

PRODUCT DESIGN & DEVELOPMENT STRATEGY UNDER FRAMEWORK OF INNOVATION FACTORS

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ABSTRACT. Continuous market introduction of innovative new products to a target market is one of the best ways to attract customers. However, not all companies hold the innovative product concepts and product development skills. Every organization holds different types and levels of innovation and this condition leads introduction of many types of innovative products to a market. Under this condition, organizations need strategies to stay on the business. This research shows several types of conceptual product development strategies which are developed with focus of product innovation using factors of level of product change, scope of product change and speed of product change.

KEY WORDS: product development strategy, marketing strategy, innovation strategy, product strategy, management of technology, product management, product innovation factor

1. INTRODUCTION

Product development based on customer preferences is a key to obtaining a larger market share and faster sales growth for organizations in a high-tech products market. Some of the customers likely satisfy current products in a market, however the others continuously seek and repeat purchasing new products to be satisfied by more improved products. Organizations

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must follow this type of customer movements so as to offer higher level of satisfaction to the target customer. To bring the new product with customer satisfaction into the market, it is important to understand the customers' product expectations and characteristics of own innovative products. By analyzing these aspects, the strategic product development is enabled.

The purpose of this paper is to develop a conceptual model of product development strategies to companies which frequently develop new products. The developed new concept of strategies suggests effective movements for each organization in a market of innovative products. The strategies especially focus on the current technological product market which requires certain technological improvement with good customer focus. In the most of cases, organizations with the both skills such as a market analysis and product innovation have a higher possibility of obtaining larger market share in a target market. However, not all of the organizations hold the both skills in competitive level. If organizations are good at just some of the skills, they may compete in the same market in different strategic methods.

The strategies are developed from the three viewpoints: level, scope, and speed of product change. Because there are various ways to improve products to satisfy target customers' expectations, above three factors are used to design the concept. In this paper, mostly explains background concept of strategy development with focus of products; however, it will contain more customer view and connect to practical level as the further research.

2. BACK GROUDND CONCEPT

In this research, three factors are introduced to define the level of product innovation. The factors are level of change, speed of change, and scope of change. The logical primary reason of using above three factors is that product innovation occurs in terms of the following three points: (1) Level of product difference comparison of new and last products, (2) Speed of new product delivery time and/or frequency of new product introduction, (3) Scope of change such as narrow to wide area impact on existing product categories, lineup, family of product.

New products are developed as innovative products in several ways. It is depend on what the focus is. Most of innovative products focus on improvement of current products in terms of product function and/or performance. This improvement could be slight to large change. It could be introduction of brand-new product or just modification products to a market.

Also, some certain types of products are focus on time issues. One of the major competitive factor is known as speed of product development frequency, new product delivery time to the

market. It is closely related with speed of market trend movement. Customers sometimes expect next improvement products in a short period of time. Regardless whether the improvement is large or small, customer wants just new products. Also, trend expectation of customers varies by product brand. It related to the brand image.

Some types of product innovation effect existing product in a current market. Because of market introduction of new innovative products, some similar existing products and/or same usage products are taken into the competitive situation. The coming new innovative products influence narrow or wide types of existing products, because the introduced products squeeze into the current market in the most of case. As the result of the movements, some types of existing products are driven out of the market. In this research, innovation levels are defined based on aspect of three factors: change, speed, and scope of product innovation. The conceptual product development strategies from the aspects of product innovation level are developed by applying the three factors.

3. MAJOR DESIGN STEPS OF STRATEGY

Major steps of designing the strategies contain three major parts. As the first step, level of change is defined and strategies are designed by the level, high to low level of innovative change. As the result of first step, strategies are classified as type I, slight innovation, and type II, intense innovation.

In the second step, the strategies are designed for each strategy type. Both type I and II strategies are developed in same method by using the rest of two factors, speed and scope of change. By using, the rest of two factors, four types of strategy are designed. The four strategies are conceptually developed by the each level of scope and speed of change.

The process moves into final step as the third step, after the design of the eight conceptual strategies, four types of strategies for each type I and II. Because each strategy must fit a purchase behavior of target customer who are interested in innovative products, the strategies are redefined for the specific target customer types. Traditional classification of customer types is applied from the view of marketing. Five customer types are selected from the concept of product adopters classified by the customers' manner of innovation adoption. The considered customer types are innovators, early majority, early majority, late majority, and laggards. Figure 1 shows conceptual model of strategy design process and following sections explain more in detail. (The steps of defining strategies for each customer type are not in this report.)

4. STEP 1: STRATEGY CLASSIFICATION, CHANGE LEVEL

The developed strategies are classified into two main strategy types, type I and type II. When the case of level of change is low to medium level, it is type I. Type II covers medium to high level of change. Therefore, the strategies are roughly grouped into two types by the difference of the level of product change.

The Figure 2 shows conceptual allocation of type I and type II. Type I focuses on slight change of product and type II focuses on intense change of products. In the figure, the vertical line shows level of product change, low to medium and medium to high level. At the middle of vertical line, it is separated for type I and type II. The each strategy is developed differently which is explained more in the following sections.

5. STEP 2: STRATEGY CLASSIFICATION, TYPE I, SLIGHT CHANGE

In the case of level of change is low to medium; it is type I. Conceptual model of strategy type I is shown in Figure 3. This strategy type focuses on the new product of slightly improved and/or different products which introduced to the target market as innovative products. This type of products does not change in any core technologies and platform technologies of the new products. Therefore, the level of product change is considered as lower level if compare with core technology changed products and/or platform technology changed new products. Each type of products must hold separate strategies, because difference of application type of technology leads different level of change in products. These different types of changes cause different customers' purchase behaviors. Each product characteristic is recognized differently and attracts different type of customers in the market.

In the figure 3, the vertical axis shows scope of change and the horizontal axis shows speed of

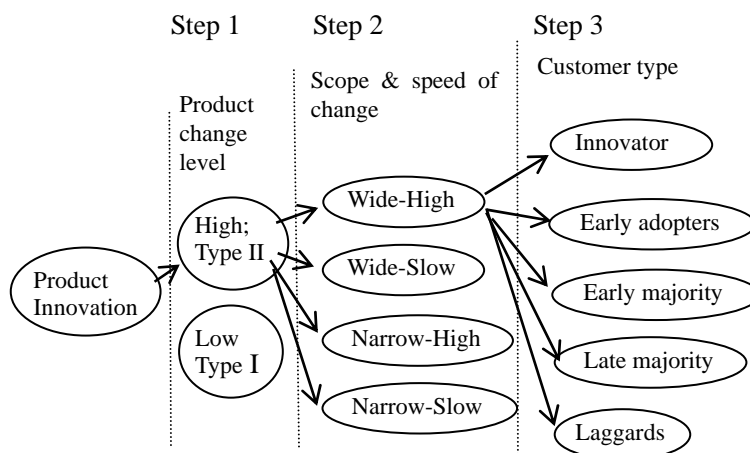


Figure 1 Concept of strategy design process

* Every different path leads different type of strategies. Figure shows only some paths as examples.

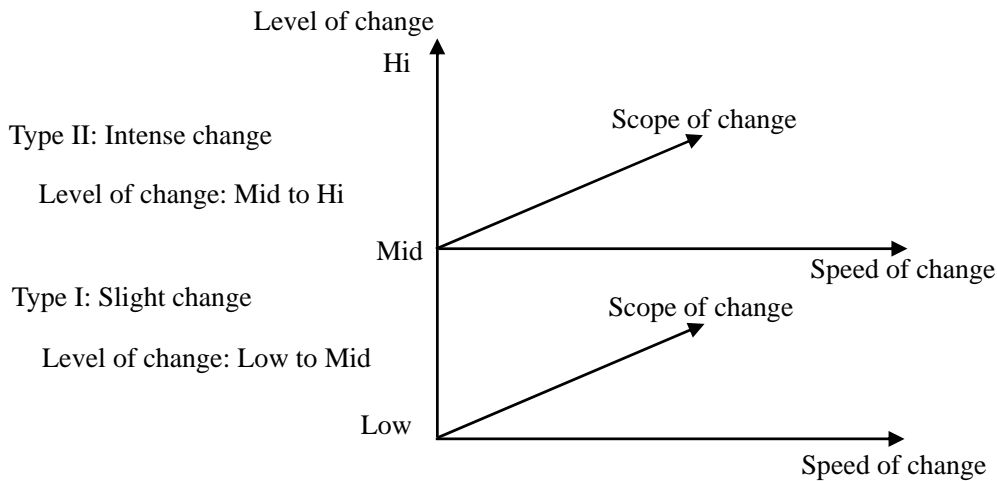


Figure 2 Strategy type I and type II

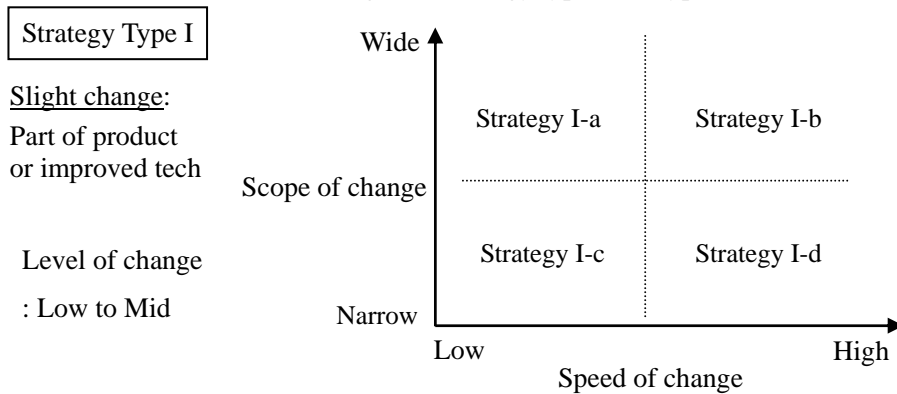


Figure 3 Strategy type I

change. Four types of strategies are allocated in this chart. The strategies are classified by the level of scope and speed of change. Type I-a and type I-b are strategies for products which effect on wide variety of products in a current market. On the other hand, type I-c and type I-d are products which do not have impact on the wide variety of products.

Also, strategies are categorized by the speed of change. Strategy I-a and strategy I-c are designed for slow change products. The products in this category do not have high-speed frequency of new product delivery time. It usually has longer product life cycle. On the other hand, strategy I-b and strategy I-d are strategies for products which have frequent product change. It holds shorter product life cycle.

6. STEP 3: STRATEGY CLASSIFICATION, TYPE II, INTENCE CHANGE

In the case of level of change is medium to high, it is type II. Conceptual model of strategy type II is shown in Figure 4. This strategy type focuses on the new product of large improved and/or totally different products introduced to the target market as innovative products. This type of products changes in some core technologies and platform technologies of the new

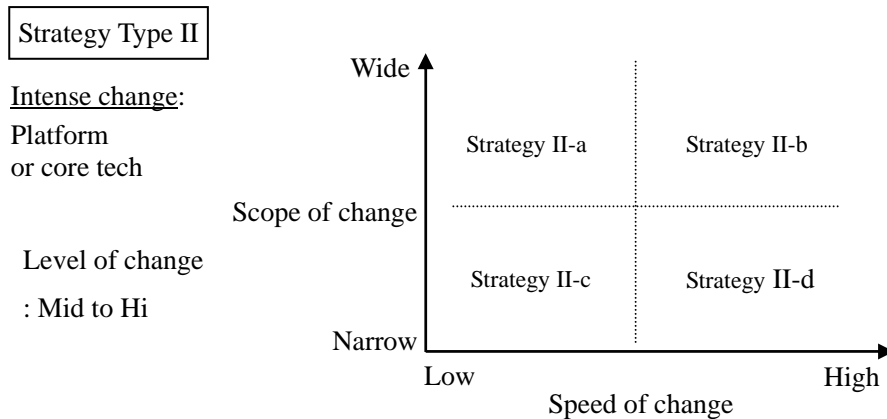


Figure 4 Strategy type I

products. Therefore, the level of product change is considered as higher level if compare with new products without changes of core technology and/or platform technology. Each type of products must hold separate strategies, because difference of application type of technology leads different level of change in products. These different types of changes cause different customer behavior when they purchase products. Each product characteristic is recognized differently and attracts different type of customers in the market.

7. CONCLUSION AND FURTHER RESEARCH

In this report, the background concept of product development strategy from aspect of level of product innovation is explained. Strategies are developed with the consideration of two points, product and customer; however, this report mostly focuses on products. Focusing on the product is important approach, because product innovation level and the way of product innovation are different form each type of products and/or organization. It may be speed, difference, and/or scope of change.

As the further step, a customer point of view will be considered to redesign the suggested strategy. Traditional customer classification of marketing will be applied to refine the suggested eight strategies. The traditional customer classification includes five customer groups: innovators, early adopters, early majority, late majority, and laggards. This customer-focused strategy leads effective product development management in the current technological market.

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