

Interorganizational Communication and Learning: How Organizations Learn and Acquire Knowledge

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abstract

In a turbulent environment, an organization has to have “organizational learning” to match its internal resources and make itself effective to the external environment for its survival or growth. In interorganizational relationships, groups of organizations also have to do so. In this regard, in this paper, I will take up and illustrate subjects of interorganizational communications, interorganizational learning, and knowledge acquisition (creation, transfer and transformation) in interorganizational relationships.

INTRODUCTION

I considered organizations as recursive hierarchical systems based on the general system theory¹ and considered an interorganizational relationship as an “organization of organizations.” Also, I

analyzed interorganizational relationships through the theory of Barnard’s (1938) “cooperative system” and that of “formal organization” (Yamada 2001, 2002)².

Based on Barnard’s Theory, there are three major functions of interorganizational communication: forming a common purpose, forming and maintaining a willingness to cooperate, and coordinating organizational activities. These functions are taken up at the viewpoint that “organization of organizations” achieves its goal (common goals among organizations) through cooperation among organizations.

A common purpose of “organization of organizations” is to achieve its own (as a whole) and its member’s (as a part) growth or survival, which are enabled by improvement of its effectiveness brought by coordination and harmonization of

activities among organizations. However, growth or survival of an organization cannot be achieved only by doing so. This is because in order for an organization to grow or survive - to fit to its environment, an organization needs to enhance, improve, sometime discard, and even acquire its resources, which are enabled mainly by organizational learning through social interactions in intra-and-extra organization. It is as same as in an "organization of organizations."

Considering such dimensions, I can point out that the function of inducing and promoting organizational learning can be the fourth function of interorganizational communication. In this study, I will examine such themes as interorganizational communication, interorganizational learning, and knowledge acquisition - creation, transfer, distribution and utilization in interorganization.

INTERORGANIZATIONAL COMMUNICATION

Interorganizational communication is "the process of exchanging and sense-making of information between two or more organizations (Yamakura 1993)." The functions of interorganizational communication are said to be of coordination, sharing values, and smoothing transactions between organizations

(Yamakura 1993). In addition to them, I would like to take the function of inducing and promoting interorganizational learning as described above.

When analyzing interorganizational communication, I use the "Organization-sets" model that Evan introduced (Evan 1966).³ In the Evan's model, I will put the focus on the focal organization, and input/output organizations shall be just as organizational environment here.

As shown in Figure 1, an organization has interorganizational social interactions with its environment (or with other organizations practically) through exchange of messages (interorganizational communication). Receiving a message from the input organizations, an organization interprets and understands the meanings of the message received, and then makes decisions and takes the necessary actions. These activities of interpretation and understanding the meanings, decision making, and action are carried out based on internal and external (if necessary) data, information, and knowledge, etc. as well as culture (style of thinking and action) and structure of the organization. In this case, external data, information, and knowledge, etc. are also messages to be input to the organization.

On the other hand, inside the

organization external messages are received through boundary personnel in the organization. He or she passes these messages to people concerned in the organization through formal and/or informal communication. Then they carry out activities of interpretation, decision-making and action through communication with each other (intra-organizational social interaction). Such activities in the organization are put together and become the activities of the organization as collective activities.

As a result of these activities, an organization outputs a message as a response or reaction for/against stimuli (received message) to its external environment (the output organizations) through boundary personnel, and accumulates, wholly or partly, the output message (data, information, and knowledge, etc.) as organizational resources within itself.

INTERORGANIZATIONAL LEARNING

Interorganizational learning is carried out through social interactions between organizations. Before discussing about this issue, what is the organizational learning shall be discussed at first.

In Figure 1, the process of organizational communication has been explained. When such activities are continuously

repeated and accumulated within an organization as experiences (including successes and failures), these experiences become knowledge, and have some impact upon organizational culture and structure. Thus, organizational learning is what an organization learns from experiences of social interaction.

Figure 2 is an organizational learning process model (Knowledge Transfer Model).⁵ In this model, after external knowledge is being put into the focal organization, the input knowledge is interpreted, made sense of, and then transformed into valuable knowledge for the organization.

In the interpretation stage, input knowledge is analyzed and understood what it is with internal knowledge which is the basis of interpretation of knowledge, and external complementary knowledge which is imported from external environment by necessity. In the sense-making stage, what knowledge means to the organization is asked. In the transformation stage, in accordance with the sense-making, necessary transformation of the knowledge into value is made: elimination (partially or wholly), combination (with other knowledge), rearrangement, and simplification, etc.

In this result, transformed knowledge is output to the external environment (or

the output organizations) and partly accumulated within the organization (but sometimes is not output and just accumulated for future use). In this sense, knowledge in the learning process is an “autopoietic system (Maturana and Varela 1980).”

In this model, internal knowledge is not only the enabler for interpretation, understanding, sense-making, and transformation of knowledge, but also is the constraint that these activities are limited in the scope of the internal knowledge which the organization has already acquired. In each stage of these activities, organizational culture provides a fundamental way of thinking of action - in other words a framework of these activities implicitly, and organizational structure does it explicitly. So they also play both roles of enablers and constraints.

These activities are carried out through trial-and-error, and are sometime effective (success) and sometime ineffective (failure). The results of such activities are accumulated within an organization as experiences, and become knowledge - especially embedded knowledge (which will be explained later in this paper).

Thus, “organizational learning” is the learning of experiences through social interaction based on trial-and-error, or learning by doing, and accumulates

necessary knowledge within the organization. Interorganizational learning in an “organization of organizations” is considered to be the same manner. In other words, communication is a major medium for social interaction inside and outside the organization, and has a function as an enabler that induces and promotes organizational or interorganizational learning.

In relation to organizational learning, the concept of “learning organization” has been introduced by many researchers.⁵ I will define the term as:

A learning organization is the organization which organizational learning is systematically built in and the results of learning can be reflected to itself; for example, activities, learning, culture, and structure, etc.

If I extend this definition to “organization of organizations”, I can have the concept of learning “organization of organizations”. It can be considered to have the same functions as the learning organization.

ACQUISITION OF KNOWLEDGE

In interorganizational learning, knowledge plays the most important role as above mentioned. Here I will discuss

about such knowledge in this section.

Classification of Knowledge

On considering about creation, transfer and transformation of knowledge, I have to classify knowledge, because the ways of creating, transferring and transforming knowledge are different in accordance with types and characters of knowledge.

● Migratory Knowledge and Embedded Knowledge

Badaracco (1991) classified knowledge into migratory knowledge and embedded knowledge. Migratory knowledge is the knowledge such as packaged in a formula, a design, a manual, a book, or contained in one person's mind or incorporated in a piece of machinery (products or services, etc.), and is capable of moving quickly with the objects which contain such knowledge (Badaracco 1991). On the other hand, embedded knowledge is acquired through organizational learning with intra-and-extra social interaction, and accumulated and embedded in the organization. It is a specific technology in a specific organization in a specific environment, and not easy to move to the other organizations. In connection with knowledge transfer, transfer of embedded knowledge is a very important issue.

● Explicit Knowledge and Tacit Knowledge

Nonaka (1991a) classified knowledge into explicit knowledge and tacit knowledge, and introduced a spiral model of knowledge creation through interaction of these two types of knowledge. Explicit knowledge (or codified knowledge) is "transmittable in formal, systematic language" and tacit knowledge is "personal, context-specific, and therefore hard to formalize and communicate (Nonaka and Takeuchi 1995)." Tacit knowledge has two dimensions: knowledge of action such as know-how, craft, and skills, and knowledge of cognition such as framework of thought or personal mind-set - paradigm, schemata, cognitive map, and mental model (Nonaka 1991b).

● Core Capabilities, Enabling Capabilities, and Supplemental Capabilities

These are not knowledge related by themselves, but they are closely related to knowledge. Leonard (1995) introduced the concept of core capabilities, and distinguished them from non-core capabilities - she divided it into enabling capabilities and supplemental capabilities. Core capabilities, which have been built up over time and cannot be easily imitated, constitute a competitive advantage for a firm (Leonard 1995). Enabling capabilities are necessary but not sufficient

in themselves to competitive distinguish a company (Leonard 1995). Supplemental capabilities are those that add value to core capabilities but that could be imitated (Leonard 1995).

The reason that I take core capabilities here is that core capabilities is based on embedded knowledge - including both tacit and explicit knowledge. Figure 3 shows the relationship among classification made in this section. The point in this classification is how to acquire and manage embedded, tacit knowledge included in core capabilities.

Acquisition of Knowledge

Acquisition of knowledge is basically made by two manners. One is by creation and the other is by transfer and transformation.

● Creation of Knowledge

Creation of knowledge is made by integrating individual knowledge which is in each person or group in an organization. Nonaka (1991a) introduced his "spiral model" as a tool for explaining mechanism of knowledge creation in an organization by using the interaction of tacit knowledge and an explicit one.

According to the model, an organization creates organizational knowledge through the integration of knowledge in individual person, group, etc. with the spiral of four types of activities:

socialization (sharing tacit knowledge); externalization (transform tacit knowledge to explicit knowledge); combination (combine explicit knowledge and explicit knowledge); and internalization (transform explicit knowledge to tacit knowledge).

● Transfer and Transformation of Knowledge

This model explains the mechanism of transfer and transformation of knowledge which is input from the external environment. Newly created knowledge in an individual or an organization could be transferred, shared and utilized by other person, group, and organization. And knowledge could be transformed after it has been transferred. I have already looked at the issue on transfer and transformation of knowledge in Figure 2.

But what I have to pay attention to is that social interactions by trial-and-error are carried out at each stage. For example, at the stage of interpretation of knowledge, when I analyze the process of production of certain products (knowledge about process of production) through reverse engineering, etc. of transferred products (a package of knowledge), knowledge on how to produce them might be able to be clarified through repeated trials-and-errors. Especially, in the case of embedded

knowledge, experience through actual experiment or learning by doing could be sometime needed to understand what-and-how.

At the interpretation stage in this model, the point is in the basis of knowledge interpretation. Namely, whether there is "shared experience" or not decides whether organization can interpret transferred knowledge as same as what it initially made or not. Shared experience can be obtained not only through shared fields but also through very similar experiences and backgrounds. On the other hand, without shared experience, knowledge interpretation could be unable or different from what it initially is. In the latter case, it could be interpreted and understood to even a new different knowledge (it may be effective).

In the following sense-making stage, the meaning of knowledge is changed by the heterogeneousness of internal knowledge, organizational culture and structure that are different from the input organizations. Thus, the transferred knowledge is transformed in accordance with the way of sense-making.

● Distribution of Knowledge

As explained above, created knowledge is transferred and transformed. I will discuss about the distribution of knowledge here. Davenport and Prusak (1998)

introduced the concept of "knowledge market." They studied about how to seek and acquire the necessary knowledge by using the concept of transaction of knowledge between sellers, buyers, and brokers in the "knowledge market."

Distribution of knowledge is made through brokers who know the whereabouts of knowledge, informal networks of practice, or communities of practice - self-organized groups by co-workers who have complementary knowledge (Brown and Duguid 1991), etc. (Davenport and Prusak 1998).

They classified knowledge into explicit and tacit, and insisted that explicit knowledge should be supported by knowledge repositories, and tacit knowledge should be supported by a knowledge map (Davenport and Prusak 1998).⁵ In other words, knowledge repositories supports knowledge itself: know-what, know-why, know-how, and a knowledge map supports the whereabouts of knowledge: know-who and know-where.

INTERORGANIZATIONAL KNOWLEDGE CREATION, TRANSFER AND DISTRIBUTION

Nonaka and Yoneyama (1992) referred to "interorganizational knowledge creation." In their study, they insisted that "shared experience" and "information

exposure” are essential elements in interorganizational knowledge creation.

Shared experience is, for example, obtained from shared fields constructed through long-term joint projects between two or more organizations. Shared experience provides integration of language which becomes the basis of continuous communication between organizations, formation of interorganizational reciprocal understanding and trust, additional experience obtained through reciprocally erosive development.

Information exposure is that intentional and unintentional exchange of various kinds of information on fundamental direction of development of specification of products and technologies utilized products, etc.; its status of progress; the amount of investment for research and facilities; planning on development and mass production; and the timing of introducing new products to the market, etc. in the daily process of activities.

Concrete media of such information exposure are said to be acquisition of formal information through presentation in the academic conference and exchange of informal information after the conference; information exposure through suppliers; information exposure through users; information exposure through

reciprocal purchase of products; and industry specific newspapers and magazines, etc. In addition to these media, information exposure through reverse engineering, etc. of migratory knowledge (products and services that competitors offer) can be such media here.

Interorganizational reciprocal stimuli take place through information exposure and shared experience between two or more organizations, over-responses are incurred by such stimuli, and, as a result, collective innovation are created.⁷ This explanation could be applicable to the innovations in competitive relationship as well as cooperative relationship.

FROM KNOWLEDGE CHAIN TO KNOWLEDGE CONSTELLATION

I referred to knowledge creation, transfer and transformation in previous sections. And here I would like to step into the area of embedded tacit knowledge; namely the theme of how to create, transfer and transform embedded tacit knowledge between two or more organizations.

Interorganizational relationship is chiefly classified into three parts; competition, independent, and cooperation (Yamada 2002, 2003).

Both in a competitive and independent relationship, in order to acquire

embedded tacit knowledge from other organizations, an organization has to obtain migratory knowledge from the other organizations, interpret it, learn the underlying embedded knowledge in it through trials-and-errors over and over again, and absorb into itself - though it takes a long time.

On the other hand, in a cooperative relationship, as Badaracco (1991) pointed out that embedded tacit knowledge is able to be transferred or even created through strategic alliance.

But in order to create embedded tacit knowledge, an interorganizational relationship has to be changed from a “resource complementary relationship” to a “resource creating relationship.” Because, in a resource complementary relationship, embedded tacit knowledge could be transferred but could not be created through a “knowledge chain,” while, in a resource creating relationship, it could be even created through a “knowledge constellation.”

In a knowledge constellation, two or more organizations form a constellation of organizations, and create knowledge in cooperation with each other beyond each organizational border, including human interchange between organizations through joint projects, etc.

CONCLUSION

In this study, I at first offered an “Interorganizational Communication Model” based on Evan’s “Organization-sets Model,” in order to carry out micro-level analysis of interorganizational communication.

According to this model, communication processes are:

- (1) The input-organization-sets input a message to the focal organization;
- (2) The focal organization interprets its meaning, makes a decision and acts accordingly;
- (3) The results are output to the output-organization-sets as some kind of message

In this case, the message is not only in language but also in various sorts of symbols including non-verbal actions. In order to personify an organization or organizations, I introduced the concept of “organization of organizations,” paying attention to the “recursive hierarchy” of system theory.

Secondly, I considered “interorganizational learning” as a function of interorganizational communication, and presented my “Interorganizational Learning Process Model” and explained the process of the “interorganizational learning.”

In such case, knowledge is a key factor

that promotes interorganizational learning and generates new knowledge. Thirdly, I classified knowledge in order to make clear what is knowledge. Here, I introduced Badaracco, Jr.'s classification of "migratory knowledge" and "embedded knowledge," Nonaka's "tacit knowledge" and "explicit knowledge," and Leonard's "core capabilities," "enabling capabilities," and "supplemental capabilities." Using these classifications, I found that core capabilities which consist of embedded, tacit knowledge is very significant.

Next, since it is necessary to find out what are key issues for effective and efficient acquisition and utilization of knowledge, I referred to some dimensions of knowledge acquisition - creation, transfer and transformation, and distribution here.

Then, I explained about acquisition of knowledge in an interorganizational relationship. On creation, Nonaka and Yoneyama stated that "shared experience" and "information exposure" were indispensable factors for creation of knowledge in a cooperative relationship. I extended their idea and explained that these factors can be effective even in a competitive relationship.

Finally, I introduced two types of knowledge acquisition in an inter-

organizational relationship; a resource-complementary, sequential "knowledge chain," and a resource-creating, fused "knowledge constellation," and suggested that shift from a "knowledge chain" to a "knowledge constellation" is necessary for acquisition of "embedded, tacit core capabilities."

NOTES

1. Kast and Rosenzweig (1972) listed "hierarchy" as one of key concepts of general system theory. Beer (1972, 1979) introduced "Recursive System Theorem" and defined it that "if a viable system contains a viable system, then the organizational structure must be recursive."
2. Barnard (1938) took up a common purpose, a willingness to serve, and communication as elements of formation of organization, and effectiveness and efficiency as elements of existence of organization. He further referred to specializations (division of labor), incentives, authority, decision, and opportunism as elements of formal organization.
3. Evan (1966) introduced the concept of "organization-sets" as the framework for analysis of the interorganizational relationship by adopting Merton's role sets (1957). He

illustrated the relationships between organizations by using four basic elements: focal organization, input organization sets (supply resources to focal organization), output organization sets (receive products from focal organization), and feedback effects.

4. On creation of knowledge, Nonaka and Takeuchi (1995) introduced the knowledge creation process model of sharing tacit knowledge, creating concepts, justifying concepts, building an archetype, and cross-leveling knowledge.

5. Senge (1990) defined learning organization as organization “where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.” Garvin (1993) defined it as “an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights.” According to Garvin’s definition, the contents of organizational learning are creation, acquisition and transferring knowledge, and modifying its behavior to reflect new knowledge and insights.

6. Hansen, Nohria and Tierney (1999)

introduced two strategies for managing knowledge: codification strategy and personalization strategy. According to them, codification strategy is supported by knowledge repositories and personalization strategy is supported by knowledge map, but trying to pursue both strategies at the same time can quickly undermine the business of a company.

7. Nonaka and Yoneyama (1992) described that “each firm promotes creation of knowledge by itself through externalization and internalization, and simultaneously, shared experience and information exposure synchronize inter-firm actions, and reciprocal stimuli born in interdependence generate incentive of collective knowledge creation.” As for over-responses, they described that an “action of a certain firm becomes stimuli to other firms, of which action further leads another firm’s more expanded action.” And they continued that “as the result of over-responses, knowledge creation that individual firm based on symbiotic division of labor cannot do can be promoted as group of firms.”

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Figure 1 Organizational Communication Model

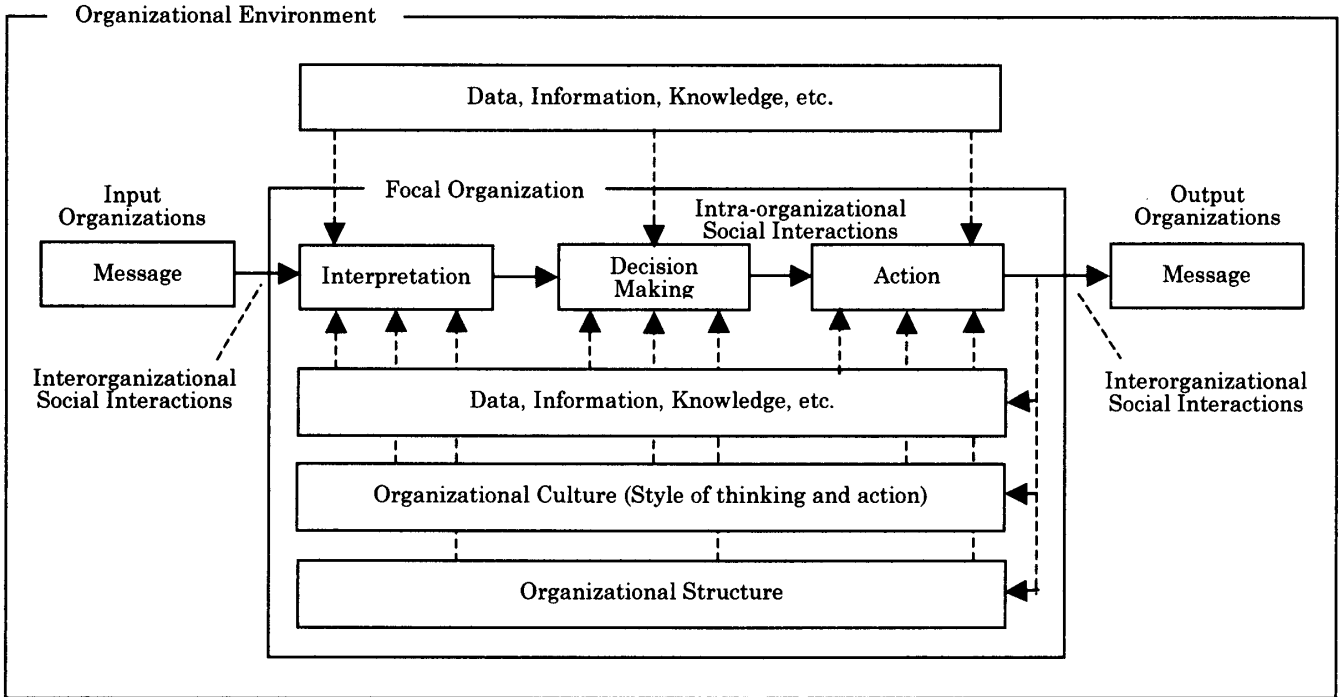


Figure 2 Organizational Learning Model (Knowledge Transfer Model)

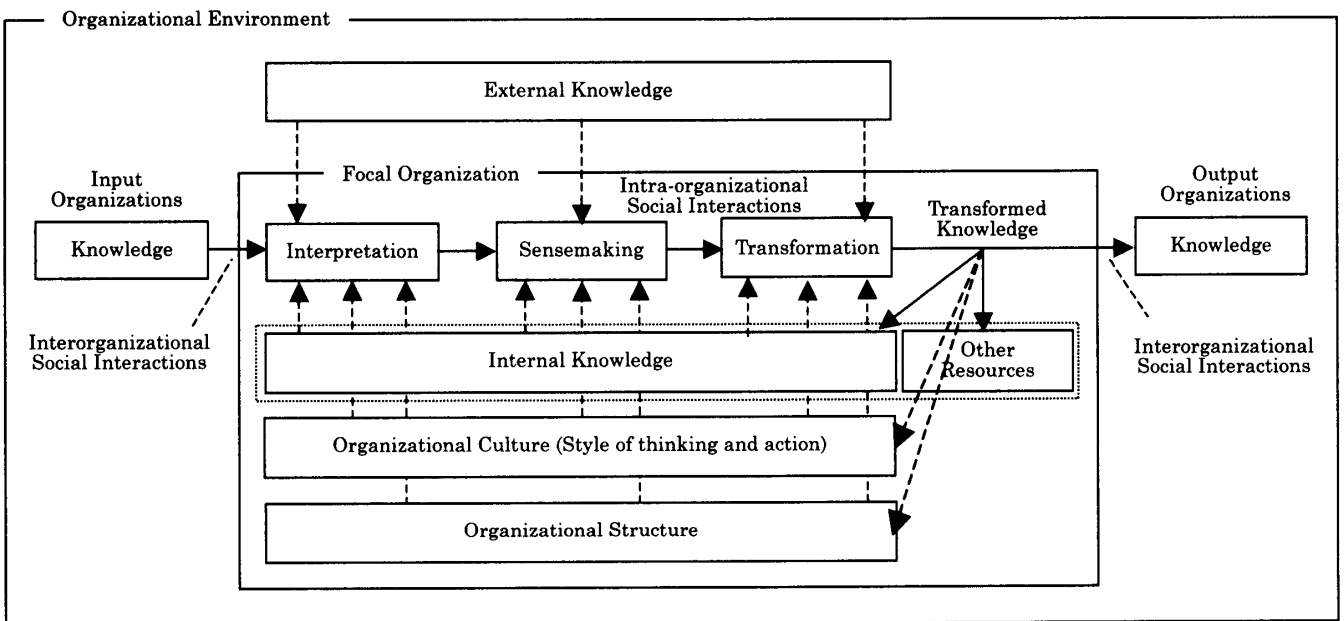


Figure 3 Classification of Knowledge

