

THE STUDY ON THE SUPPLIER VALUE CHAIN IN THE CONVERGENCE INDUSTRY

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Abstract: Simplified technology and industry in the past is specialized and diversified in modern society with evolution, and also border area becomes clear. Recently, the convergence has been getting spotlight. Because it is considered possible to produce a synergistic effect such as the resolution of complex social issues, innovation and new markets value creation by making the industrial structure boundary ambiguous in interdisciplinary and between technology and industry. It is the time to overcome the limitations of customer value within the existing industry and to make the flexible and innovative supply value chain structure that is sufficiently accommodated the industrial structure to be reorganized for the purpose of new value creation through the convergence. The convergence generates the new supply value chain structure in the existing industrial system and creates a new market could be results in a ripple effect through the changes in the industrial system itself. The purpose of this study is to introduce the convergence case in various area and try to investigate how to change the supply value chain in the convergence industry from the existing industrial structure.

Key words: Convergence Industry, Supply, Value Chain, Convergence R&D

1. INTRODUCTION

Latest business environment in corporate has been implementing its business through relationship and network configurations with new corporate on a process to deliver product and / or service to their customers, in order to increase the capacity of business enterprises. Due to development of Internet technology, the business environment has been greatly changed, and businesses are searching a method in response to the new environment by designing the relationship between companies for all production activities, including product and service [1]. Especially, in the convergence industries, collaboration between different areas of expertise is very important because production can be done around variety of interdisciplinary, inter-technology, and inter-industry stakeholders, and each field can be suppliers, corporate partners, and customers, depending on the situation. Businesses are sharing seamless information and responding quickly to the market through the IT system between the stakeholder as well as the internal structure of

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enterprise. In business ecosystems in digital era can be predicted that changed as follows; existing providers in the value chain is changing to value networks; and product value is changed to a network value; and simple cooperation/competition has turned into complex collaborative competition and coevolution; and individual enterprise strategy is changing to the overall value of ecosystem [2].

Figure 1: Supplier value Chain future direction



In addition, traditional supplier value chain was formed in one-way process of value creation in the structure that finished products is to pass to the consumer after each production activity of the enterprise is completed, but in convergence industry, core competencies is configured through the network between businesses that have the resources and capabilities and providers that supplies intermediate goods, and then as a core principal, each of them can create value and drive innovation [3]. In this study, we will explore current status of changing in structure of providers that is transformed from the corporate centered one-way value flow in the past, due to changes of suppliers value chain in convergence industry. In addition, we would like to configure a research model that can strengthen the capacity of enterprise and present the strategy plan through a variety of implementation of collaborative models in form of business-to-business and / or business-to-expert.

2. THEORETICAL CONSIDERATION

Since the 1980s, as saturated status in overall market has been required of diversity, responsiveness and flexibility for its products, and SMEs have been greatly interested in the network [4][5], and then gradually practical cooperation which is beyond the boundaries of organizations has been sought [6]. In case of SMEs, it can react quickly to new challenges and be more innovative in the new area because of its flexible organization [7]. Therefore, in many cases, they achieve innovation through utilizing of external resources then one from large enterprises by cooperation and networking [8]. Yoon (2008) proposed R&D convergence, production technology convergence, and R&D-component technology convergence as a business-to-business cooperation model [7]. R&D technology

convergence means cooperation that SMEs that hold the key technologies involved in product development is sharing their technical competence in order to develop new technologies or new products through in R&D stage. Production technology convergence means to share excellent complementary skills that in the term of competencies on production technology and process technology. R&D-component technology convergence means cooperation between leading the company that plays a significant R&D capabilities in the innovation process and cooperation that hold the Component Technology [7].

Also the adjustment between the providers can be considered as a very important process in order to derive optimized products and services in the convergence industry. Numerous studies have been made that dealing with adjustment methods for each subject, such as planning, building production systems, etc. through negotiations between stakeholders in the existing private providers [9]-[12].

Table 1
Changes in core competencies

<i>Category</i>	<i>Business</i>	<i>Business Network</i>
Unit of Analysis	Company	Extended Enterprise and Value Network (Business, Supplier, Partner)
Resource Base	Resource available in Company	Investment Capability and Competencies of Company in the Network
Foundation for Core Competencies	Internal Company Specific Process	Exclusive Access to Network within the Enterprise
Added value of Manager	Construct with Raising Capacity	Management of Collaborative Partnership
Value Creation	Independent	Cooperation
Conflicts in Management	Autonomy of Business Unit vs. Application of Core Competencies	Competitor for Value Creation or Collaborative Partner

Lee et al.(2011) argues that the negotiation which is a critical element in effective supply chain planning must be developed so that it can be applied in an open environment [13]. It could be seen that business relationships are changed to the relationship associated with freedom, considering the relationship between the trading partners has been transformed, from Tightly-coupled Relationship in the past to Free Relationship, as information is freely exchanged [13]. According to changing relationship between the trading partners due to changes in the business environment, supply chain planning feature, in which is one of the key features

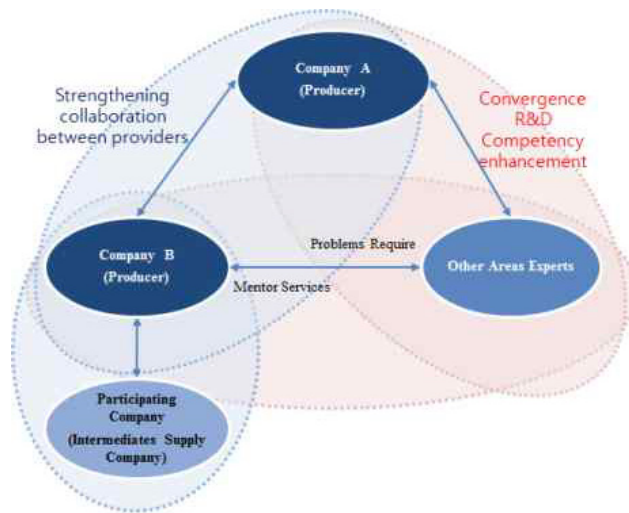
in the elements of the supply chain management should be evolved to reflect the integration concept that consider both customer needs and ability of suppliers [13].

Jang (2014) argues that mutual-type platform and system design that is able to understand the ecosystem of suppliers, producers and consumers, and realize a seamless service strategy through strategic marketing, content(re)production and creating reliable market, are required[2]. Reflecting the era that requires environmental changes in business trends, diversification of business channels and emergence of a new concept business in accordance with the evolution of ICT and consumer patterns, and depending on the spread of value-oriented business [2] it is necessary to prepare strategic collaboration between each stakeholder, including producers of the provider side, suppliers, experts, etc.

3. THE PROGRAM METHODOLOGY

So far, support policies for SMEs to enhance their convergence competencies by strengthening the competencies other than their core ones have been discussed.

Figure 2: The operating system



The collaboration enterprise model can be enhanced through a collaborative structure of production company A and production company B, and the collaboration model can be implemented through collaboration models between production company A and participation company. In addition, each production companies can strengthen their competencies of R&D convergence through collaboration with the professional in other area, excluding own competencies that

the company holds, and this process can be a factor to improve the performance of the enterprise. Convergence industry would bring inter-disciplinary, inter-technique and inter-industry collaboration structure from various fields, and then companies can strengthen their convergence capability through collaborative structures such as business-to-business, business-participating business, and business-experts from other areas.

The expert group consisting of college professors, researchers and entrepreneurs diagnoses technical troubles and issues, improves product design and provides mentoring and consulting services about business management and strategies. Finally, the target SMEs refer to those entities presenting troubles or issues. They are to cooperate with the experts as well as the center in an attempt to solve problems so that products or items can be seamlessly commercialized.

Table 2
Supported contents analysis

<i>Division</i>	<i>Supporting Contents</i>
Technology support	Technical Advisory
	Technical Problem solving
	On-site technical support
	Pilot research equipment support
	Prototype support
	Test & evaluation support
	Collaborative research
Consulting other areas	Commercialization consulting
	Design improvement
	Technology strategy consulting
Education (training) support	New technology consulting
	Methodology training

The experts are committed to technical troubles, consulting about business management and marketing, product design meeting user needs, product planning and technical strategies, which will contribute to improving products and items, facilitating their commercialization and revitalizing SMEs' business.

Regarding the technical domain, all target entities are in need of support in terms of three areas: technical advice, technical solution and on-site technical support. The other demanding area is the prototype production in the technical

domain and the design improvement in the consulting about other fields. This step precedes the mass production, where prototypes are produced to see if technical problems are solved. Also, in case of design improvement, which is a step prior to facilitating commercialization of products, exterior design is improved as a means of sorting out business management troubles in entering the market by reflecting end-users' needs in functional implementation. Thus, this study checks the demands from target SMEs and applies substantial support, coverage and methods to them. Product improvement includes technical support to help tackle technical troubles, exterior design and emotional/psychological functions. Business management consulting includes extensive commercialization, marketing channels and diagnosis of business management strategies.

4. CONCLUSION

Due to the spread of IT technology, business environment has been transformed into completely different with any existing enterprise environment, and IT technology is an important factor in building cooperative networks, considering the nature of convergence industry that obtain the results through the collaboration of various areas.

A robust development of the convergent support for SMEs' competency enhancement requires clarifying convergent competence enhancement components and developing applicable methods. For the system to be more efficiently used by the beneficiaries, it is necessary to activate a multidisciplinary expert network. Also, the expert network pool need be used in a systematic way. In pursuing a collaborative structure where several experts solve problems together, it is necessary to build an integrated system as per each content, outcome and coverage of the support, to facilitate seamless sharing of information between experts and to deliver correct information in communication. Also, SMEs find it difficult to pinpoint the exact interactions with other fields that contribute to their competency enhancement because the competency enhancement components relevant to the interactions with other fields are not clearly articulated. In the past, SME related policies were mostly focused on fragmented support measures. However, with the convergence of industry and technology emerging, innovative value creation requires a corporate support system to change, covering from production to commercialization. Problems need be solved from a range of perspectives, whilst an integrated and centralized scheme need be developed. Without convergent perspectives based on a multidisciplinary collaboration, the support is highly likely to end up in superficial measures, dealing with imminent tissues only. Besides to develop realistic, specific and substantial support policies, corporate needs and demands in the field must be actively taken into account.

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