an organisation in which the ordering company organises major outsourced companies for the improvement of productivity, technology, quality and management. Generally, it is established aiming at 1) offering information and guidance on technology, production plans, quality management, and overall management advice from the ordering company. 2) developing voluntary organisational capability through interaction with the ordering company and other outsourcers by companies (Wakabayashi, 2006).

they are different corporate entities. Although they have the same purpose as the opportunity to participate in the community (selection of the leading company), the organisational scale and internal customs of each are different. Therefore, there is an ambiguity regarding the extent of the knowledge that should be transferred from the consortium to each company unless the results are checked again. In addition, the supplier consortium, which has been operated by almost the same members for many years, has close relationships, and the competitive advantage once gained by this consortium may continue to be refined and unwavering unless the external environment changes. Nevertheless, the external environment changes because industrial technology, which was once considered to have an absolute competitive advantage, may lose its value due to disruptive innovation. Thus, as the industry environment changes, which is a prerequisite for the supplier consortium, the synergistic effects created by the more homogeneous supplier consortium disappear.

Regarding knowledge transfer among organisations, this study affirms the phenomenon that the knowledge formed by the supplier consortium is transferred to each member company and discusses the possibility that the promotion and stagnation of knowledge transfer will be impacted by boundary spanning managers. Section 2 reviews previous studies, summarises the strategic and social network theories that discuss the difficulties of knowledge transfer, and explains the literature gap.

2. Previous research: Difficulty in transferring knowledge

2.1. Absorptive capacity and boundary spanning managers

Knowledge transfer involves knowledge providers and acquirers. Szulanski(1996) discussed internal stickiness from a strategic standpoint as a factor that prevents knowledge from being transferred from the provider to the acquirer. According to him, there are four factors for stickiness: (1) characteristics of transferred knowledge, (2) characteristics of knowledge providers, (3) characteristics of knowledge acquirers, and (4) characteristics of environment. Each characteristic is summarised in Table 1.

Origins of internal stickiness	
1.Characteristics of the knowledge transferred	<ol style="list-style-type: none"> 1) Practices that contain a lot of knowledge that is difficult to define due to implicit skills or the context in which the knowledge is used make transfer difficult (causal ambiguity). 2) Knowledge that has not been proven to be effective in the past is difficult to sell (unproven knowledge)
2. Characteristics of the source of knowledge	<ol style="list-style-type: none"> 1) Lack of motivation resulting from the loss of the advantage gained by possessing knowledge and the dissatisfaction with the transfer of knowledge but not being rewarded. 2) The provider is perceived by the acquirer as unreliable and lacking in knowledge.
3. Characteristics of the recipient of knowledge	<ol style="list-style-type: none"> 1) Lack of motivation due to NHI syndrome (Katz & Allen, 1982) 2) Lack of absorptive capacity 3) Lack of ability to pursue for achievement without giving up (maintenance ability)
4. Characteristics of the context	<ol style="list-style-type: none"> 1) A barren organizational environment that hinders the formation and evolution of transfer. 2) Troublesome relationship between provider and acquirer

Table 1: Four factors of stickiness (Created by the author from Szulanski,1996)

Among these factors, characteristics of knowledge providers and acquirers describe the sole characteristics of boundary spanning managers, who are responsible for knowledge transfer. However, this study focuses on the role of the knowledge acquirer as the player who brings knowledge from the supplier consortium to each organisation and deals with the research examining the characteristics. The sources of stickiness regarding the characteristics of knowledge acquirers, as described by Szulanski (1996), are: (1) lack of motivation due to NHI syndrome (Katz & Allen, 1982); (2) lack of absorptive capacity to evaluate, acquire, adapt, and commercialise knowledge; and (3) lack of persistence ability to pursue without giving up. Regarding absorptive capacity, this discussion began as the ability to function past related knowledge in research and development (R & D) activities (Cohen & Levinthal, 1990), but in recent years, in the context of knowledge transfer between a multinational parent company and an overseas subsidiary, or overseas subsidiaries, it is argued that effective knowledge transfer

between bases is an important factor in competitiveness (Almedia, Song, & Grant, 2002; Asakawa, 2011), and absorptive capacity is often discussed as a factor in facilitating the transfer (Gupta & Govindarajan, 2000; Minbaeva, 2007; Chang, Gong, & Peng, 2012). It is also considered the ability of small and medium enterprises (SMEs) and new businesses with limited management resources to use social networks to increase their competitiveness (Liu & Hsin-Feng, 2019; Hughes, Morgan, Ireland, & Hughes, 2014).

Absorptive capacity is the ability to fully utilise externally generated knowledge, which helps in creating innovation. Cohen & Levinthal (1990) discussed absorptive capacity in view of its effect on innovation in R&D. Nonetheless, it is evident that external knowledge plays an essential role in innovation. Most innovations result from borrowing (March & Simon, 1993). For this reason, the absorptive capacity in an organisation depends on the individual (hereinafter, referred to as the boundary spanning manager) between the company and the environment, or between companies and subunits, who assimilate external knowledge. If most people in the organisation are familiar with the assimilated knowledge from the external environment, the organisation's knowledge absorption proceeds without resistance. Conversely, there will be resistance within the organisation if there is heterogeneous knowledge. It may be utilised for innovation, but it requires definite judgement and action. Although the absorptive capacity depends on the capacity of the boundary spanning manager, it does not determine the level of the absorptive capacity in the organisation. Moreover, it depends on the ability of the organisation to process the information (Cohen & Levinthal, 1990).

2.2. Boundary spanning managers in internal network theory

Social network theory relies on three main discussions regarding the difficulty of knowledge transfer. The first is about the strength of the connections among the members of the social network involved in the organisation where knowledge transfer takes place (Granovetter, 1973); the second is about the structural holes in the network structure (Reagans & Zackerman, 2001); and the third is a discussion of boundary connectors called gatekeepers and boundary spanners on the boundaries of an organisation (Allen, 1977).

The empirical experiments revealed conflicting reports regarding the research on the effects of knowledge transfer by boundary spanners. For example, Tushman & Katz (1980), Ancona & Caldwell (1992), and Hansen (1999) argued that departments with boundary spanners are more productive, while Gould & Fernandez (1989) stated that boundary spanners may refuse to devote effort to the required knowledge transfer because they want to maintain their power and influence, which may hinder the transfer. Keeping in mind that there are conflicting debates about the effect of boundary spanners on knowledge transfer, Tortoriello, Reagans, & McEvelly (2012) hypothesised that the effect of knowledge transfer by boundary spanners is mediated by the network characteristics, such as tie strength, network connectivity, and network extent. By

analysing the knowledge transfer of 276 researchers belonging to the research departments of a large technology multinational company, they established that the characteristics of each network have a positive effect on the degree of knowledge acquisition in inter-departmental knowledge transfer (Yokozawa, 2018).

Therefore, it is implied that although boundary spanners have a crucial role in acquiring external knowledge, they cannot behave analogously and achieve results in all environments. Cohen & Levinthal (1990) stated that centralised bureaucratic boundary consolidation becomes ineffective, especially in the face of rapid and uncertain environmental changes. Centralised demarcation cannot provide an effective link to an organisation when the external environment changes and when it is ambiguous that where the knowledge is apparently used within the enterprise. He also argues, in these situations, that it is effective to have a wide range of prospective knowledge demanders at organisational boundaries, not just specific boundary spanners.

2.3. Difference between knowledge transfer in a single company and in a group of companies

Prior research has often discussed knowledge transfer with regard to the binary relationship between two single organisations, such as knowledge transfer in a parent-child relationship company as mentioned above. This is especially true in research groups led by Szulanski (1996) (Yokozawa, 2018). However, like Kyohokai for Toyota Motor Corporation, knowledge transfer is also conducted among a number of companies, from a leading company to its multiple suppliers, group companies, or in a supplier consortium formed by a group of companies with the same purpose and awareness of problems (Yokozawa, 2018). Knowledge transfer in such a consortium can be more complicated than in a binary relationship because, unlike knowledge transfer within the same company, corporate policies and core technologies are different in each company. Knowledge transfer in the supplier consortium is complicated due to a large number of component variables, but it may be more effective than in a single organisation using consortium relationships under certain conditions. However, there are few studies on knowledge transfer in such a supplier consortium (Yokozawa, 2018). More specifically, research on the competitiveness brought about by such a supplier community has a thick research history centred on SME theory and industrial organisation theory under the name of "supplier system (parts trading system) research" (Fujimoto et al., 1998). However, there are many discussions in this field within the framework of a vertical structure centred on primary parts manufacturers or leading automotive companies. When considering knowledge transfer to companies other than the primary parts manufacturer in the supplier community, in addition to the vertical relationship with the primary parts manufacturer, it should be considered that the effect of horizontal cooperation with companies in the same position will function for knowledge transfer.

Since it is a supplier community with different attributes of participating companies and many variables, knowledge transfer could be more effective than the one in a single organisation by using community relationships under certain conditions. In this regard, Dyer and Nobeoka (2000) stated that in the Toyota Group, it is important to build strong and cohesive ties not only in the vertical relationship between an ordering company and outsourced companies but also in the horizontal relationship among outsourced companies, for effective control of supplier produced goods and services. However, even they did not discuss the benefits of diversity.

Dyer & Singh (1998) argued that the relationship among companies could be a source of competitive advantage, and they named the benefits generated by the special contributions of a particular collaborative partner as 'relational rent'. Middle, Fisscher, & Groen (2007) conducted action research focusing on collaborative improvement in which multiple companies jointly improve performance and listed factors that are effective for collaborative improvement, such as making direction in networks, building learning environments, and feedback systems. Based on these previous studies, synergistic effects are generated across vertical and horizontal relationships in a community formed by multiple companies, which act on knowledge transfer, and these relationships can produce a higher competitive advantage than knowledge transfer in binary relationships. The factor producing the synergistic effects in this supplier community is the effect of social networks composed of community member companies, and this research stands in the position that the work of boundary spanning managers who coordinate social networks influences the effects.

When considering the factors that facilitate and impede knowledge transfer in the consortium, it is necessary to discuss the process by which external knowledge is processed in the conceptualisation of absorptive capacity that gives suggestions regarding the way the process of knowledge transfer proceeds among companies. Regarding absorptive capacity, the process has been contended from the model of Cohen & Levinthal (1990) to the models of Zahra & George (2002) and Todorova & Dursin (2007). The process is generally (1) recognition, (2) acquisition, (3) assimilation, (4) transformation, (5) exploitation, and (6) feedback loop (Figure. 1).

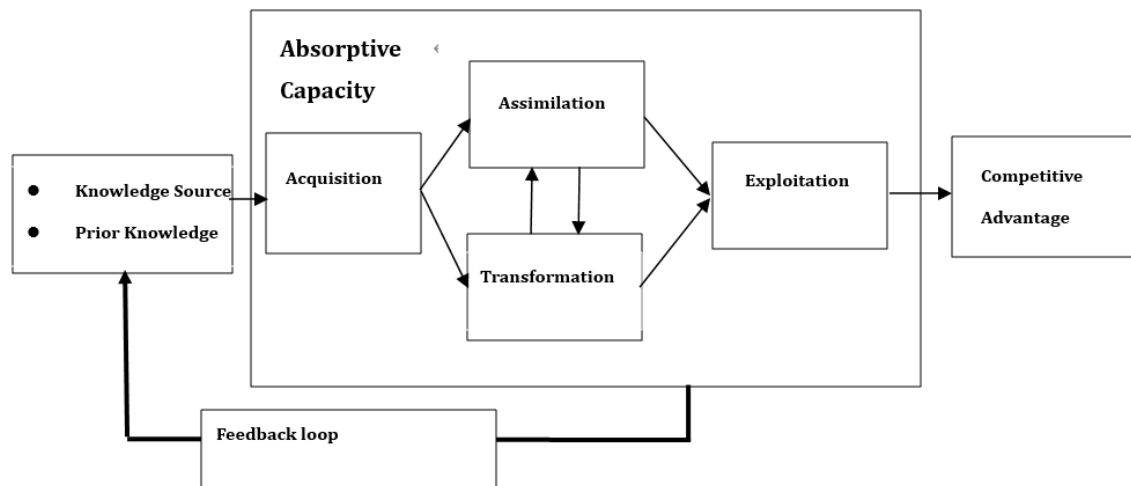


Figure 1: Absorptive capacity model (Author created based on Todorova & Durisin (2007), Figure 3)

Cohen & Levinthal (1990) claimed that the high level of past-related knowledge in an organisation is important for utilising external knowledge with R&D investment decisions in mind. However, in recent years, even in research and development, it has become more common to expect to utilise external knowledge that oneself does not have by coordinating between companies. Liu & Yang (2019) and Hughes et al., (2014) have alleged that SMEs and new businesses can use absorptive capacity to effectively transfer external knowledge and increase their competitiveness. This is affected by the function of the ‘social integration mechanism’ proposed by Zahra & George (2002), which links acquired knowledge with utilisation.

The ‘social integration mechanism²’ suggested by Zahra & George (2002) consists of both formal (use of coordinator) and informal mechanisms (social network). The informal mechanism leads to idea sharing. When the social network constituting the informal mechanism is composed of related companies convened in the supplier consortium, where they cooperate and transfer the target knowledge to their own company while being stimulated by each other, it is conceivable that the security is guaranteed and the knowledge transfer is expedited compared to the knowledge transfer only in the binary relationship. In contrast, depending on the characteristics of this informal mechanism, knowledge transfer may be stagnant or hindered. For example, if there is a major stake in the work among the companies that constitute a supplier consortium, and there is a possibility that the other company will lose the job, some companies would avoid a strong bond beyond a certain level.

² Social integration mechanisms are mechanisms that promote and utilise knowledge among organisational members (Zahra & George, 2002), and reducing internal barriers that impede knowledge transfer. The mechanism affects the processing of knowledge exchanged between members of the organisation (Todorova & Dursin, 2007).

It is boundary-spanning managers, who stand at each organisational boundary, that can operate the positive and negative effects of social network. When knowledge transfer manifests in the supplier consortium, one knowledge provider (primary parts manufacturer) targets multiple knowledge acquirers (secondary and tertiary parts manufacturers) in general. In this case, the actions of boundary spanning managers representing each company in the consortium affect the social network and contribute to the speed of knowledge transfer towards their own organisation. On the contrary, their behaviour is considered constrained by the power relations among the companies that form the supplier consortium. Specifically, as the performance of boundary spanning managers is influenced by the context of their organisation, it is imperative to consider restrictions on the characteristics of the environment, referring to the problem of stickiness mentioned by Szulanski (1996). Then, in the consortium, the function of boundary spanning managers produces a synergistic effect on knowledge transfer in the following cases: (1) recognise the value of the knowledge by having boundary spanning managers interact with each other at the supplier consortium; (2) knowledge transfer progresses through mutual aid owing to the relationship among boundary spanning managers; and (3) by participating in the consortium, the barriers that prevent knowledge transfer in organisations can be rearranged.

When considering the synergistic effects created by a corporate entity consisting of multiple companies, prior studies have emphasised that sharing the same space for an extended period creates strong relationships and facilitates knowledge transfer (Granovetter, 1973, 1982; Uzzi, 1997; Hansen, 1999). The concept of strong and weak ties was introduced into social network theory by Granovetter (1973), who observed that weak ties are more effective than strong ties for novel ideas. He proved it by using examples of human relationships that are effective in finding jobs. He also argued that weak ties help in the dissemination of new ideas compared to strong ties by connecting groups that do not usually meet (Granovetter, 1982). Conversely, Hansen (1999) found that strong ties are effective for complex knowledge transfer. Complex knowledge refers to highly sticky knowledge, including uncoded knowledge, or the knowledge created by high interdependence with other knowledge and resources. When transferring such knowledge, the knowledge acquirer must repeat dialogue with the provider to solve the stickiness problem, thus interactions via strong ties are required.

Although strong ties are the basis for fulfilling the complex knowledge transfer described above and for developing mutual trust (Gohoshal et al., 1994), the consortium, formed over time with only members of such a strongly connected organisation, will have a lot of redundant information. Redundancy, in this context, means the duplication of knowledge exchanged among parties. Initially, they have new information about each other, which gradually strengthens their connectivity through the exchange of diverse knowledge. However, as the relationship develops, they get familiar with each other in due course. Therefore, there is a low possibility of receiving new knowledge from the interaction. Weick (1976) suggested that weakly connected groups,

which are less constrained by the entire organisation, are more likely to adapt to changes in the environment. They could be loosely connected to other groups while being less associated with the networks that constitute a certain organisation. Conversely, if a group has a strong connection with the entire organisation, the group loses autonomy within the organisation, and it becomes difficult to obtain new knowledge independently.

Thus, it is necessary to infuse novel knowledge, acquired through weak tie relationships while maintaining strong tie relationships aimed at complex knowledge transfer and fostering trust, to continue to produce synergistic effects on knowledge transfer in the supplier consortium. Otherwise, when the external environment changes completely, it is extremely doubtful that each member of the community can respond appropriately to the change in the situation, and the value of the community seems to become a mere ghost. In Section 3, this study will discuss how to balance the relationships between strong and weak ties aimed at sustainable synergistic effects in a social network consisting of a group of companies in the supplier community. The work of boundary spanning managers will be examined with the concept of Community of Practice (Lave & Wenger, 1991; Brown & Duguid, 1991; Wenger, 1998; Wegner, McDermott, & Snyder, 2002) and research questions will be derived.

3. Analytical viewpoint

This study focuses on knowledge transfer in the supplier community. Previous research revealed the gap regarding the question, 'How can we sustain knowledge transfer with synergistic effects in a community established by multiple companies?' This section presents verifiable research questions to fill this gap. In the previous research, regarding the question "How can we sustain knowledge transfer with synergistic effects in a community established by multiple companies?", this study revealed that there is a research gap from the perspective of utilising vertical and horizontal inter-company relationships, especially inter-company relationships based on balancing strong and weak ties in horizontal relationships. This section presents research questions examining this research gap using an analytical framework that uses the concept of Practical Community (Wenger, 1998).

The Community of Practice is an informal group advocated by Wegner (1998), which is different from the official organisational chart and is formed by voluntarily gathering people to improve their abilities. The presence of a community of practice helps improve the business in the short term and leads to strengthened organisational capability in the long term. Personnel related to unsolvable problems that cannot be solved by official organisations informally gather to solve the problems, and they are formed not only by personnel belonging to one organisation but also by personnel from multiple companies. Examples include Tech Club in Dimler-Chrysler and High Availability Software in Hewlett-Packard (Wenger et al., 2002).

Wegner (1998) explains that the practices of the members of the community of practice will

help build and maintain the community and identifies three practices: mutual engagement, joint enterprise, and shared repertoire. Firstly, mutual engagement refers to the practice in which each member plays a part in a practice in the community and interacts among various members. Secondly, joint enterprise is an act which is established by the cooperation of its members, and they proceed while mutually constructing the goals of the community. And this is to pursue practice while constructing a condition called mutual accountability, in which each member can explain each other and understand each other well. Thirdly, shared repertoire refers to a set of shared resources within the community that have been created in collaboration and which are then used to produce practice. Specifically, it includes routines, words, tools, methods, stories, gestures, symbols, genres, actions, and concepts. Shared beliefs can be a resource for creating dynamic interactions. And these three practices will build and maintain the community.

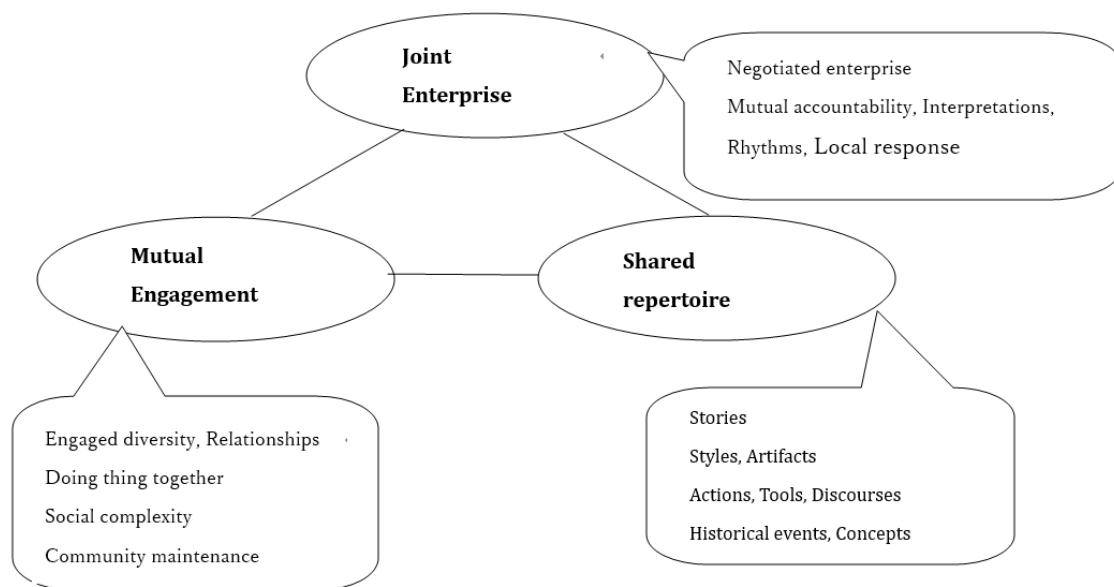


Figure 2 . Dimensions of practice as the property of a community (cited by Wenger, 1998 p.73 Figure2.1.)

Regarding this "mutual engagement", Wegner (1998) points out that the members of the community do not need to be homogenous, but rather that having diversity enables and promotes mutual engagement. While practising mutual engagement, members acquire their own whereabouts and identities, but identities do not merge and are distinguished as they become homogenised. Another important attribute in addition to diversity is partiality, which Wegner (1998) states that mutual engagement includes not only one's own abilities but also the abilities of others. This means that, in addition to what you can do, you will also develop the ability to connect to what you cannot do now, and that the part where you engage with each

other is “partial”. And even if they can't do it now, the members will build their abilities in a multi-layered way by helping each other in mutual engagement. In this regard, members are required to know how to help each other as well as themselves to build abilities, and through this practice the community of practice will be built and maintained.

Wegner et al. (2002) presented five building processes by core members who make use of existing networks to build a practical community. Calling them latent, collusion, maturity, maintenance and improvement, and transformation, the role of coordinators and core members is emphasised in each of the growing processes of this community of practice. Wegner (1998) and Wegner et al. (2002) replied to the questions about how the actions of each member in the community of practice would lead to development of the community. With reference to the three practices by Wegner (1998), the study considers boundary spanning managers as core members or coordinators in the community of practice and presents research issues on what actions they take to invigorate and sustainably grow a supplier community.

The first research issue is that it is necessary to clarify what kinds of behaviours are being taken by boundary spanning managers who trigger synergistic effects on knowledge transfer in a supplier community. The supplier community targeted in this study is composed of one knowledge provider (consortium-led company) and multiple knowledge acquisition companies (cooperative companies) and, concretely, considers the "supplier consortium" as the analytical target. The purpose of the knowledge provider is to spread knowledge to collaborative partner companies and improve overall performance, whereas knowledge acquisition companies participate in the consortium to improve their competitiveness by transferring the external knowledge possessed by the leading company of the consortium (Fig. 2). Knowledge acquisition companies are expected to transfer knowledge in an adequate manner, that is, suitable for each organisation, as there are varied variables such as size and industry differences. Nevertheless, it is apparently clear that the boundary spanning manager plays a key role at the boundary between the consortium and his organisation. Furthermore, in a knowledge-providing company, boundary spanning managers provide knowledge that is distinct from others. It is necessary to understand their involvement in achieving their goals in the consortium, where knowledge transfer begins, to understand the synergistic effects of the consortium. Therefore, the first research question is as follows:

RQ1.

How do boundary spanning managers interact with other boundary spanning managers in transferring knowledge in the supplier community?

The second research issue considers whether a knowledge-acquirer's boundary spanning managers has brought knowledge to his organisation and then transferred that knowledge as a

provider aimed at, as it is indeterminate for both (knowledge provider and knowledge acquirer) unless the results are affirmed. This can differ from the process of knowledge transfer between binomials. Therefore, it is meaningful to check the feedback process after the boundary spanning managers impart and receive knowledge in the consortium and then convey it to their company to understand the knowledge transfer effect in the consortium, which is lacking in the previous research.

RQ2-1.

How does the boundary spanning managers on the knowledge acquisition side develop knowledge in their own organisation when transferring knowledge in the supplier community?

RQ2-2.

How do the knowledge provider and acquirer evaluate knowledge transfer when transferring knowledge in the supplier community?

Finally, the supplier community believes that it will continue to produce synergies over time, but long-term experience with the same members enhances the homogeneity of the consortium, thus making it vulnerable to changes in external knowledge. Hence, it is necessary to reconstruct the social network among companies that form the consortium from time to time by combining strong and weak ties. This is also pointed out in Wegner (1998) and Wegner et al. (2002). As it is evident that the effect of strong ties increases over time for consortiums formed by the same enterprises, it is necessary to consider where and how to incorporate weak ties into the consortium. Herein, the issue is in what way boundary spanning managers at organisational boundaries are involved in building weak tie relationships.

RQ3.

When transferring knowledge in the supplier community, how can the knowledge provider and acquirers' boundary spanning managers deal with the decline in the weak tie relationships due to succession and balance the strong ties and the weak ties?

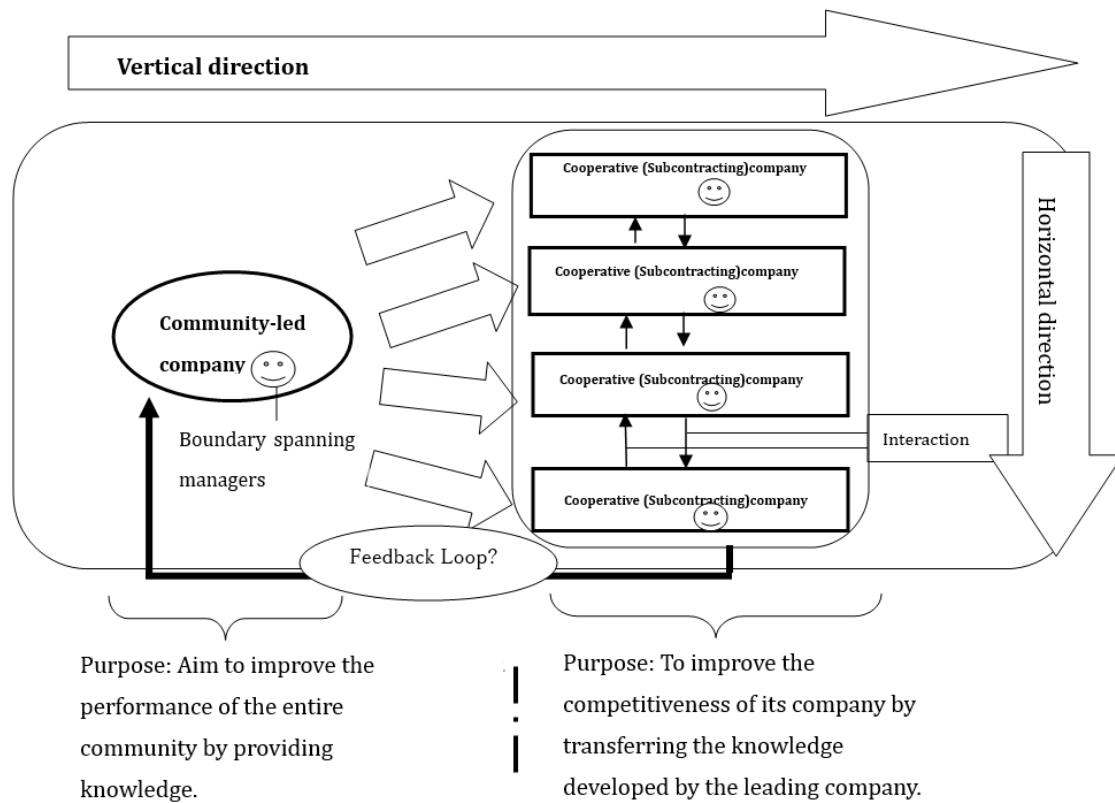


Figure 3: Participant's purpose and knowledge flow in the supplier community

4. Future research directions

Regarding knowledge transfer in a supplier community consisting of multiple companies, which has been lacking in discussion in previous research, this study particularly focuses on the horizontal connections between participating companies, which is the source of the synergistic effect of the results produced by such a community. With regard to how to develop the community sustainably, it has been pointed out in the previous research that it is a necessity to restructure the relationships from time to time by injecting novelty, but it is unknown whether the "community of practice" theory, which aims at practical problem solving in informal groups as proposed by Wegner (1998), can be applied to "economically involved" communities such as a supplier community. However, it is sufficiently meaningful to use and empirically analyse the community of practice theory to determine the behaviours and routines of each member for the sustainable development of the supplier community, knowing that there are economic interests behind them. This empirical analysis will contribute to both community of practice theory and organisation theory.

As the next research step, the author plans to analyse the cases of the supplier community, which plays a part in the Japanese automobile parts industry, based on this article. How can we build an organisational strength that is continuously strengthened by connecting organisational

boundaries in different companies in a horizontal relationship, which is different from the conventional supplier system discussion, which focuses on the vertical structure between an ordering company and contracting companies? It is unlikely that this will be achieved solely by the behaviours by a boundary spanning manager in an ordering company, but by the combination of behaviours by core members in the supplier community and a coordinator in an ordering company. Additionally, the presence of routines that regulates their behaviours would work effectively to achieve the goal of gaining competitive advantages.

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