Organizational Learning Process through M & A: The Case of F Company

Ryosuke Sugie
Graduate School of Humanities and Social Sciences
Saitama University
255 Shimo-kubo, Sakura-Ku, Saitama-Shi, Saitama
Japan
Email: rsk.sugie@gmail.com

Received Nov. 16, 2018, Revised Dec. 9, 2018, Accepted Dec. 28, 2018

ABSTRACT

In this research, externally acquired knowledge was used to study the process of forming new organizational routines. Specifically, based on Huber’s (1991) organization learning process, we analyzed the theory of knowledge absorption capacity and stickiness of information. We conducted a case study of F company, which acquired knowledge through M & A, and in the course of that process, we learned about the organization and clarified the process formed in the organizational routine of new product development. This study of organization learning was mainly simulation verified and makes a theoretical contribution to the concrete execution of analysis using actual corporate cases.

Keywords: Organization learning, Product development, Knowledge acquisition
INTRODUCTION

An organization selects necessary knowledge internally and externally, and learns by making use of this knowledge. In the study of the organizational learning theory, it is assumed that an organization acts based on internally accumulated knowledge. The organization acquires knowledge and experience based on that knowledge. Then, it interprets the experience and accumulates it as knowledge (Huber, 1991). Common behaviors and knowledge within an organization are called organizational routines. Organizations regularly examine routines to make improvements, which, along with corrections, are necessary to improve efficiency. Organizational learning is (1) acquiring knowledge by some means, (2) capturing that knowledge, (3) creating an organizational routine by sharing that knowledge, and (4) conducting activities that improve efficiency.

Why do organizations need organizational routines and organizational learning? Since a company's knowledge differs from that of others, knowledge is the source of a company's competitiveness. However, an organization's internal or external knowledge acquisition does not necessarily mean that it ultimately utilizes that knowledge. Rather, by incorporating that knowledge, the organization forms an organizational routine. This is because organizations that excel in absorbing knowledge acquired internally and externally also excel in innovation and performance.

Organizations continuously seek new knowledge and incorporate it to provide new product frameworks and services, and to adapt to and become competitive in the external environment (Oe, 2012). A problem arises as to whether an organization can incorporate newly acquired knowledge and create new organizational routines in the presence of existing organizational routines. An organization may want to capture new knowledge to
add to its existing knowledge base. This existing knowledge makes the new knowledge understandable within the organization.

As described above, previous research shows that knowing the kind of knowledge the organization already holds becomes necessary to acquire new knowledge. In the organization learning theory, when considering the transfer of new knowledge, an organization’s sources of competitiveness are its awareness of how it shares new knowledge and forms organizational routines.

Several difficulties are encountered in the process of changing organizational learning and organizational routines. The most important point of view is to use various types of knowledge, information, and know-how accumulated in the organization to form a new organizational routine.

Iwao (2015) defined the organization routine from the study of Feldman and Pentland (2003) as follows. "Organization routine is a pattern of behavior groups that are recognizable and crisp interdependent relations performed by organization members." Rules create individual actions and various actions create new rules. However, using existing information inevitably results in contradictions in the organizational routine. Therefore, it is important for an organization to effectively distribute, interpret, and organize its newly acquired knowledge (Huber, 1991).

However, the incorporation of new knowledge itself does not necessarily lead to competitiveness, and thus, it is important for the organization to consider the new knowledge in its routine. Also, it is difficult, if not impossible, to change all organizational structures overnight. When enterprises change something, they must perform essentially contradictory acts—relying on existing know-how while dismantling and rebuilding it (Miyao, 2016).

There is not enough research that discusses actual corporate cases to improve the understanding of the changes in organizational learning and organizational routines. Researchers
need to accumulate more knowledge about the adaptation process of a change in organization learning and organizational routine and to confirm what process to analyze.

The purpose of this research is to discuss what process the knowledge acquired by M & A through enterprise has gone through to create a new routine. It is to propose how to share the acquired knowledge. In previous studies, many simulation verifications have been done. However, in this research, we apply theoretical and practical implications by analyzing the process of generating new routines from knowledge acquisition based on case studies. Specifically to address the problem of how to acquire knowledge, capture knowledge, and form a new organizational routine within the constraints of a major printing equipment manufacturer.

LITERATURE REVIEWS

Organizational learning process

Huber (1991), as cited by Takahasi (1998) stated that by expanding the concept of organizational learning, the subject learned through the information processing, when the range of the potential behavior of the subject changed. In addition, Huber (1991) systematically summarized the organization learning process of reviewing previous studies and storing the process of organizational learning in the organizational memory after the organization acquires new knowledge.

The organization learning process is comprised of four elements—the processes of knowledge acquisition, information distribution, information interpretation, and organizational memory (Takahashi, 1998; Oe, 2012). It is necessary to understand the organizational learning theory by confirming the details of the classification of the four construction processes of Huber’s (1991) organization learning process.
Knowledge acquisition is the process in which an organization acquires knowledge in order to search for further knowledge and information that is distributed and that exists in various places inside and outside the organization, and to create a new organizational routine,” or “the process in which an organization acquires knowledge through searching for knowledge and information that is distributed and that exist in various places inside and outside the organization, with the aim of using that knowledge and information to create a new organizational routine.. In short, it is a process in which an organization acquires information and knowledge. The processes within knowledge acquisition are congenital learning, experiential learning, vicarious learning, grafting, and searching and noticing.

Congenital learning is the process of inheriting knowledge from the environment, and that knowledge can be discovered and then acquired before an organization is founded. Meanwhile, experiential learning is learning that acquires knowledge by experiencing an organization’s activities.

According to Takahashi (1998), organizational experiments are experiments that an organization performs to acquire knowledge while conducting its own experiments. Organizational experiments emphasize the learning phase of the new reference framework of double-loop learning, organizational self-appraisal, and niche expansion. Organizations that experiment (experimenting organizations) for adaptability have the ability to find new niches, unintentional or unsystematic learning, and experience-based learning curves. Vicarious learning is learning that attempts to acquire knowledge by imitating the strategy, management, technical knowledge, and other aspects executed by other departments and companies. Grafting is learning that attempts to acquire knowledge by incorporating new human resources who have knowledge and skills that the organization does not into the
organization through M & A, joint ventures, and other ownership forms. Searching and noticing is learning that attempts to find and acquire new knowledge necessary for environmental adaptation from the external, ever-changing environment.

Information distribution is a process for transferring new information and knowledge an organization acquired internally through knowledge acquisition. In some cases, new knowledge is created by combining newly acquired information and knowledge with other information and knowledge.

According to Oe (2012), the information distribution process is said to be the key to success in the subsequent information interpretation process. Information interpretation is a process that aims to deepen the understanding of new knowledge disseminated within an organization, and to promote a common understanding of the knowledge, as the first step in this process, the newly acquired knowledge is used to create an organizational routine that is ready to be stored in the organizational memory. Organizational memory is the accumulated knowledge intended for utilization. Organizational routines not only exist as tacit knowledge but may also be recorded by sentences or stored in an electronic medium such as an electronic bulletin board or e-mail (Oe, 2012).

To summarize the above discussion, we will collaborate with knowledge new knowledge acquired through "information distribution" knowledge / information obtained in "knowledge acquisition" and transfer knowledge into the organization. And "information interpretation" understands new knowledge by newly having common recognition. A new organizational routine is formed based on it and consequently, the routine is stored as a basic activity of a new organization in the organizational memory. Routines with faster speeds and detailed content changes, and that
can be seamlessly transitioned (to replace existing routines) are companies’ competitive advantages (Takahashi, 1998).

**Organizational learning theory**

Huber’s (1991) organizational learning process reveals the structure in which organizational memory creates new organizational routines. Although Huber’s (1991) description is abstract in clarifying the process of organizational learning, it is clear in describing the series of routine processes within organizational learning, such as input, conversion, and output of organizational action. The organizational routine is an inevitable phenomenon that occurs in many aspects of organizational behavior and that aims to reduce organizations’ wasteful actions in order to increase the efficiency of organizational learning. (Otsuki, 2007).

Levitt and March (1988), as cited by Takahashi (1998), stated that organizational routines contain forms, rules, procedures, practices, strategies, and descriptions, and that organizations are built routinely and act through routines they have implemented. As these defined organizational routines experience more chain of routine tasks, they lead to organizational accumulation. As a result, organizations increasingly use current routines to achieve goals, such as increasing productivity in current operations. However, this reliance on existing routines may decrease an organization’s awareness of the importance of acquiring diverse experience such as acquiring more efficient knowledge, searching for new routines, and implementing excellent routines (Shiroishi, 2009). Therefore, it is generally understood that organizational routines are stable, fixed, and invariable once constructed; in other words, once set, organizational routines are difficult to change.

However, organizational learning and organizational routines need to change as markets and the environment change. These
characteristics of organizational routines are common phenomena in any organization. Once an organizational routine is embedded in the action patterns of organization members, the more knowledge is accumulated in the organization, the more routines the organization promotes (Otsuki, 2007). In addition, according to Otsuki (2007), when certain conditions are met, the organization’s work and routine are newly reviewed, and changes in the organizational routine are realized. According to Feldman and Pentland (2003), mutual understanding of routines and a communicable relationship at some point enable understanding the context of routine execution. This is because each member advances the discussion of task execution based on the work relationship of work, which in turn enables members to adjust their work according to each other’s. Work relationships increase the possibility of building new aligned relationships. Feldman and Rafaeli (2002) stated that organizational routines promote a common understanding of what actions organizational members should take in their mutual relationships and across the organization. Therefore, the success and failure of an organizational routine change is the key to the recognition and action of members involved in the change. The source of competitive advantage lies in the ability to dynamically integrate the management resources of the entire enterprise into competitiveness so that individual business can adapt quickly to changing occasions. How to integrate this management resource as competitive strength, a key factor to create that capability is required for organization learning which is continuously done through partnership and outsourcing (Nagayama, 2017).

When applied to Huber's (1991) organization learning process, the processes of information distribution and information interpretation are processes that aim to deepen common recognition of the whole organization. Therefore, it plays a big role
in the change in an organizational routine, and the ability to adapt the knowledge gained through knowledge acquisition to the whole organization is important.

**Knowledge absorption capability theory**

The process by which an organizational routine change through new knowledge acquisition can be confirmed using Huber’s (1991) organizational learning process. However, if the organization can acquire any knowledge, can it share and incorporate such knowledge? Can it use the acquired knowledge to create new organizational routines? On the other hand, it is necessary to confirm the organization’s knowledge absorption ability, which is a more comprehensive model than organization learning. Cohen and Levinthal (1990) defined knowledge acquiring knowledge absorption ability as the ability to understand and utilize knowledge by knowledge of existing knowledge, by noticing the value of new information. Knowledge absorption capability is important for organizations to formulate a new product framework

1. To notice new knowledge,
2. To understand (absorb) that information as important knowledge for strategy, and
3. To combine existing and externally obtained knowledge, and to convert that knowledge to develop new products and services (Cohen and Levinthal, 1990). Organizations combine new knowledge with knowledge-absorption capabilities and the ability to learn and retain knowledge in order to find more new knowledge and perform routine work (Cohen and Levinthal, 1990).

Kogut and Zander (1992), as cited by Oe (2012), considered the function of combining an organization’s existing knowledge and externally acquired knowledge into a capability, and this ability creates new knowledge makes innovation possible. However, it is important to note that knowledge binding capacity and knowledge
absorption capacity are also important for innovation and organization learning, as the organization acquires new knowledge, and may also affect the complexity of the information to be acquired. In general, complicated information is extremely difficult to communicate to others.

After highly complex information is acquired, it does not necessarily flow to the organizational memory for subsequent processes. The organization implements existing organizational routines that are easy to handle.

**Stickiness of information**

Why is it that after being acquired, knowledge does not necessarily transfer to the organizational memory during the organizational learning process? This question can be answered with the concept of stickiness of information. According to von Hippel (1994), stickiness of information is defined as the marginal cost required to transfer the information of a given unit to a particular location in a form available to the recipient of the information. When this cost is low, the stickiness of information is also low, and when this cost is high, the stickiness of information is also considered high. Investment amount of knowledge sharing is also important (Mei-Ying, Yun-Ju and Yung-Chien, 2009). Von Hippel (1994) presents the following about the cause of stickiness of information.

- The nature of the information itself
- Knowledge of formats such as manuals or tacit knowledge such as know-how
- Whether the number, type, and interrelationship of information is complicated
- Amount of information that must be relocated
Attributes related to the sender and receiver of information
The reliability of the information source
Is the similarity of the receiver's knowledge absorption ability to its past knowledge

According to von Hippel (1994), as cited by Song and Akiike (2014), product development requires (1) information on users' needs and (2) technical information on the manufacturer's side, and the stickiness of each type of information is high in the case that product development solves the problem while consulting between users and the manufacturer.

Ogawa (2000) pointed out that stickiness of information is a difficult concept to understand in terms of the cost (difficulty) required for the recipient to transfer the information in a usable form, and this cost includes the difficulty of using comprehensive information. Ogawa (2000) also pointed out that the transfer of information in a form that can be used by the recipient includes information on all activities up to the point that an organization can discover the existence of certain information, understand its meaning, and utilize it. As can be seen from von Hippel's (1994) and Ogawa's (2000) definitions, when information is transferred, the information held by the sender changes into a form usable for the recipient.

Sugiyama (2001) called the cost of knowledge transfer "knowledge stickiness," and if knowledge is formalized and clarified in advance in the form of design drawings, manuals, and others, it is easy to relocate that knowledge and its tackiness is low. On the other hand, it is expensive for the sender to transform implicit knowledge into tacit knowledge such as skill, and thus, knowledge stickiness is high. Acquired knowledge and its relationship with other knowledge are also complex. If the acquired
knowledge is a part of a large system of knowledge, relocating only that acquired knowledge does not work completely; thus, it is also necessary to relocate knowledge in the whole system and the relationships among other components. In other words, knowledge transfer does not simply transfer formal information, but more importantly, tacit knowledge. Since the combined knowledge is unique to the organization, the knowledge relocation is said to be difficult. The power of knowledge in acquisitions through various collaborative avenues. Distinctive capabilities are needed for organizations seeking knowledge (Debapriyo and Sanjay, 2012).

In these previous studies, stickiness and knowledge transfer difficulty are reflected in the relocation cost. However, it is inadequate to describe relocation difficulty of relocation, that is, tackiness, only with relocation cost. Szulanski (1996) pointed out that qualitative information such as whether problem solving during information transfer is routine and the kind of problem solving. When confirming the measurement result, the knowledge transferred can be used when the execution stage ends. Changes are made to the knowledge even after it becomes available in order to achieve satisfactory performance or develop an organizational routine. Just because knowledge can be transferred to other organizations in a useable manner, as shown by Szulanski’s (1996) findings, does not mean that the performance improvement of the transferring organization can be seen immediately. Changes need to be made to practices even after they become usable so that the organization can achieve satisfactory performance at the relocation destination. According to Wakabayashi and Oki (2009), stickiness in knowledge transfer is a broad sense of stickiness, which combines stickiness in a narrow sense and portability. At least conceptually, it is necessary to transplant the difficulty of extracting knowledge from the transferring organization in a usable form (stickiness in a narrow sense) and porting the
knowledge retrieved in a usable form. and both of these steps can be difficult.

Funatsu and Sugiyama (2016) presents three hypotheses of knowledge transfer. First, concerning the relationship between novelty of knowledge and motivation and possibility of use, secondly, additional management such as maintenance and accumulation of knowledge is required depending on the uncertainty of utilization and the nature of knowledge Thirdly, the institutional complexity of research and business can bring about a trade-off relationship between relocation and utilization.

From these previous studies, it can be said that change in organizational routine, knowledge absorption ability, and stickiness of information are closely related in organization learning.

**Research question**

Generally, the higher the stability of routine tasks and operations of an organization, the more paradoxical is the change required. This means that even if the routine is incorporated into the organization and organizational behavior becomes more efficient, the organization still cannot adapt to the new situation. To overcome this situation, it is necessary to build an organizational structure that increases flexibility and the degree of routinization. Although previous studies on organizational learning were aware of the problem of why a change in the organizational routine goes through the organization learning process, they did not provide sufficient answers. Simulation verification and deductive approaches are also implemented as main verification methods. Yokozawa (2018) "What kind of process is the knowledge transfer to the corporate community, what kind of stages are in the process, what kind of promotion / inhibition factors will affect each stage?" There are need for research. This
case study examines a few issues using an inductive approach from a realistic viewpoint as a mechanism of a new organizational routine through organization learning. In this research, I hope to add new knowledge about what kind of process the knowledge acquired grafting goes through to create a new routine.

Among the existing organizational routines that a company cultivates, it is necessary to ask what kind of change the product development process undergoes through organization learning. Therefore, the research question is set as follows.

RQ1: What kind of organizational learning process does knowledge acquired through grafting go through to create a new product development organizational routine?

**Framework**

We present the research subject as a model of a discussion about organization learning, change of organizational routine, and stickiness of information. The first research topic is that if a company has difficulty distributing within the organization knowledge acquired with a high cost, the knowledge acquired cannot be utilized, and a change in a new organizational routine does not occur. In the process of constructing a new organizational routine through Huber’s (1991) organizational learning, routines that have undergone the processes of knowledge acquisition, information distribution, and information interpretation are stored as organizational memory, in which knowledge is organized and from which knowledge is learned in order to construct a new organizational routine.

However, in this research, it is assumed that an organization can easily develop an organizational routine by acquiring new knowledge. Thus, a question arises as to whether an organizational routine can indeed be constructed simply by acquiring knowledge. This research topic is summarized in Fig 1.
In this research, we analyzed organization learning and knowledge sharing based on this framework. Specifically, we focused on acquiring knowledge through grafting. When analyzing knowledge acquisition, it is important to note that knowledge can be acquired from both inside and outside the organization. Also, the acquired knowledge can have highly complex information less complex information, which is relatively easy to acquire. This research focused on grafting because knowledge can be transferred from outside an organization and advanced technical knowledge is difficult to share. M & A development and philosophy Management system and company-wide project activities are situations where organization learning re-recognizes common objectives by diverse people from different inter-organizational relationships (Makitani, 2017). Thus, there exists mechanisms for knowledge sharing because the acquired knowledge is difficult to share and adapt owing to differences in development method and organizational culture.
METHODOLOGY

Case study reason for selection

The case covered in this research is about changes in product development for multifunction devices. In the case studies, we examined changes in organizational routines and processes in product development mainly for F company multifunction machines.

This case was chosen because the company and product characteristics align with the research question. Also, in this research, only one company, F company, was examined. According to Yin (1994), a single-case study is useful for discovering cases of new facts in the extreme or unique case, and compared to multi-case studies, research strategies are not vulnerable and h recognizes the necessity of intellectual and creative adaptability to deal with the unknown conditions, that single-case studies face. In addition, the multifunction machine industry and F company are old industries and companies. For that reason, much knowledge has been accumulated in a historical industry and much knowledge has been learned by the company, and it can be assumed that an organizational routine has already been established. This study examines how F company, which is successful for large companies (in the B-to-B) market for a high value-added product, clarified the process that formed the product development framework for personal market (B-to-C) multifunction machine.

Data collection and analysis methods

For the case studies, primary and secondary data were used. The primary data were obtained primarily through interviews with people involved in product development for B-to-C multifunction machines. The interviews were conducted from August to
September 2018. Each person was interviewed twice, and each interview lasted about 1 hour and 30 minutes to 2 hours. The interviewees responded mainly to prepared questions on a questionnaire. The interviews, which were semi-structured, focused on the dialogue progress and open-ended questions. We reviewed and confirmed the interview content and, as much as possible, excluded responses that showed discrepancies in the respondents’ understanding of the questions. In addition, I identified the interview responses to be checked as my analyses progressed and asked the interviewees follow-up questions by mail.

The secondary data were obtained from secondary sources such as corporate news and releases, securities reports, and survey report materials. The data from these materials were used to confirm the interview content and complement the facts that could not be grasped from the limited interviews, and the secondary data were analyzed according to the research question.

CASE STUDY

Overview of F company

F company’s consolidated sales are about 1,000.0 billion yen (Structural reform After temporary cost of 70 billion yen) in fiscal year 2017, and its operating profit is about 14 billion yen. The company is No. 1 terms of the world market share (Company Quarterly Industry Map 2017, 2016). The number of employees is about 40,000 for consolidation and about 8,000 for independent.

Outline of major printer products

In this research, we focused on the office product and printer business that has the composition in the company’s sales. F company’s office products and printer business is divided into products for major markets (B-to-B products) and products for
small and medium enterprises and individual markets (B-to-C products and B-to-B-to-C products). In this research, B-to-B products were defined as multifunction machines with a large size, high performance, and high price framework, while B-to-C products were defined as printers with a compact size, multifunction peripherals, basic functions, and low-cost framework.

F company has succeeded in the market of large, high-added-value, and high-performance products, namely multifunction printers. Multifunction printers are understood as very complicated products.

Meanwhile, Canon and other specialized printer manufacturers (Hp, Seiko Epson, Lexmark Co., etc.), as well as PC manufacturers, have succeeded in supplying products from their own brands and original equipment manufacturers (OEMs), namely printers that can compete on production and mass consumption volume. Before the market became fiercely competitive, price was a major factor in competitiveness. In the copier/multifunctional machine business, which earns revenues over the long term through rental contracts and after-sales service; further, customers can deal with printer maintenance at the time of use, and in terms of cost, I was able to estimate the profit from after-sales over several years. However, low-end printers are consumer goods and it is fundamental that they are maintenance-free; in extreme cases, new products are released every half a year. Therefore, lead time delays are out of the question, and since the second half of the release will be a game, it is necessary to completely satisfy quality and cost requirements at the time of release. From these, we can see that the business model is completely different.

Outline of printer industry

F company was behind its competitors in terms of brand name in the printer industry. We take a look at F company’s efforts on
consumer products in detail. F company had been developing low-end printer engines before developing consumer printers. A full-scale OEM business was launched adopted by two major PC makers. And the production cost was requested to be as low as the digit was different from the conventional F company common sense. Hardware and engine parts are mainstream in any OEM, and controllers, which play a role of controlling them, were developing and adjusting at the OEM Client.

In October 2001, F company acquired N company’s laser printer business and established the F company printing system. Beginning A Company OEM product from 2003. At the same time, the president of Asia-Pacific company established a printer channel. Since A Company does not manufacture printer controllers, there was a demand not only for engines and hardware but also for other parts. Rather than procuring and selling products from the printer channel to development, F company requested to develop its own genuine printer products, including hardware, engines, and controllers. To satisfy those requirements, F company developed printer products by combining its excellent engine knowledge with N company engineers’ knowledge of controllers. OEM products for Europe and North America were able to newly build the ability to integrate controller technology and engine technology. Using its ability to integrate the new controller technology and engineer technology, F company was able to develop and manufacture its own printer products for the domestic and Asia-Pacific markets. The D printer product, the most successful printer in the market, is a successor to the product that integrated the new controller technology and engineer technology.

**Overview of D printer product**

Through questionnaires, we confirmed that the D printer product, a mainstream F company product, was the most
successful in the B-to-C or B-to-B to C market. The D printer product was released by F company in 2011 and is produced in China.

Figure 2. F company's printer development scope

It consists of about 500 parts (the ApeosPort-V C5576, a F company B-to-B product, consists of about 2,000 parts). To make sure the final product performs its required function, the man-hours necessary for optimizing the design parameters of the key
component comprise 60% of the total product development man-hours. In addition, the number of custom parts, materials, and elements required is very high, and the design parameters of the components need to be finely adjusted to each other. The restrictions on miniaturization and weight reduction were significant, and so were the mutual dependency between parameters in the structural design of parts, such as part interference and weight balance. Based on these characteristics, the D printer product can be said to be a highly complex product.

FINDINGS

Knowledge-sharing process

In the process of F company’s organizational learning, grafting was used as an approach to acquire and successfully adapt knowledge so that it can be used effectively. By doing so, the company underwent a process of distributing information on new product development and interpreting it within the organization. We can check the flow to be stored as a new routine in Fig 3.

Regarding knowledge acquisition through grafting, in this case study, F company purchased N company’s laser and printer business in October 2001, in order to establish the F company Printing System and try to catch up with competitors. However, despite acquiring new knowledge, F company originally specialized in developing multifunction machines defined as B-to-B products, which are large, high-performance, and have a high-priced framework. For this reason, F company’s organizational routine for the product development may have already been embedded.
However, successfully acquiring N company’s knowledge of the controller technology did not necessarily mean that the knowledge was effectively used immediately. In addition, F company had been developing low-end printer engines before developing products for consumer printers. While it acquired the knowledge of controller technology from N company, it acquired its hardware and engines from OEMs. In this way, knowledge acquisition, which is the first step in organizational learning, cannot proceed to the next step, information distribution, and this knowledge was utilized completely by the organizational routine. Since A Company does not manufacture printer controllers, there was a demand not only for engines and hardware but also for other parts. Rather than procuring and selling products from the printer channel to development. At the same time, the company tried to satisfy the demand for marketing information, since the company wanted to sell its own printing products rather than procure and sell such products—from printers to channels.
In other words, it was difficult to share within the organization the technical knowledge acquired through grafting, and it was important to combine it with marketing information and knowledge, which is an external factor. As Ogawa (2000) pointed out, changing information into a form that can be used by the recipient makes it possible to transfer that information to information distribution, information interpretation, and product framework development. Compared to the development of existing multifunction devices, a new organizational routine that develops about three times faster and one tenth is now being formed.

In this research, we examined the combined ability of acquisition of knowledge and change of stickiness of information through case study findings. We summarized these findings and considerations into a proposition.

Proposition 1: As the framework of existing products are determined, it is necessary to combine newly acquired technical knowledge with marketing information is necessary in order to form organizational routines for new product development through organizational learning.

In the framework of the same product, the newly acquired knowledge alone is a highly complicated component. Therefore, sharing the knowledge is difficult, and the knowledge is not highly appreciated within the organization and could not be utilized. However, by incorporating the newly and independently acquired knowledge into the framework of the existing product, information was distributed, and the knowledge absorbed within the organization was interpreted.

CONCLUSIONS AND IMPLICATIONS

To understand the framework of the knowledge acquired, that is, the technical information, it is important not only to acquire
that knowledge but to combine it with certain marketing information (i.e., be absorbed or adapted by the organization). It is necessary for the organization to possess the driving force of the capability management technology reflecting absorption capacity (Jaehun and Sang, 2006). By doing so, the knowledge can clearly proceed to the process of interpreting information by the organization. Specifically, the following process was observed.

1. Through knowledge learning, a new product development framework is conceived by introducing knowledge that is difficult to share within the organization, unlike the existing product development framework.

2. An organization with an existing product development framework combines newly acquired technical information with marketing information to form a product development framework as knowledge that can be shared within the organization.

If sharing the knowledge is difficult knowledge, it cannot be disseminated within the organization, so it remains in existing routines without being allocated (provided) as it is.

3. The framework of new product development that can be shared within the organization is allocated (provided) and interpreted within the organization. Then, it is generated as a new organizational routine.

We conducted a case study of F company and found a process to create a new organizational routine. In other words, a new product development framework was formed by combining (technical) knowledge, which was difficult to share and was acquired from outside the organization using the graft model, along with market knowledge. The new knowledge’s interpretation and adaptation to product development is memorized by the organization, and a new organizational routine was formed. It has been shown that existing organizational routines are a changing process. This is the conclusion of this research.
To understand the framework of the knowledge acquired, that is, the technical information, it is important not only to acquire that knowledge but to combine it with certain marketing information (i.e., be absorbed or adapted by the organization). By doing so, the knowledge can clearly proceed to the process of interpreting information by the organization. Specifically, the following process was observed.

**Theoretical implications**

In past research on organization learning, many researchers, mainly knowledge acquisition, have been advanced. The area of research of organizational routines by organization learning is not a narrow-meaning discussion of acquiring certain technologies and simply combining them. By combining technical information and marketing information, it is an analysis framework covering both innovation theory of product development and marketing theory of how to penetrate the organization and create new organizational routines.

**Practical implications**

The case of this research is that the B-to-B product framework formed a new routine for B-to-C products through the organizational learning process through which organizational routines are formed. To develop B-to-C products, the reactive development that surely answers the needs conveyed by the OEM and the proactive development that thinks about how to from both the development and initiative sides. are important. As such, with recognition, the company focused on the user- operated controller and made modular improvements. By doing so, when looking at the engine, network, and controller, the company saw that it was a base product, but by modularizing the controller part, the organizational adhesion lowered. In this organization learning
process, a strategic judgment of an important company is whether it is necessary to newly create the organization’s scaffolding, or to simply grow using the existing scaffolding. The conditions that help determine an effective strategy are restricted by the company’s situation, industry, and product framework, so careful management judgment is needed from time to time.

**Limitations and future issues**

Several challenges remain in this research. The first challenge is the implementation of F company’s single case study on the formation of new organizational routines through organizational learning. By using a single case study, there is a possibility that this case seems to be the beginning at the beginning, and you can understand something that does not apply to this case. Although this research contributed to knowledge and theory construction, it has not established a general pattern (Yin, 1996).

The second challenge is the transfer of the laser and printer business from N company to F company in 2001, after which a subsidiary was established. Concerning the knowledge held by N company, a deeper discussion is necessary on how concretely knowledge was shared within the F company by the mechanism. Since it is hard to imagine that knowledge, including implicit and formal knowledge, was transferred from one individual to another and deployed, it will be meaningful to analyze the structure of the knowledge sharing process to expand applicability.

**REFERENCES**


