

A Study on the Market Competitiveness of Small-to-Medium Sized Businesses Utilizing CBMI (Convergence Business Model Innovation)

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Abstract

Background/ Objectives: Businesses in the industrial era of the past could operate under a business model limited to surviving in a single industry by focusing on technological development centered on manufacturing. However, in the present, convergence of various industries and technologies has become prominent and market conditions have come to represent customer-centric thinking, leading to an increased tendency to view the corporate environment as more complex.

Methods/Statistical Analysis: This paper seeks to first review the existing research on the convergence industry, business models and customer-centric product realization, and then propose a CBMI model that can vitalize the convergence of small-to-medium sized businesses. The intended methodology for CBMI shall consider the specific characteristics of small-to-medium and venture companies, and focus on simplicity and easy applicability to develop a business model necessary for the planning and commercialization of convergent products. **Findings:** CBMI methodology aims to propose consists of three stages – establishment of the CBMI scope and design guidelines, formation of an interactive communication channel, and proposition of an innovation process. This process leads to the implementation of the CBMI value flow optimized model. The first stage, by analyzing the business environment within the industry/market to reflect convergence trends and corresponding competitive strategies, establishes the scope of CBMI and the guidelines for activities such as new business model design. The second stage is when customer value may be maximized by establishing an interactive communication channel between the supplier and customers in order to reflect customer needs. It is proposed as an innovation process strategy that includes the process of customer feedback being provided to the supply channel before the final outcome of the product or service reaches the customers. For the third stage includes the supplier-customer interactive communication channel as the convergent element, the business process of how the final outcome is delivered to the customer. **Application/Improvements:** The concept of CBMI presented in this paper aims to enhance corporate capabilities by merging conventional business models with the current competitive trend of convergence, allowing a cultivation of competitive advantage and the establishment of innovation processes. It is believed that the proposed methodology will be helpful in presenting a strategy for the resurgence of small-to-medium sized businesses, which are facing changing business environments due to intensifying competition and heightened uncertainty.

Keywords: Convergence, Convergence Business Model Innovation, Small-to-Medium Sized Businesses, User Centered Process

1. Introduction

Convergence is a divergent process in which heterogeneous entities are assembled or combined in new ways; it can be defined as a strategy and execution plan for

creative fusion of dissimilar elements in order to create innovative value. A business model is a description of a product/service, intended market, means of production and sales, and cost/benefit structure of a specific business. Furthermore, Convergence Business Model Innovation

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(CBMI) refers to a set of activities that seeks to enhance business outcomes by newly designing and implementing a part or the whole of a business model to suit the trends in technology development (such as convergence technologies). Reviewing the pre-existing theories and methodologies that have been proposed from a convergence standpoint, the traditional product development models raised prior to 2000 were suitable for stable, repetitive corporate activities, but do not benefit convergent businesses, which are highly dynamic and difficult to standardize. Reflecting this, the recently proposed customer development model demands that high-tech corporations and startups carry out product/service development and customer/market development in parallel, and many scholars are conducting research on related business models. CBMI is being pursued by most of the leading global corporations and, according to IBM and BCG, it produces double the impact of traditional technological innovation or product innovation, and such impacts are being reported as more enduring. One should pay attention to how convergence, with the omnidirectional diffusion of ICT convergence at its center, is transforming the market order and structure: this is directly related to building a new business model¹.

This paper seeks to first review the existing research on the convergence industry, business models and customer-centric product realization, and then propose a CBMI model that can vitalize the convergence of small-to-medium sized businesses. The intended methodology for CBMI shall consider the specific characteristics of small-to-medium and venture companies, and focus on simplicity and easy applicability to develop a business model necessary for the planning and commercialization of convergent products.

2. Transition to Convergence Industry

Convergence is where previously separate industries begin to overlap in terms of activities, technologies, products and customers. So Converging Industry definition is often difficult because industry boundaries are continuously changing². Convergence among industries, in which disparate sectors and technologies come together to generate a new competitive edge and form entirely new industries, has emerged as a new buzzword across the whole economy and society³. Table 1 shows the value of convergence

technology. Convergence can create new added value through merger of technologies and industries such as manufacturing and service. Development of convergence technology is a process of “solving an insurmountable problem within a given technological field by introducing a different technology,” and it can “respond to rapidly changing technological and industrial environment, and also give rise to new business opportunities in response to demands from non-technological areas”⁴. In addition, convergence technology may overcome the inherent limitations of an industry’s technology and growth, and can provide opportunities not only for the resurgence of the IT industry but also for balanced growth among different industries, advancement of industry structure, new product development, and creation of new services and markets⁵. Also, services, technologies, devices, and information that newly emerge through convergence may give rise to opportunities for innovation that will allow fresh exploration of work processes, environment, structure, and strategy⁶.

Convergence is a form of innovation; its targets include technology, products/service, process, and business models. If there are differences between convergence and traditionally pursued innovation, from a technology viewpoint, it could be that various disparate technologies become the input and give rise to a new technology, whereas existing innovation would typically involve input and output of technologies within the same field. From a business viewpoint, convergence seeks to dynamically

Table 1. Forms of convergence technology⁴

Type Value Creation	Technology Driven Convergence	Market Demand Driven Convergence
Value-added	Convergence for technology evolution: two or more technologies are merged and applied to existing technologies	Convergence for market sophistication: two or more products and/or services are merged to expand existing market
Value-created	Convergence for breakthrough technology: two or more technologies are merged to overcome the limitations of existing technology	Convergence for new industry creation: two or more products and/or services are merged to create a new industry

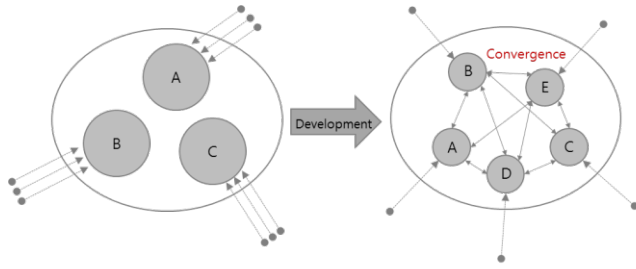


Figure 1. Reconstruct the evolution of digital convergence⁶.

reassemble a variety of component elements rather than targeting only one or two of the elements that make up a business model, which is the process of traditional innovation. While convergence began with technological innovation, it is currently going beyond product and service innovation into the reorganization of industries and markets through Business Model Innovation (BMI)⁴. Convergence from a business standpoint that encompasses customers, product, corporations, and the society will truly become an effective survival strategy for surmounting challenges in an age of uncertainty⁷.

3. Analysis of Business Model and Components

The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit. It thus reflects management's hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit⁸.

used the two criteria of functional integration and degree of innovation to propose eleven models of e-business. He stated that a business model is a method by which a corporation generates profit and conducts business, and must include not only its participants and their roles, but also an architecture depicting the flow of the product, service and information, the potential benefit given to the economic entities participating in the transactions, and the sources of revenues⁹. stated that a business model refers to the content, structure, and governance of the transactions prepared for value creation; structure includes the participating entities, their means of connection, and the sequence of exchanges, whereas governance refers to the method by which the participants of the exchanges adjust the flow of information, products, and resources¹⁰. established a framework of basic elements that comprise

a business model; they defined a business model from the viewpoint of the interrelationship of basic elements^{11,12} defined a business model from a technical standpoint as the logical composition for economic value realization and technological possibility¹³, explained how a corporation operates, who its clients are, what value is presented to the clients and how it is presented, and how much profit is collected through what means as a recompense for providing such value^{14,15}. Furthermore, defined how to create a sustainable competitive edge using the dimensions of strategy, structure, and economy¹⁶, attempted to clarify the concept of business model, its usages, and its roles in the Information Systems domain¹⁷. Mead the products and processes that may be subjected to technological innovation at the consumer, producer, and market levels⁶, categorized the components of business models into customer value, value proposition, operating method, target market segment, and supply capability, and categorized business models into areas of value innovation, product innovation, operation innovation, market innovation, and capability innovation according to the interactions among those components¹⁸.

Although many researchers have proposed numerous definitions of the term "business model", those different definitions may be summarized as "the means by which a corporation delivers value to its customers and generates profit in return;" the corporation, customers, value, delivery method, and profit method are among the components deemed crucial in composing a business model¹. Also, the components of a business model may be largely categorized into structural elements and value elements: structural elements include supplier, customer, product and service, distribution structure, infrastructure, and corporate capacity, whereas value elements are those that may act as a locomotive, enabling the structural elements to circulate, such as value proposition, strategy, and decision-making. While early research tended to describe the flow of business model components, as in the creation of value and profit through the process of moving from the supplier to the customer, later research attempted to heighten economic value by understanding the roles of each component and their interaction and competitive advantage in profit generation through meticulous analysis of interactions among business model components. Reviewing the research of the past few years, it can be said that researchers have taken a systematic approach to value creation elements and their flow to define the processes by stage, resulting in a flexible categorization and reas-

sembly of the components, which has led to an expanding variety of business models.

Recently, there has been heightened interest in Business Model Innovation (BMI) targeting all or some business model components. This method may be applied when entering a convergent or new market armed with a new capability or product. Argue that because BMI is a merger of complex elements, it is necessary to establish and implement methodologies that incorporate a corporation's internal or external capabilities into an existing business model (e.g. idea mining, feasibility analysis, new business model design, prototyping, full-scale implementation, continuous improvement, and similar processes⁴.

4. User-centric Product Realization

Whereas the mass production process in the past caused the formation of a mass-supplied homogeneous market, the buyer's market of today is being rapidly segmented according to the various consumer demands and is transitioning rapidly to a new paradigm, with reduced product life-cycle⁷. This transition to a customer-centric paradigm has focused on achieving corporate goals by providing revolutionary products or services desired by the customers⁷.

The user-led product innovation method relinquishes product design activities to the users, allowing them to design prototypes that meet needs that they have clearly defined²². The past has been a continuation of a process in which customers pointed out problems after product use and suppliers returned adjusted products to the customers. The researchers assert that the recently emerged process of user-led innovation has handed over product

design activities to the customers: customers themselves clearly define their needs and design prototypes that match those needs²¹.

In the area of customer-centric product development, there is the rising prominence of the Product-Service System (PSS hereafter), which strives for new value creation through convergence of product and service within the Korean industrial environment, which is dominated by manufacturing and is traditionally focused on product only²³. PSS is a new concept under which better value is delivered to the customer by providing a blend of product elements and service elements in the form of a single packaged product²⁴. This merger of product elements and service elements departs from the existing competition, which is centered on quality or price, and helps to create new markets and to generate sustainable profit. Manufacturing-oriented corporations can satisfy the diversified demands of customers through "servitization" of their products' functions, whereas service-oriented corporations may reach a wider customer base through "productization", in which the service process is packaged in various forms²⁵.

In 1999, Godekoop and others defined PSS for the first time from environmental and economic viewpoints, stating that, from the standpoint of satisfying the specific customer demands and preferences, PSS is a product of innovation strategy to design, provide, and sell a new amalgam of product and service through a unified system. In contrast to pre-existing business models²⁵, Mont defined PSS as a system that unifies product, service, support network, and infrastructure in order to fulfill the customer needs and promote a wider variety of values²⁶.

5. Suggestion for Business Model Structure (CBMI Methodology)

5.1 Value Flow Driven by Industrial Changes

Businesses in the industrial era of the past could operate under a business model limited to surviving in a single industry by focusing on technological development centered on manufacturing. However, in the present, convergence of various industries and technologies has become prominent and market conditions have come to represent customer-centric thinking, leading to an increased tendency to view the corporate environment as more complex. Industry groups are also evolving into

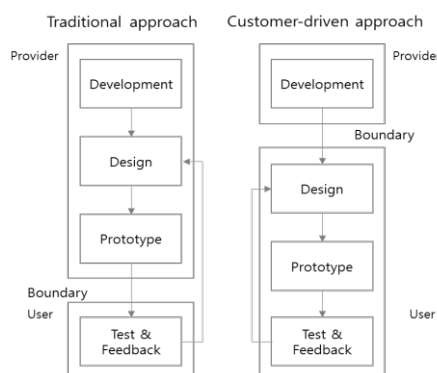


Figure 2. Product development approach, customer-centric approach²⁰.

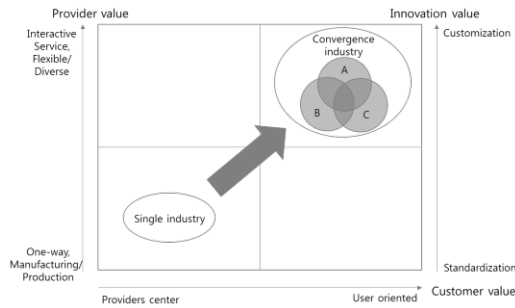


Figure 3. Provider-customer value flow.

convergent industry groups that conduct research and development through a complex network with other fields.

This research has surveyed supplier value, consumer value, and innovation value according to changes in the corporate business environment. While the process was previously performed in a supplier-centric unilateral form, it is now transforming into a flexible interactive process in which customer demands are reflected through fluid communication. By understanding customer needs in advance, the supplier may reduce trial and error in product development, and secure a competitive edge in the market to generate higher profit; the customers may enjoy higher levels of satisfaction by getting products that they desire. In the customer-oriented business model, the customer not only consumes products and services but also takes on the role of a developing party, who helps to create value and lead innovation activities. Innovation refers to the fundamental transformation of a corporation's critical components by improving or securing resources and processes that are essential to business management activities. Through interactions between suppliers and customers, it is possible to provide products and services that are tailored to the customer; this may be expanded on into innovation processes that determine the values that are delivered to the customer.

5.2 Business Model Design by Stage

The Convergence Business Model Innovation (CBMI) methodology: that this research aims to propose consists of three stages – establishment of the CBMI scope and design guidelines, formation of an interactive communication channel, and proposition of an innovation process. This process leads to the implementation of the CBMI value flow optimized model. The first stage, by analyzing the business environment within the industry/market to reflect convergence trends and corresponding com-

petitive strategies, establishes the scope of CBMI and the guidelines for activities such as new business model design. A business model refers to the business activities related to the flow of products and services from the supplier to the customer; this model may be comprised of structural elements and value elements. These elements may be expressed in terms of the corporation's environment and competitive strategies, and various innovative elements of business operation such technology development, production, sales, and marketing may be combined to create new added value and build a business model that has a competitive edge over the models of the competition.

The second stage is when customer value may be maximized by establishing an interactive communication channel between the supplier and customers in order to reflect customer needs. In other words, it is proposed as an innovation process strategy that includes the process of customer feedback – their various opinions and user experiences – being provided to the supply channel before the final outcome of the product or service reaches the customers. Through the innovation process proposed in this study, the role of the customer can expand from that of a consumer in the traditional supplier-centric business model to one of both consumer and developer: this may be cited as what differentiates the model in this research from existing business models. In particular, as the convergence environment matures, a basis has been formed from which even more vast and diverse forms of data and service may be utilized by the consumer⁶, leading to changes in consumer value perception, and initiating a movement of customers becoming passionate prosumers. For example, consumers have now become able to participate in activities previously reserved only for designers, such as directly proposing designs for products they want. In other words, the customer is the consumer yet may develop new ideas at the same time, may participate in the joint development of products and services, and can accelerate technological innovation by participating in new product development as a user.

The current stage also suggests the component elements of the business model; those proposed in this paper can largely be categorized into structural factors and value factors. Structural factors refer to the physical elements that comprise the series of processes up to the delivery of the final outcome to the customer, and may refer to the supplier, customer, product or service, distribution structure, infrastructure, and corporate capacity. Value factors are the business management activities that drive the

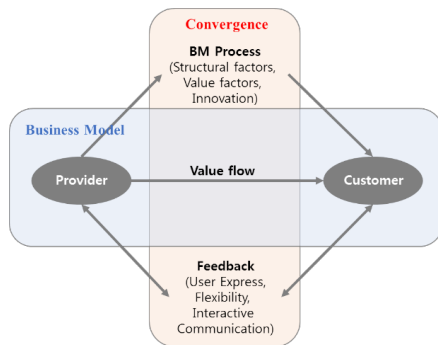


Figure 4. CBMI framework.

structural factors to circulate, such as value proposition, strategy, and decision-making. For the third stage, this research proposes the innovation process CBMI, which includes the supplier-customer interactive communication channel as the convergent element, and which is based on the business model frame of value flow from supplier to customer, i.e., the business process of how the final outcome is delivered to the customer. The innovation process is what generates a competitive edge through new ideas, a new distribution network, new technology, new sales area development²⁷. This research proposes a CBMI value flow optimized model that creates shared value by providing unique, tailored “experience” through joint effort by both the supplier and the customer.

5.3 The Example of the Customer-centric Business Model

Boeing of the US and Nespresso may be good examples of the convergence business model and a customer-centric innovation process.

In developing the 787 Dreamliner, Boeing secured a competitive advantage by providing an ideal experience to the customers. The 787 Dreamliner increases levels of pressurization and humidity to minimize jetlag; it is also equipped with dynamic LED lighting as well as automatic brightness control, which reduces eye glare and eliminates the need for window shades. It also has large windows that are at eye height, employs ride smoothing technologies that reduce stress and allow a more comfortable sleeping experience during night flights, and includes virtual reality devices that provide an ideal experience to Boeing passengers and clients.

Nespresso, an operating unit of the Swiss Nestle Group, continuously sought consumer feedback through customer experience applications in order to develop products that

incorporate customer demands for a premium experience and convenience. Through exclusive customer clubs, Nespresso offered coffee consulting services that would match the taste of a customer with a specific blend among the 23 Grand Crus capsules; the company also recommends new coffee capsule products to suit a customer’s usual preference. Furthermore, coffee is delivered as fast as possible using next-day service, and used capsules are collected by the courier when a new order is delivered, without the customer having to visit a Nespresso Boutique. With this customer-centric business model providing a premier coffee experience, Nespresso’s revenue increased at an average of 30% per year over the past 10 years and the company has sold over 20 billion capsules since 2000, according to Nespresso’s internal reports.

6. Results and Future Research Direction

The 21st century is transitioning into an age of convergence, with the merging of technologies, industries, and services; this diffusion of convergence is creating revolutionary added value and bringing about a new economic paradigm. ICT has expanded the convergence phenomenon and provided a basis from which the customer can utilize vast and diverse forms of information and services; the consumer’s role now acts as a crucial variable in the changing economic paradigm. Already, new consumer culture trends are emerging in various places, such as the rise of emotional decision-making, the formation of consumer communities, and expansion of roles as participants in the value addition and production process. This consumer-centric paradigm shift is a demand of the times, and businesses may seek sustainable growth by accepting such changes proactively and designing strategic business models to maintain competitiveness. Businesses must focus on achieving their goals by supplying the market with innovative products or services that the consumers desire.

A business encompasses a variety of component elements and staged processes, and corporate innovation may be achieved by improving each of the elements or by introducing a new program. Through innovation, businesses can offer their clients differentiated value and can grow their own prowess.

This paper has proposed a methodology by which small-to-medium sized businesses can strategically execute Convergence Business Model Innovation (CBMI)

with more ease. The proposed CBMI consists of the three stages of CBMI scope definition and business model design, interactive communication channel building, and innovation process proposal; this is followed by the establishment of an optimized model for CBMI value flow. While the BM and BMI models proposed by existing researchers have only targeted businesses, the concept of CBMI presented in this paper aims to enhance corporate capabilities by merging conventional business models with the current competitive trend of convergence, allowing a cultivation of competitive advantage and the establishment of innovation processes. It is believed that the proposed methodology will be helpful in presenting a strategy for the resurgence of small-to-medium sized businesses, which are facing changing business environments due to intensifying competition and heightened uncertainty.

Looking forward, all of this means that the need to enhance the capabilities of small-to-medium sized businesses through innovation in a variety of corporate management activities will become an important research topic, in addition to the realization of innovation processes through the consumer communication channel as an element of convergence, as suggested by this paper.

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