

## A Theoretical Approach to Factors Effecting New Product Development

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### Abstract

In our modern age that is having a quite fast and dizzy economic and social alteration and progress, witnessing a new technological product each and every day, and in which the expectations of consumers are getting higher and higher; enterprises have to be successful and sometimes manage to survive. Shortening life span of a product and the fact that consumers ask for a higher quality and a richer variety than past times make the job of enterprises more difficult. Therefore, in order to be a successful business enterprise which is keeping its place in business world, it has been an obligation to put forward the products that have the expected qualifications by the consumers into the market on the right time without having a lack of quality.

**Keywords:** Developing New Product, New Concept Development, Process of New Product Development, Product Life Span.

### Introduction

Today, dynamics in marketing have been improving in a fast way. Strategies of 1980 and 1990s to control the cost and to better the quality have failed in the struggle for competing in the markets of 2000s. In recent times, competitive advantage and achievement have been able to keep their presences only by offering new and original products to the new or existing markets (Cengiz et al., 2005:1)

Act of developing a new product is a quite risky and costly process. Researches show that being able to develop a successful product in market requires creating lots of product idea.

Moreover, it has been stated in studies that accomplishment rate for the products after the process of developing a new product is around %10. Hence, enterprises ought to carry out all the necessary analyses and realize all the required arrangements in their institutional bodies while developing a new product. During this phase, it has a vital importance to get benefit from various scientific and technical cost calculations methods in order to prevent possible negative results and other possible cost loads for the enterprise (Aksu and Apak, 2014:2)

The ability of developing a new product and adapting to the technological progresses affect the level of competition in a high proportion. Innovation that is defined as to create a new benefit for customer finds out new solutions which will present new advantages for the customer. At this point, the most important thing creating the advantage of competition for an enterprise is the idea of innovation. Therefore, to be able to mention about an innovation, a product should have some specific features such as the importance of this product for the customer, its uniqueness in the eyes of the customer, having no equivalent or alternative and openness to marketing.

Developing a new product means a hard and complex process at the same time. Even though they have no guarantee for the success of their newly products, firms may have to spend a big quantity of money, time and energy. For this reason, the process of developing a new product is quite risky. (Hauser and Dahan, 2007:3)

Firms, especially having activities in Turkey, need to create technology, develop new products and be different more than ever in order to be a member in the group of developed countries in the world. From this perspective, research and development (R & D) activities that are described as the systematic and creative studies related with the discovery of new product and production processes are having a greater importance in the process of creating useful and practical items.

### **Concept of Developing New Product**

Firms generally sell different goods in different markets. An enterprise has to use the specific marketing components addressed to the customers in the targetted market. They may have to do some alterations in their marketing components in time due to the variations or changes in the attitudes and preferences of the consumers. On account of these causes, the enterprise may have to introduce new products to the market and do some changes in the existing ones. The most important factor affecting profit rate of a product is consumers' priorities and preferences. On this phase, the concept of "new product" and "innovation" appear (Gezer, 2014:8)

It is not sometimes sufficient only to manage the present products efficiently to reach the strategical targets. Enterprises need developing new products in order to keep the interests of the consumers to the item alive and to get rises in sales (Musellim, 2002: 3)

### **Definition of New Product**

It is firstly needed to be realized the concept of new product completely to comprehend the process of developing new product. While the first things are generally physical objects in our minds when we think about the new product, it should not be overlooked that a new service or a group of services are also new things. In addition to the new working machines, electronic devices and automative items; care services, technical services and softwares are also considered in the scope of new product. (Koyuncu, 2011: 1)

When given a brief definition of product, it can be explained as all the things presented to the market in order to meet a need or a desire and applying the functions such as consumption

and usage. One can regard a physical object, a service, a place, a person, an organization, an idea or all these things mentioned as a part of this definition. On the other hand, new product is a quite comprehensive concept that can mean either presenting a totally new product with all the aspects never presented to the market before or differentiating an existing product by doing some revisions on it, or creating a usage in a new area (Sezer, 2014: 11)

Developing new product offers the benefits of time, cost and superiority in competition on the other firms. It is a process that aims the presentation of goods which are more suitable for the needs of the consumers compared to the existing ones and it also means recreating, differentiating an even changing it into a completely new item (Emiroglu, 2011: 2)

### **Classification of New Item**

Newly- created materials are products including technological distinctions in terms of their functions, their components and the materials used in their bodies when compared to the previous product generations. Changes in newly developed products are categorized in a scale from the minor improvements to the bigger innovations. If we exemplify this explanation: it can be enough to change any feature of the product to make it a new one (Koyuncu, 2011: 1) Size of the development is a sign of the difference between new and existing item. Classification of a product in terms of its "newness" may differ according to the view point about the concept of innovation or development. In the following, there are some classifications regarding the development of a new product (Murthy et al., 2008: 18)

- Completely new products by making use of the inventions and technological progress
- Products having a meaningful change for the market and the business
- Products that are new for the business but similar to the ones produced by the competitors
- Products that are new for the business but ordinary in the market
- New technological products (Analog Vs Digital Computers)
- Products that are re-created by means of the changes made in the package or service features of the old one (Design, price, sale conditions, package)
- Products re-created by the changes in the physical sizes of the old one
- Finding new usages of the existing product
- Products re-produced and re-designed by cutting the cost of production

### **Factors Effecting New Product Development**

In an increasingly globalized world, factors such as changing consumer needs, technological progress, development of production methods, improvements in the markets and the decrease in the life span of a product force the business or firms to create new goods in order to keep their competition power. Companies that can make a difference compared to their rivals have a strong progress in the future. New products can help the business be stronger strategically by having an increase in its competition power (Sezer, 2014: 14)

### **Shortening of A Products Life Span**

Life span circle of a product is a process explaining the alterations in its sale and profit volume in a period of time. Though the shape and the length of life span varies from product to product and even from an industry to another, five basic phases can be listed regarding the physical life cycle of a product. When a new product appears in the market, sales volume increases and after a period of time decreases (Musellim, 2002: 14)

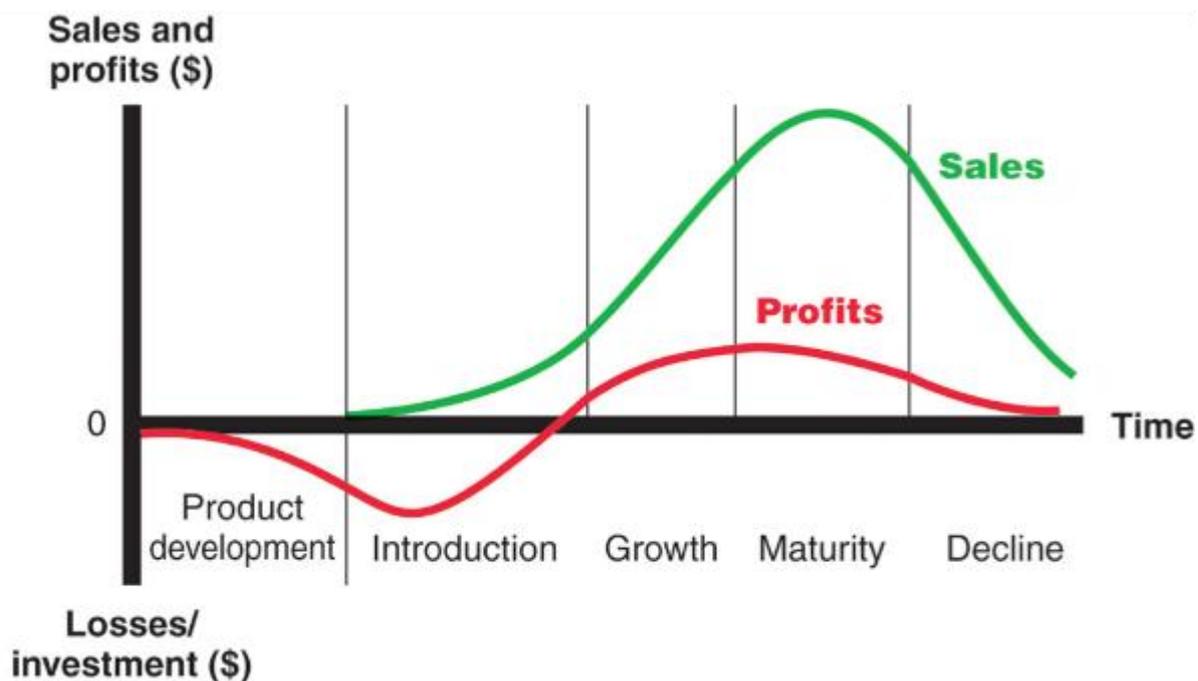


Figure 1: Life cycle of a product

Products have also their own life cycle. It covers the whole period beginning from the time it is developed and presented in the market to the time when it disappears. Consumer behaviours and needs can show some shifts during the product life cycle. This cycle is studied as five different periods such as introduction, growth, maturity, saturation and decline (Sezer, 2014: 10)

Products, like all the living things on earth, are born, grow up and die. When a decline is observed in the income rate of a firm in any stage of the item's life cycle, by means of a change or a variation carried on the present product, its life span can be prolonged or its passing to decline stage can be postponed. It is better to withdraw from the market than spending money on the efforts to lengthen its life time when a product begins to live its decline period (Sen, 2006 : 5)

### Changes in Demographic Configuration

Demographic conformation has a distinguishing effect on consumers needs. Related to the changes in demographic structure, product sales volume may show some deviations from the expected rate or may reach the maturation stage earlier as a whole (Musellim, 2002: 15). Businesses have to take into consideration these changes in their decisions and processes about new product development stage.

### Globalization and Competition

Increase in world trade has also created an extension of globalization and therefore competition has gone up and international competition has risen. As a result of this fact, in existing or new markets, new rivals can always be seen. Hence, it is an obligation to have superiority in terms of competition. In this case, the most vital way of having an advantage is to develop new products that make difference and to do it as fast as possible (Koyuncu, 2011: 3)

Transformation of the national competition into international dimension, rises in the expectations about the quality of a product to the higher world quality standarts and increase

in the number of the rivals make it an obligation to use more modern technics and devices in the study of new product development.

### **Businesses' Desire to Grow and Using The Sources Productively**

To be able to have a growth for a business is only realized by means of adding a new product into the production process because the present goods get old in time and they can not meet the consumer's wishes and needs. If a firm wants to grow, it must develop new products, produce them search for new markets. Otherwise, a long term growth can not be gained without presenting new services or products to the market (Koyuncu, 2011: 3)

Using the sources more effectively and so that decreasing the cost is only succeeded by means of business' operating in full capacity, complete use of business' manpower potential, capital, distribution network and production means. It can be possible to decrease the marginal cost of the products, get sources for new investments and increase the profit (Sezer, 2014: 16)

For a business, developing a new product may be a big potential to get benefit from the scale economy to a great extent. A great part of the input used in the production of the existing item can be used for the new product. Besides, for the sale of a new good, same sale department can be charged and therefore the cost for each item go down and it helps the total profitability increase. (Hauser and Dahan, 2007: 1)

### **Rapid Change in Technology**

Quick changes in technology have a great effect on developing new product. Information flow that is the vital basis of new product development has attained a very high speed with the help of internet. Furthermore, computers, telecommunication, media, technological devices and the radical changes in information systems have increased the quality of new item development process (Musellim, 2002: 17)

Technological advances turn the products made by the old technology into old tech devices and maket them disappear in the markets. As a result of this fact, it creates a pressure about the reality that new products having more advanced technology should be developed in a quite fast way.

### **New Product Development Process**

Development processes are the activities that covers the whole efforts by which the needs of consumers and market are revealed and new concepts are developed with the aim of providing value for consumers. Many factors such as the complexity of the products, advances in technology, competitive environment, the question of which products will be developed causes the process to differ according to the firms (Koyuncu, 2011: 4)

Companies can not be succesful in developing new product without having an effective process. Yet, this effective process may mean a quite complex period. A great portion of the complexity is caused by the management of information technologies (Hauser and Dahan, 2007: 3)

New product development process describes the complete period beginning from the time the idea appears to the time new product is presented to the markets. Introducing a new item in the market requires firstly evaluating the idea or concept of new product, its formation, development, testing, and presenting phases (Bhuiyan, 2011: 3)

N.p.d project is an innovation project of the business. Aim is to transport the products to the market with the least defect but in the fastest way. (Kaygusuz, 2011: 2) N.p.d processes and

the operations in each phase can be summarized on a table seen in the following; (Koyuncu, 2011: 2)

Table 1

*Product Development Process*

Processes	Transactions
Forming ideas	- Is the idea well worth the attention? -There is general agreement on the basis of improved products
Evaluation of ideas	-Is the idea of product consistent with the objectives, strategies and the sources of the business?
Concept Development	-Is there any effective product concept that consumers appreciate? - Product idea is transformed into a language that consumers Screening present ideas and selecting the relevent ones can understand in their own terms.
Marketing Strategy Development	-What kind of a strategy should be followed? - Product development strategies are defined
Economic Analysis	-Will product meet the targetted profit rate of the business? - Contributions of the product to the firm's cost, sales and profitability are calculated.
Product Development	-Can we produce this item technically? - Product is turned into a perfect good in terms of technic and marketing.
Test Marketing	-Do the sales meet our expectation? - Product's market potential is determined and the efficiency of sale strategies is measured.
Commercialization	-When, where how and to whom will the product be delivered? - Packaging and delivery features are decided.

**Generating The Ideas**

Beginning point in product development process is generating the ideas. It is necessary to generate as many ideas as possible, to bring them together in order to evaluate and to choose the most suitable ones. New product ideas can be acquired from many sources such as consumers, research institutes and rivals. In product development process, having a variety of ideas and selecting from these ideas is a factor that promotes the success which will be obtained (Koyuncu, 2011: 5)

Main goal of this phase is to generate different ideas encouraging hope for the achievement of a firm. Possibility of a new product's success is up to the high number of ideas about the product. For this reason, in order to be successful, it is vital to put out more ideas related with the product development. A firm obtains new idea from internal resources (workers, managers...), external resources (customers, rivals, distributors, suppliers etc.) and research & development studies. In this stage, consumers are a good starting point for new product ideas. (Bhuiyan, 2011: 9)

Research and development means the studies carried in a systematic way to enlarge the knowledge created by society, people and culture, also, to use this knowledge in order to design new practices. R&D (Research and development) forms the most important basis of science and technology and a significant function in product development and survival of the firms. Research is to make an unknown technological device appear and if possible, to lead it

to implementation. However, development is to direct existing technology and knowledge to new product or new production Technologies or it means using the present sources efficiently (Kahveci and Bas, 2015: 4)

### **Screening The Ideas**

All the collected ideas about the newly developed product are assessed, irrelevant ones are eliminated and relevant ones are included into the process in this phase. Ideas are evaluated with the consideration of many variables such as product's market state, sizes, position of the rivals, cost resulted from product development, estimated production costs, producibility state and the profit gained from the product (Koyuncu, 2011: 5)

After the whole valid and sensible ideas are bring together and screened, they should be re-tested and reevaluated in order to choose the product concept worth being developed. This evaluation period is called as idea evaluation process (Zaharis et al., 2011: 16)

### **Concept Development**

At the end of the assessments, ideas that are worth to develop are turned into the product concept. Product idea is defined as the good most probably the firm will present into the market. On the other hand, product concept is transformation of ideas into the meaningful terms on the side of the consumers. It should be recognized that consumers buy not the product idea but the product concept. Hence, product is described in such a way that the potential consumers can understand or perceive it. It can be visualized and defined (Sezer, 2014: 45) At this point, a new step should be taken towards the brand concept in addition to the development of product concept (Koyuncu, 2011: 6 )

After the verbal, written and illustration forms of product idea are composed as a draft, content of this product, materials that will be used and technological features are determined. Potential consumers' reaction about the production concept are commented and it is decided if this product concept has a potential market or not (Hulting and Hart, 2004: 3)

### **Strategy Development**

A firm should set its product development strategies before beginning development studies. New product design strategies requires a business' determination of new products features and correct timing of commercialization. According to the researches carried on the product development strategies, while the strategies are being specified, it is given a great emphasis on the improvement of creativity and innovation, accordance of product development strategies with the firm's targets, strategies providing a competitive advantage and its adaptation to the surrounding (Koyuncu, 2011: 19)

### **Business Analysis**

Now, it is time to determine the product's profitability after the stages of product concept and marketing strategies for the concept. Economic analyses covering the estimations and calculations about demand, sales, price and profitability related with the ideas of new product are realized for this purpose. Within this scope, primarily discussions on the prices and sales income and also some comparisons are carried. The firm should confirm about whether the ideas created are profitable or not (Sezer, 2014: 55)

Even though the business is successful in every stage of product development process, if business analysis is not appropriate, the process can be cut in half. In this critical step, it is

seen that whether the product development process meets the firm's targets or not at the end of the assessment of cost, potential sell and profit projections (Bhuiyan, 2011: 11)

### **Product Development**

Product concept is now on the desk of research and development department after it is approved in terms of business analysis. While the item is expressed by words and symbols up to this stage, from now on, it turns into a concrete stage. The task here is transforming consumers' needs to a valid model (prototype) (Koyuncu, 2011: 20)

Designing prototype gives a chance to decide whether it meets the expected performance or not and also to test the physical features of the product. It is also necessary to check the item's functionality. In this stage, it is needed to carry out function tests in order to see if the product operates in an effective and safe state. Functional product tests are held in labs and in real business environment. (Sezer, 2014: 71)

### **Test Marketing**

Product test can be carried out in its own concept in every stage of product development process. However, in this phase, while it is the end of prototype development and in the final good stage, it is tested whether product has the technical standart sor not. Product test process is composed of 3 parts as in the following (Zaharis et al., 2011: 28)

- Composing a test strategy
- Compsing a test plan
- Implementation of the test.

Test process reveals important concrete ideas related with the accomplishment of new product development. In this step, although different kinds of tests such as concept tests, prototype development tests and marketing test are present, testing should be done in every stage of new product development process (Bhuiyan, 2011: 18)

### **Commercialization**

In this last phase, the product is ready for the markets. The process ends with its getting into market. Now, marketing studies have an ever increasing importance. Item is put on the market in accordance with the firm's marketing strategies (Koyuncu, 2011: 21)

When a business decides to put a newly developed product on the market, it will be face to face a pretty high cost. Firm already spends a great deal on creating product idea, selecting the appropriate one, developing prototype, testing and approving stages yet much more than these expenses are needed to spend in order to put the product on the market. Costs in this phase includes creating a production power, promotion and advertisement expenses (Zaharis et al., 2011: 82)

### **Conclusion**

In this study, the stages of new product development that are more or less similar in literature review study ( generating the ideas, screening, concept development, strategy development, business analysis, product development, test marketing and commercialization ) are studied after a summary about what the concept of new product dev. means andthe factors effecting development process are given.

Firms that are aware of the importance of new product development accelerate their studies on it. They try to be active in the market and try to have a superiority over their rivals using the benefits of their product's distinguishing qualities and other marketing factors.

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