

Review Article

How to Improve the New Product Development

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Abstract: In order to compete in the dynamic business environment, it has become extremely essential for the businesses and industries to enhance their performance. To achieve this new product development is considered a vital source. Therefore, the companies are now required to focus more on the quality of the product instead of internal efficiency. Hence, more emphasis is being placed on the new product development processes that enable the firms to develop more complex products to provide paramount quality products and services to the customers. This research has analyzed the benefits as well as challenges of new product development. The researcher also examined various factors that affect new product development. A comprehensive product development constitutes of 8 steps. It has been also observed that factors such as customer satisfaction, design and culture significantly influence the development of new products.

Keywords: Product development, customer satisfaction, product design, development process, product performance.

INTRODUCTION

The significance of new product development has been acknowledged by the practitioners as well as academia as it enables the organizations to attain long-term survival as well as growth. Shift in the patterns of the global market opportunities, rapid advancements in the technology and intense global competition has compelled several organizations to constantly invest in the new development projects not only with the aim to maximize revenue but also for long-term survival which is viewed as the key to success [1]. Majority of the researchers and practitioners worldwide considered the development of new products as the potential source of success. Nevertheless, in spite of the significance of the new product development, it has been observed that a high percentage of the new products fail when launched into the markets [2]. The core reason of the failures of the new idea and concepts according to the research is the lack of the structured procedure. Nevertheless, well-organized new product development procedures positively influence the way in which the new products programs of the company are controlled and managed. Hence, it can be put forward if the development and introduction of the new products is adequately managed as well as controlled, it could present substantial benefits to the company that cannot be attained by the management of the existing products.

However, the entire process of new product development is costly and inherent several risks.

Furthermore, the success of the new product development is a crucial management issue for the reasons that the managers of the new products often lack awareness of how to enhance or redirect the external orientation of new products towards the product target market. In the view point of Annacchino [3], the outcomes of the new product typically rely on the market knowledge and market proficiency. In order to successfully develop new products, it is highly imperative for the companies to acquire sound knowledge regarding the competition, market potential, buyer behavior, price sensitivities and demands as well as requirements of the customers. Nevertheless, the commercial success and viability of the new products rests in the hands of the potential consumers [4]. Hence, effective marketing research along with efforts and in-depth understanding of the marketplace is crucial for the success for the success of new products. Moreover, in order to attain substantial position in the market place and maximize profit, the new products should present unique benefits to their consumers.

There are several factors that stimulate the business firms to heavily invest in the new product

development such as quest for competitive edge over the competitors, diversification and organizational growth. Another crucial reason for the firms to invest in new products is to exploit new opportunities [5]. This can be further elaborated in the view of the fact that often the demand of the certain products and services become so intense that it turns out to be essential for the firms to establish new market place for new products to meet the increasing demands of the customers and exploit the new opportunities. In a nut shell, new product development is extremely crucial for the development and growth of business and attainment of key organizational goals. The purpose of this research is to develop a comprehensive understanding of the concept of new product development and highlighted the benefits as well as challenges of new product development. The researcher also analyzed various factors that affect new product development.

LITERATURE REVIEW

Definition of The new product development

Over the years, numerous definitions of new product development have been proposed. According to J. Morgan *et al.* [4], new product development can be defined as the introduction of new product into the already established marketplace. In order words, new product development is the strategy that is adopted by the companies to penetrate into the existing markets with new products.

On the other hand, Atuahene–Gima and Li [6] described new product development as “procedure of conceptualizing ideas, designing, developing and eventually introducing a new product or service in the market so that it not only outshines competitors but also earn huge revenues for the organization”. The introduction of new products in the market place certainly increases the expectations of the consumers who look forward to something that meets their demands.

Benefits of developing new products

New ideas are crucial for responding to the pressured exerted by the competitors as well as for adequately responding to the changing requirements of the consumers. In fact, product development is not a novel phenomenon instead it has been existing and transforming the life over several decades [7]. There are several benefits of developing new products and the contribution made by product development can be measured in terms of profits and sales generated by new products. The development of new products significantly decreases the time of production process and the overall production costs and at the same time results in the increase in production efficiency and investment returns [8]. The core reason for investing in new product development is well supported in the literature is that new products have a significant impact on the profits as well as sales of the company. Successful development of new products creates customer values, generates growth for the firms and gives rise to new markets [9]. In addition, the successful application of new product development processes enhances existing process and products and services, thereby leading to increased employment and profits, lower costs and higher productivity. It has been observed that the firms that continuously aim to introduce new products acquire a greater share in the global market, depict higher profitability and growth rates as well as higher market valuation [10]. The phenomena of new product development also increases options for customers for better products

Due to advancements in the technology and fierce global competition, it has become relatively simpler for the firms to get an insight into the products of their customers and intimate them [11]. In order to gain competitive edge in the market place and outperform the competitors, it has become extremely essential for the firms to introduce innovation in their existing products as well as design new products that effectively fulfill the needs of the customers.

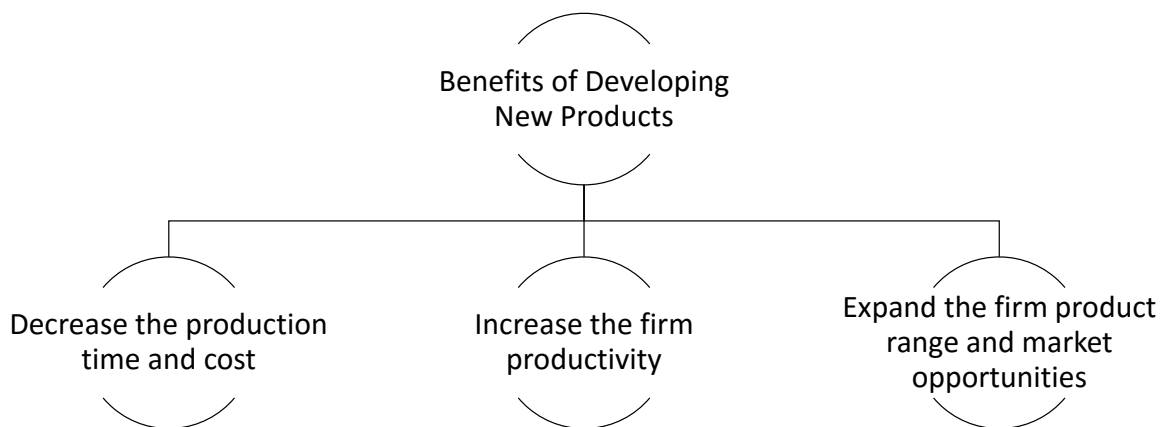


Fig-1: Benefits of new product development

Challenges of developing new products

There are several challenges that limit the capacity of the firms to innovate and develop new products. Companies while developing new products can confront both external barriers as well as internal barriers. The external barriers to development of the new product include difficulties in obtaining raw

materials, lack of demand for innovations, and government regulations or policies. On the other hand the internal factors that limit the capacity of the firms to innovate include are lack of competence, resistance to change among the personnel, lack of management time, and lack of technical or financial resources [12].



Fig-2: Challenges that impact the development of new product

Global Competition

Global competition is typically considered as the major factor that impacts the development of new products [13]. In the view of the fact that the global market is diverse and large, it often becomes difficult for the firms to gather intelligence over their competitors. A firm might invest heavily in the development of new products, still if it is not able to analyze the innovation the products released by the customers, it can confront severe losses [14].

Time

In the current era, time is viewed as the potential challenge for the new product development. Therefore, it has become highly essential for the firms to ascertain that the new product is introduced at the right time when required in the market [15].

Market Potential

It is essential for the firms to get an insight of their local as well as global competitors. In the economic climate today the new product can only be successful if it his superior to the product designed by

the competitors. Therefore, the companies must conduct extensive market research on constant basis [16].

Technological Change

Another potential challenge to the new product development is rapid advancement in technology which might place the product developers in a precarious situation of uncertainty. Moreover, if the firm decides to utilize a technology in new product development that has become obsolete, it might experience product failure.

Concept

Selecting the right concept is also a potential challenge confronted by the firms while developing new products. An innovative concept might not always be viable due regulatory limitations, production difficulties and costs [15].

Financing

The process of new product development is risky and at the same time expensive. Therefore, the firm investing in new product development need to

ascertain that the return is obtained in line with the risk undertaken [15].

Impact of Design New Product Development

A significant researches in past have postulated that design can play a significant role in the new product development [17]. The new products that are adequately designed can lead to competitive advantage and generate positive reactions from the customers. However, the association between the product performance and product design is seemed to be nuanced and dependent on intermediary aspects. For instance, the study carried out by De Toni and Nassimbeni [16] revealed that the strong emphasis on the design during the new product development process is not new to the industry; however, emphasizing only on design is not sufficient to enhance the performance.

Furthermore, the changes in the design in the case of fundamental innovations in the functional features of the products can result in lower acceptance of the product in the marketplace. Nevertheless, the researchers have contended that investments in the design lead to improved new product development outcomes. This can be further explained in the light of the study carried out by Grunert, Verbeke, Kügler, Saeed, and Scholderer [18]. The authors discovered that investments in the design of the new products can lead to greater financial returns in the form of high returns on assets, high return on sales as well as more profitable sales. The outcomes of the research conducted by Henard and Szymanski [19] was grounded on the Innovation Survey Data by a Dutch Community and considered that a positive correlation exists between design investments and various new product development output indicators. The findings of the study clearly revealed that investments in design positively influence the sales of new products.

Customer satisfaction

Various researchers have pointed out that customer satisfaction has a profound impact on the present as well as future life of the organization. In fact, the satisfied customers play a significant role in advertising the products of company and attracting new customers [20]. Customers satisfaction is also found to have a positive impact on the new product development. Analysis of levels of customer satisfaction and taking into consideration the needs of the customers during the design phase can lead to increased customer loyalty.

The customer satisfaction encourages the firms to design and introduce more innovative products. On the other hand, low levels of customer satisfaction assist the firms in identifying the gaps in the new product [21]. Therefore, it can be put forward that customer

satisfaction plays a significant role in the development of new product.

Impact of Marketing on New Product Development

Adequate marketing research is a crucial component of the new product development process and it has to be performed in order to gather information relevant to the new product [22]. A number of studies in the past have highlighted the importance of marketing research in relation to the performance of the products [23]. These studies have noted that the companies or industries which gather large volume of data related to government aid, growth trends, transport infrastructure and economic background depict higher product performance.

In the view point of Barnes, Lea-Greenwood, Tyler, Heeley, and Bhamra [24], the firms that desire to enhance the performance of new products ought to gather relevant market information, devise development strategies for new product that are in line with the firm goals and assess the external as well as internal environment along with resources. Beside, marketing research another potential contributor of product success is marketing strategy. Ilori, Oke, and Sanni [25] carried out a research, in which they found that the new products have a greater propensity to succeed when the developing firm is proficient in marketing and make significant investments in promoting and selling its products. In the view point of Jayaram [26], at the same time as the implementation of the marketing strategy could be crucial, its effective use is critical to the overall success of the new product. The findings of the same study also revealed that the formulation of an adequate marketing strategy has a positive and significant impact on the performance of the new products. The preceding statement clearly implies that the formulation of appropriate marketing strategy is extremely crucial for the new product to successfully penetrate into the new market and perform well. According to Svetlik, Stavrou-Costea, Jin Chang, Pao Yeh, and Yeh [27], the application of the marketing strategies all through the new product development process positively influences the new product development.

Technology used in developing new product

NPD task executions which include planning, decision making, designing and implementing are greatly facilitated and expanded by computer mediated communication technologies and therefore can be termed as IT tools [28]. Out of the various computer mediated communication technologies, email and web meetings are used the most frequently as they allow for continuous communication without added costs which also serves to enhance the sharing and dissemination of information [29]. Hence, NPD teams utilize these

technologies to obtain feedback, coordinate their work and to generally scan the market and technical environment [30]. Furthermore, NPD teams can jointly view and share online presentations, engage in continuous communication and collaborate on crucial documents through email and web meetings without increasing costs as well as with a minimal of effort [31]. This serves to augment the development of new products which designed to reflect customers' needs and wants which automatically increases the new products attractiveness and improves it to the extent that the new product performs all the desired functions.

New products which can satisfy customer's needs and wants and appeals to them while providing high performance are considered to be superior quality products. Hence, use of these tools can serve to facilitate in the development of such new products which are of higher quality and deliver efficient market performance [32]. Additionally, when the cross-functional interface is strengthened between members of the NPD project team such as the marketing and R&D functions, these tools can also lead to increased product competitiveness [33]. Moreover, web and e-mail meetings greatly facilitate communication along with enhancing collaborative across space and time [34, 35]. When collaboration is facilitated by such IT tools, NPD teams can merge different perspectives concerning the marketing opportunity and product concept being developed which greatly increases chances of generating more innovative products which can deliver high market performance [36].

New Product Development Process

Idea Generation

The foremost step in the new product development is to search for new ideas for enhancing the performance of existing products or for developing new products. There are several sources for idea generation such as customer's feedback, analysis of trends and patterns of consumer needs, employees and search into competitors' new services and products [37].

Idea Screening

In this phase of the new product development, the product concept is evaluated and the evaluation requires both external as well as internal acceptance of the output of the concept generation phase [38]. During the concept generation phase, it might be possible that the company ends up with several concepts but it needs to answer several queries before proceeding with a certain concept. For instance, company needs to determine if the concepts generated are the viable solution to the needs of the customer [39]. Therefore, this phase may perhaps discover several concepts that

fulfill the needs of the customer; thereby creating opportunities for radical innovations.

Concept Development & Testing

This phase of the new product development process embraces the transition from ideas to the final products. In this phase of the process, the team including project managers, technical experts and marketing experts transform the concepts derived from design drawings into physical products [40]. The selected concept ought to take into consideration three inputs that include benefits that will be gained by the customers, technology used for production and form of product. In sum, the concept development stage involves the integration of the information attained from the customers with their own conceptualizations of the new product.

Marketing Strategy

The subsequent step to concept development is the marketing strategy formulation in which the product manager designs and develops a marketing plan for introducing new product into the marketplace [41]. The strategy plan consists of three segments where the first segment explains the behavior, structure and size of the market whereas the second segment illustrates the marketing budget and the planned price distribution strategy. The last segment demonstrates the profit goals and long run sales [42].

Business Analysis

In the business analysis stages, the review of the costs, sales as well as the profit projection with respect to the new product is performed in order to identify whether these aspects satisfy the goals of the organization [37]. In the same stage, the management makes the decision regarding the technical feasibility of the newly introduced product, the potential of the product to grasp the market share and the financial contribution to the organization [43].

Product Development

This stage requires in depth technical analysis so as to evaluate whether the product is being produced at costs which can allow the final price to be reasonably attractive to the customer [44]. To this end, a prototype or working model of the product is developed to identify all the intangible and tangible attributes of the model. A product protocol which shows detailed attributes to be expected in the product is drawn and handed to the R & D department who can then produce the prototype.

Market Analysis

If the product passes the development and pretest stages successfully and still seems to be a profitable prospect, it is then tested in the market [45].

This is an expensive but crucial step in the global product development process and products which pass the laboratory pretest should be similarly tested in the international test markets so its feasibility can be explored. If it is found that the product is not feasible for certain markets, then the target market can be narrowed down eliminating those markets [46]. Hence, a market test being run in each representative market ultimately helps in reducing considerable potential losses in the long term. Following are the market tests:

- Physical prototype;
- Testing the product and packaging in normal usage situations;
- Conducting a focus group to obtain primary customer reviews or introduction at trade shows;
- Making necessary adjustments;

- Producing and selling in a test market to explore customer acceptance.

Commercialization

Within the process of global product development, the final step relates to the decision of whether to introduce the product in all the markets being considered [47]. To this global marketer, it should be clear whether the product should be introduced and which markets should be concentrated on based on the involvement of engineering in the process development. Regardless, the introduction of product innovations in diverse markets require continuous monitoring, especially if the company hopes to maximize the product’s contribution to the overall company portfolio [48]. Where a product is accepted and becomes popular, the introduction of the product has to be followed with improvements in production and distribution processes.

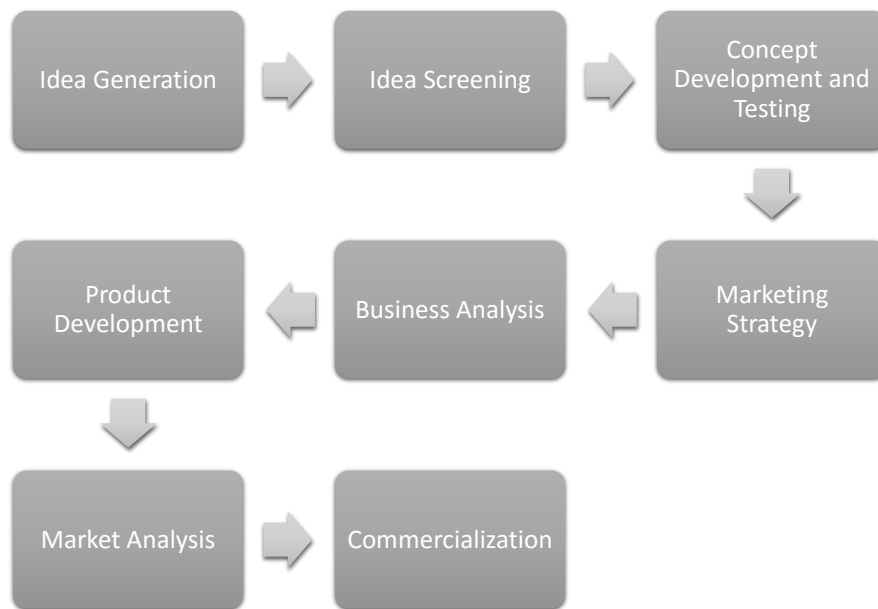


Fig-3: Summary of the new product development process

Cultural Boundaries

The firm’s innovative culture or the style of corporate behavior can have a significant impact on new product development. For example, managers and employees who believe in the importance of the product to the company are motivated to create innovation [48].

Companies which have an innovative culture where entrepreneurship and risk taking are encouraged as well as rewarded therefore have a higher rate of success when it comes to product innovation [49]. Informal communication and an open culture additionally motivate employees to think outside the box and adaption to change becomes the preferred mode of operation. Overall, researchers have found a

significant positive link between the success of the NPD effort and the innovative corporate culture [50].

CONCLUSION

All in all, firm’s need to continuously develop new products and innovate existing products so as to stay relevant in today’s highly competitive environment. This requires coordination and leverage between the broad creative resources and capabilities which are often spread across cultural and geographical boundaries. New product development (NPD) and globalization are also linked to the softer dimensions which are concerned with the organizational culture and management environment of the company which can have a significant impact on the outcome of the often

complex and risky endeavors. However, there is not enough research or evidence linking these dimensions and the behavioral environment to the performance of international effort put in by NPD in firms.

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