A Framework That Shows the Process to Help Customers Understand the Value at Each Stage of Product Development

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Article Info

Abstract

New products for new markets must meet market requirements. However, in the early stage of the new product development, the market requirements cannot be accurately understood. Therefore, we believe that finding the good customers, educating them, and helping them understand the value at each stage of product development is essential. We show a framework in which the process of searching for good customers and helping the customers understand the value at each development stage of the new product for the new market. Furthermore, we discuss whether this framework can be effective in the development of new products for new markets.

1. Introduction

Innovation is necessary for companies to achieve growth [1]. It is said that innovation is a process and can be managed by controlling key factors [2].

Itami et al. said that the innovation process has three stages: creating excellent technologies, creating a path to the market, and changing society. They explained that ensuring the implementation of these three stages is important [3].

Ted et al. said that the innovation process has four stages: "analyzing signs," "procuring resources," "implementing," and "learning and re-innovation"[2]. Haruyama et al. said that the innovation process has four stages: "creating value," "communicating value," "creating a structure for implementation," and "implementing and relearning". They said the importance of repeatedly executing the innovation process cycle [4].

Since innovation significantly changes human social life [3], it is essential to make customers, the market, and society understand the value of innovation [5]. Therefore, it is essential to adapt the product to market requirements. We believe that it is essential to select good customers and to make the customers understand the value at each stage of product development. In this paper, understanding value means knowing how customers use the product and what benefits they derive from using the product.

Customers have limited experience with new products, making it difficult for the customers to understand the value of new products. Hamel et al. stated that market research for new product concepts is inaccurate [6]. Therefore, the challenge of getting customers to understand the value is more important for new products than for existing products. From the above, we decided to discuss new products.

It is difficult for innovators to understand the characteristics of customers in new markets. In addition, Hamel et al. said that the research of the new market is often useless [6]. It is more difficult for innovators to find

good customers in new markets than in existing markets. Therefore, the issue of finding good customers is more important in new markets than in existing markets. From the above, we decided to target new markets.

Unlike B2C, B2B is characterized by "high customer interest in features and performance"[7]. It can be assumed that the method of getting customers to understand the value is simpler for B2B than for B2C and that the framework we have created is more applicable to B2B than to B2C. Therefore, we decided to discuss the framework for B2B.

Based on the above, we set the scope of this paper to the B2B domain within the New Markets and New Products quadrant, as shown in Figure 1[8].

The following are prior studies on how to find customers. Kotler et al. showed a method to search for customers through the steps of "needs identification," "segmentation," and "positioning"[9]. Hamel et al. showed how to search for customers through repeated trial-and-error market experiments [6]. Exhibitions, conferences, webinars, and homepages are well-known methods [10]. However, previous studies showing how to search for customers in relation to the product development stage are not enough.

For the process to help customers understand the value, Kotler et al. provide the steps of clarifying the target customers, determining the communication objectives, designing the message, selecting the medium, and receiving feedback [10]. As mentioned earlier, Hamel et al. advocated "exploratory marketing," in which products are introduced to the market early and repeated trial-and-error market experiments are conducted to identify customers and help customers understand the value [6]. However, both are implemented after the completion of the product.

In summary, it is important to find good customers and help the customers understand the value at each stage of product development. However, prior studies have not been sufficient.

In this study, we propose a framework that shows the process to help customers understand the value at each stage of product development, limited to B2B domain within the new product/new market quadrant. In addition, we discuss whether the framework can be useful for developing new products for new markets.
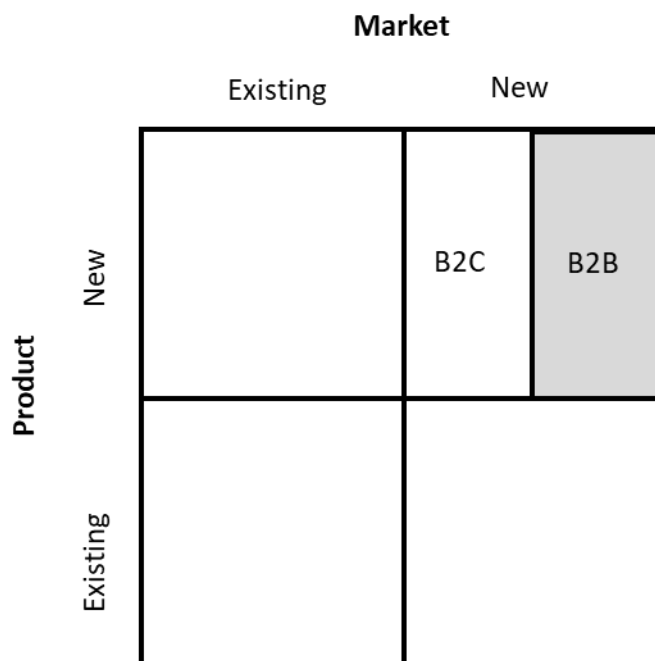

Fig. 1 *The scope of this paper*

2. Methodology

As mentioned above, Kotler et al. and Hamel et al. show the process of making customers understand the value [6], [10], but these processes are implemented after the completion of the product. In other words, there is not enough prior literature that shows the process of helping customers understand the value in relation to the product development stage. We developed a framework that shows the process for helping customers understand the value at each stage of product development in the steps shown in Figure 2. First, we identified and categorized the processes that help customers understand the value. Next, we set up two axes in the figure to plot the processes. The vertical axis is the target of value understanding, and the horizontal axis is stage of product development. Next, we determined targets and stages of product development for each process. We plotted each process at the appropriate location in the area indicated by the two axes.
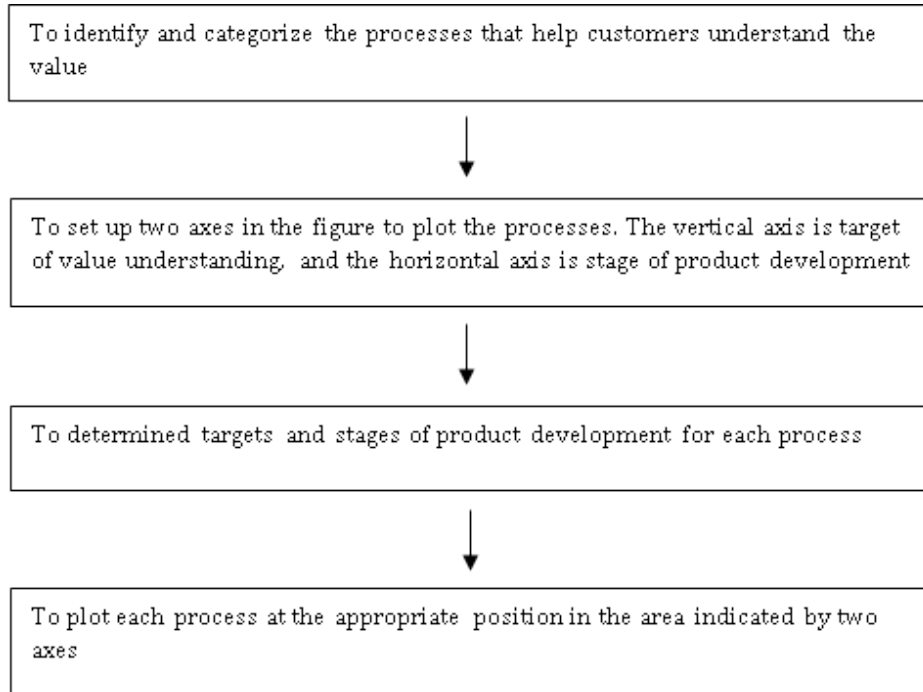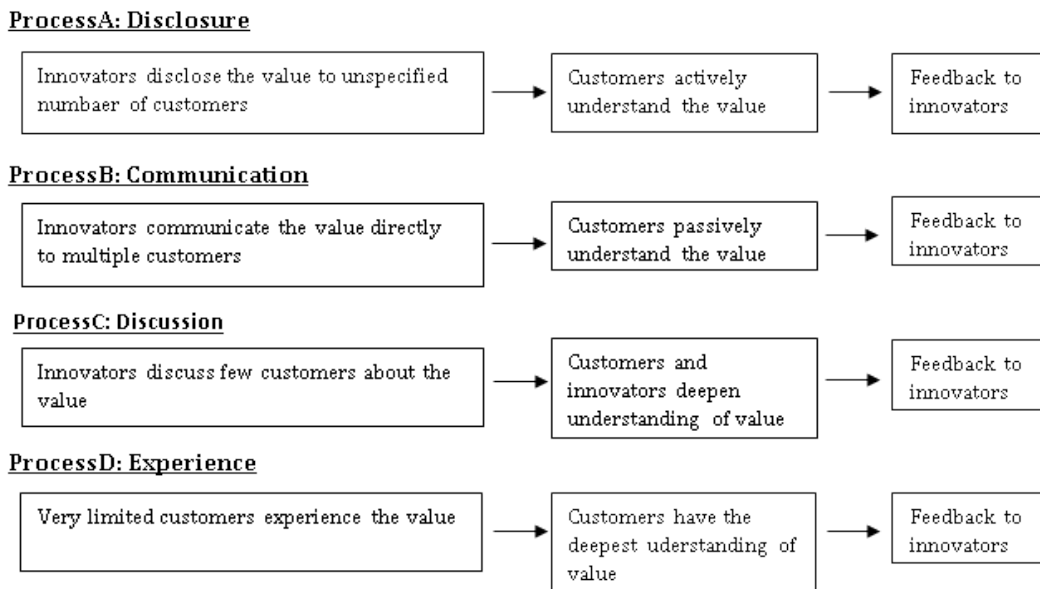
Fig. 2 *Steps to create the framework*

Fig. 3 *processes to help customers understand the value*

3. Results

3.1 Process to Help Customers Understand the Value

As shown in Figure 3, the processes of helping customers understand the value can be organized into four processes. We define process A (disclosure) as the process of disclosure to an unspecified number of customers, process B as the process of communicating directly to multiple customers, process C (discussion) as the process of discussion with a limited number of customers, and process D (experience) as the process of experiencing.

In process A (disclosure), trade shows, conferences, webinars, websites, catalogs, and advertisements are used to help customers understand the value. An unspecified number of customers are targeted [10]. In this process, the customers actively understand the value. In process B (communication), the value is communicated directly to multiple customers. This process is similar to Hamel's "exploratory marketing" described above and innovators obtain feedback from customers by repeated trial and error [6]. In this process, the Customers

passively understand the value. Customers in process C (discussion) are fewer than the customers in process B (communication). In this process, innovators and customers discuss with each other to deepen their understanding of the value [11]. In process D (experience), customers understand the value through experience [10]. According to Kotler et al., customers in B2B emphasis functionality and performance [7]. Therefore, experience is important for customers to understand the value.
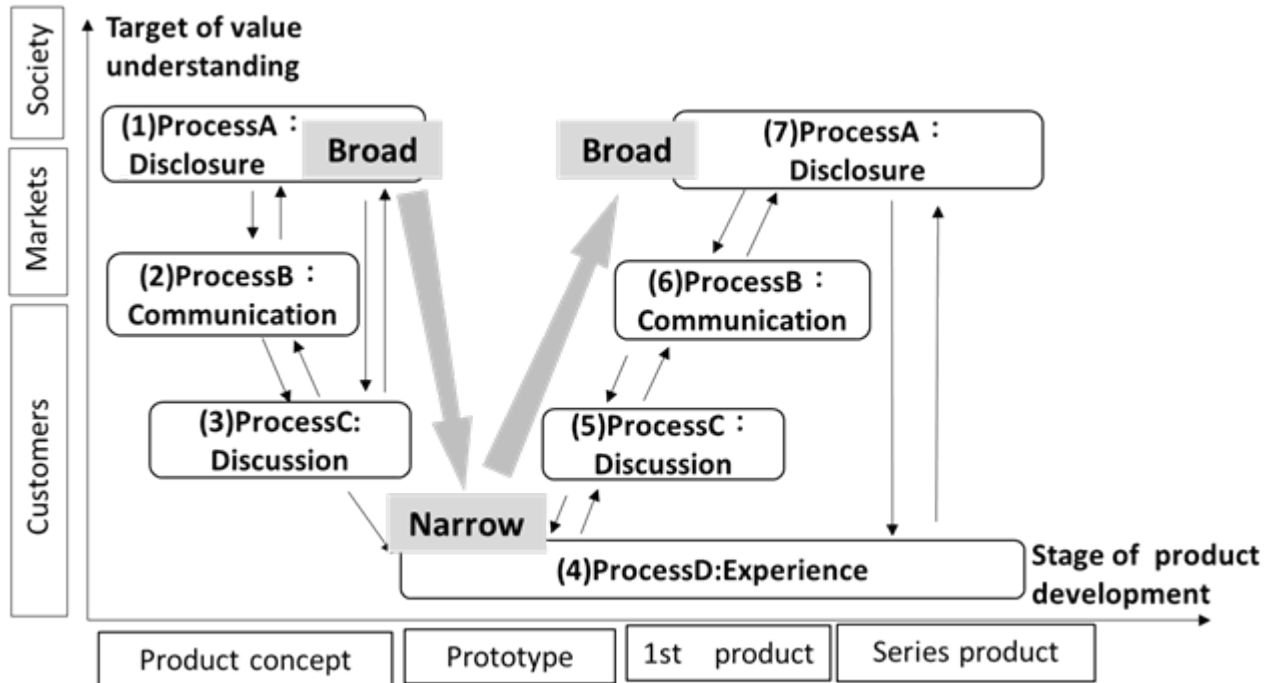

Fig. 4 *A framework that shows the process to help customers understand the value at each stage of development*

3.2 A Framework for the Process to Help Customers Understand the Value

Figure 4 shows a framework for the process to help customers understand the value. The vertical axis indicates the target of value understanding, and the range of targets expands as one moves up, from the customers to the market to society. The horizontal axis shows the stage of product development. Generally, the stages are as follows: Product concept, Prototype, 1st product, and Series products [10], [12].

In the product concept stage, the target customers and their required specifications are not clear, and it is important to develop an understanding of them as accurately and efficiently as possible. To avoid missing out on good markets and customers, innovators should disclose the value widely to customers, markets, and society at the product concept stage. This can be effectively achieved by implementing process A (disclosure). After receiving feedback in process, A (disclosure) and narrowing down the market, the innovators execute process B (communication). In this process, the innovators also receive feedback and further narrow down the markets and customers. After receiving feedback in process B (communication), the innovators execute process C (discussion). In this process, the innovators develop a deep relationship with their customers. The innovators and their customers discuss and deeply understand the value.

For customers to understand the value of the new product, it is effective to experience the value in the prototype at an early stage [10]. Therefore, process D (experience) should be executed from the stage of prototype. In this process, the innovators deepen the relationship with a miniscule number of good customers, and the prototype experience gives the customers a deeper understanding of the value. Innovators determine core customer value by the customer feedback.

After that, the innovators gradually broaden the targets and execute process C (discussion) and process B (communication) again to receive feedback from many customers. Based on the feedback from the many customers, the innovators brush up product specifications and create the first product through the stages of prototype. After process B (communication), the innovators execute process A (disclosure) again. The value disclosed in process A (disclosure) at this stage is so clear that it can be expressed at the product specification level, unlike the process A (disclosure) executed at the product concept stage. By executing the process, A (disclosure) again, the innovator makes many customers understand the value of the product.

After the 1st product, the innovators offer the series products to the market, expanding the scope of product penetration from customers to the market and further influencing society. Although Figure 4 shows a flow from

(1) to (2) to (3) to (4) to (5) to (6) to (7), there may be backtracking, as indicated by the arrows. Moreover, since customers in B2B are extremely interested in functionality and performance [6], they want to confirm the functionality and performance with "things" before purchasing it. Therefore, process D (experience) spans long period of time from prototype, 1st product, and series products.

4. Discussion

We discuss whether the framework shown in Figure 4 is effective for helping to accomplish the following tasks.
  (1) Finding good customers without overlooking them
  (2) Adapting products to the market requirements
  (3) Offering new products to the market at large

4.1 Finding Good Customers Without Overlooking Them

To avoid overlooking good customers, the value must be widely disclosed to customers early at the product concept stage. Therefore, the innovator should perform process A (disclosure) first and foremost at the product concept stage. It is possible to find customers interested in a product concept by conducting process B (communication) or process C (discussion) without conducting process A (disclosure). However, the market to which such customers belong may be small. Creating a product based on the voices of such customers may solve the problems of some customers, but it will not be able to influence the market and society. To prevent this, it is effective to start with a broad target and gradually narrow it down from process A (disclosure) to process B (communication) to process C (discussion). During the product concept stage, customer feedback may change the value. In such cases, the innovator may miss good customers interested in changed value. It is effective for the innovator to return to the previous process, especially to process A (disclosure).

4.2 Adapting Products to the Market Requirements

It is necessary to reflect the voices of customers to adapt products to the market requirements, but it is difficult to reflect many customers' voices with limited resources. As mentioned above, utilizing this framework, the innovators select a very small number of good customers at the product concept stage and execute process D (experience). This can reduce resources.

According to Kotler, customers in B2B emphasize functionality and performance, and industrial products are similar worldwide [6]. Therefore, in B2B, if products are made to meet the needs of good customers, they are more likely to meet market requirements. In this framework, the innovators select a very limited number of good customers at the product concept stage, execute process D (experience) for a very limited number of good customers, and create products that meet the requirements of a limited number of good customers. In B2B, products adapted to the requirements of good customers are more likely to meet market demands. Therefore, the framework is appropriate for helping to achieve the task "adapting products to the market requirements".

4.3 Offering New Products to the Market at Large

For an innovator to bring a new product to a large market, many customers must understand the value of the new product. The innovator executes process D to make a limited number of customers understand the value of the new product. Then, by executing process C, process B, and process A in that order, the innovator gradually makes many customers understand the value of the new product. Therefore, this framework is effective for accomplishing the task of bringing a new product to market.

5. Conclusions

We presented a framework that shows the process to help customers understand the value at each stage of product development. We believe this framework is useful for accomplishing the following tasks, which are limited to the B2B domain within the new products/new markets quadrant.
(1) Finding superior markets and customers without overlooking them
(2) Adapting products to meet market requirements.
(3) Offering new products to the market at large.

Acknowledgement

Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design***: Yoshinori Hayashi, Koji Masuda, Shigeyuki Haruyama;* **draft manuscript preparation***: Yoshinori Hayashi;* **review and supervision***: Shigeyuki Haruyama. All authors reviewed the results and approved the final version of the manuscript.*

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