



Product Development in Supply Chain Sector: Literature Review and Path of Future Research.

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DOI: <https://doi.org/10.55248/gengpi.4.1223.123324>

ABSTRACT:

Modern organizations have approached the challenge of innovation by seeking to develop frameworks for new product development. In this article, an overview of generic paths or paths is presented that serves to highlight the essential components to make the system work. This article uses a descriptive approach by using literature reviews in previous journals in the field of product development in supply chain sector. This article provides findings that will be useful to researchers in the future. This article uses ten journals in the field of product development that discuss both determinants and components to case studies in product development. Ultimately this article can provide a path for future research.

Keyword: Product, Development, Product Development, Manufacturing, Structure.

1. Introduction:

Operations management always evolves over time, either directly or indirectly. Various kinds of companies engaged in various sectors, both manufacturing and services, are increasingly competing to win the competition in meeting the needs and desires of their customers by improving both the performance and products they produce. Product Development is the most important thing in determining the company's performance in a sustainable manner, the most important thing in improving product development is the structure used in the product development method and the application of product development becomes important and must be appropriate in product development performance.

The competition and sustainability of companies today are strongly influenced by the company's ability to adapt existing products to customer needs in the future to create innovations based on customer desires to create added value to distinguish a company from its competitors. In today's business environment, customer integration is an effective way to ensure long-term growth of the company by reducing innovation risks for product development projects and to supplement internal resources by mastering the network of partners [2]. Product development is the process of turning a new idea related to a product, into a product that can be sold in the market. In the product development stage, there are several important things to be done by the company, namely, market study, product development, commercialization and introduction of market analysis, Product development activities begin with a concept idea where the company designs in advance how the product will be produced [3]

This article discusses how the structure in product development helps in product development to help researchers and managerial parties for future research in terms of product development . In this article will be produced a basic basis to be used as a basis for use in further research in this field. In this article, we will produce a framework from previous research to be used in future research

2. Literature Review:

2.1 Methodology

Journals that have been published are selected using the help of online searches with the aim of obtaining and compiling existing product development journals. Articles that have been obtained include several things such as case studies, concepts, to determinants that exist in the product development method. Using an online search engine in a database that can be obtained through the websites of journal providers such as Emerald and Sciencedirect is a way that I use to identify the most relevant journal journals. This becomes more practical in searching for journals online than having to go to the library and read a collection of articles in the library.

2.2 Literature Review on product development

Product development is a topic in various disciplines such as marketing, manufacturing, organization and engineering. Product development can be defined as a transformation of market opportunities and planning what products will be made and ready to be sold. Research on product development focuses more on descriptive research on the process. Most practitioners say that product development can be used in most industries [4]. The positive impact on the use of product development methods in products and success has been proven in previous studies. Further research also states that product development is the main key determinant in the success of product improvement [1]. The researchers showed that companies that apply product development processes and have support from top management have materials that support product development implementation. Product development of raw material suppliers is characterized or classified based on the degree of complexity and differs significantly from conventional integration practices which focus only on the seller-buyer relationship [2]

2.3 Product development applications in Company 's

With the change of time, manufacturing profits decrease. The cost reduction that companies have relied on for a long time can no longer guarantee growth. In recent years, more companies intend to make corporate differentiation through product design and increase product added value [5]. Analysis of existing industries has been collected from several journals that discuss the application of product development in certain companies. Product development is a process that includes the initiation, coordination, completion of projects, production and related activities. Product innovation in product development activities is widely discussed in product launch articles. Manufacturers can be contracted for product innovation, design or development as well as manufacturing [6]. On the basis of previous research, I propose that product development activities should include product launches, product innovation and product development capabilities.

In the development of new products there are three gaps. First, comprehensive measures for manufacturing flexibility have not been well developed, Second, several studies have explored the relationship between flexibility and specific outcomes such as operational improvement, Lastly, several studies have focused on the impact of uncertainty, flexibility, and performance. [7]. In making a new product, risk management and performance measurement become a systematic process. The purpose of risk management is to balance the project with the company's management such as structure, technology, human resource capabilities, and also financial capabilities. Performance measurement from the procurement of new products provides information to the company. Effective risk management and performance appraisal in complex projects involves an intricately interconnected set of variables, associated labs, people, technology, and organizational management systems, and is not just limited to one operational process, but distributed throughout the company [8].

3. Product Development:

3.1 Product Development on service

Some differences between product development and new service product (NSD) are that NSD emphasizes the role of strategy while product development emphasizes process. Several studies show the integration of technology and capabilities. New operating strategies to link capability-based competition with technology. Vinayak kalluri emphasizes technology plays a role in measuring customer service experience [9]

3.2 Product Development as a management process

The most important thing in management is that product development is related to the process and that proper product development process management is the key to success. Product development can be integrated into process development and that integration can be an important source for a company's success [10]. Product development as the transformation of market opportunities and a set of assumptions about product technology into products available for sale. It adapts the decision perspective on product development and emphasizes the role of process in product development. Taken together, previous research has shown the importance of processes and strategies in the development of new products or services. To cope with diversified and rapidly changing customer demands, an enterprise must improve efficiency in product development and appropriate process management in product development is the key to success

3.3 Structured Product Development Process

In many companies, the way products are developed is completely unstructured. There is no consistent terminology, each project team uniquely defines its activities, although many are similar. The need for this additional structure is indicated by the high associated quality costs indicated in the following points:[10]

- Inconsistent terminology and definitions, causing confusing or confusing neglect (up to 39 percent have been measured) lead to wasted effort, misguided work and demand an increased number of clarification meetings.
- Inability to estimate resource needs and schedules, resulting in suboptimal planning and execution in support of programs that are considered important to the company.

- The interdependence of tasks is excessive, resulting in inefficient channels and communication plans made separate between groups and poor understanding of responsibility. In some cases, 42 percent of work has been repeated due to upstream changes that occurred due to late customer input, something overlooked, or errors in specifications.
- Attention is focused on the blackout of problems. In some cases, at least 48 percent of development work has been identified as problem-fighting and caused by unplanned work that arises unexpectedly but requires immediate attention.

The structured product development process offers a framework consisting of terms that describe what needs to be done in development and allow it to be applied consistently across all projects. It is enhanced by functional decomposition of the main phases, up to various discrete steps, tasks and activities

4. Benefits of Product Development:

4.1 Reduce product development costs

Many different processes have been implemented to increase the efficiency of, and thus reduce the cost of, product development, particularly in manufacturing and engineering. These processes, which include design techniques for excellence such as design for manufacturability and assembly, design for logistics, design for serviceability, design for stability and engineering practices that provide management more accurate information about product development costs. The possibility of missing major steps, which may require costly rework or impact cycle times, can also be avoided by using mapping that defines tasks and deliverables. With this increased clarity of purpose comes the ability to plan activities more effectively and allocate resources. This helps in identifying and enabling opportunities for concurrent activities, while also avoiding the potential presence of functional bottlenecks. The introduction of significant functional improvements offering operational efficiencies such as design techniques for excellence can also be implemented more effectively. The product development systematic ways also contribute to improved levels of planning and decision-making by encouraging information to be gathered from all key functions and forcing evaluations at important milestones in the project to focus attention on the quality of implementation. [5]

4.2 Time to Market

Product development can be accelerated to deliver benefits, such as building a dominant design, jumping over a learning curve, realizing higher profit margins, incorporating new technical advances faster, or influencing or setting industry standards. All of these joins together in establishing significant competitive barriers to entry [9]. Another part of product development is the concept of time to market, the time that has elapsed between the beginning of product definition (or business planning) and product availability. Reducing time to market has become increasingly important in the successful introduction of new products. Most companies show the development time for their latest project is shorter than the previous project where a suitable product was developed but, achieving time to market is not only a matter of reducing design time but also a matter of producing the product before competitors, and thus speeding up the company's production [6].

4.3 Product Development Benefits

The ability to meet identified customer needs and wants, by definition, requires organizations to be able to develop new products effectively and efficiently. Regardless of the type of new product introduced by a company, one thing that is clearly an achievement for the development and successful launch of a new product can be significant. Companies that do not renew their product development practices are experiencing increasingly noticeable competitive losses. To remain competitive, best-in-class companies must continue to use the foundational components of an effective product development ways, but continue to show increased evolution in various areas to maintain their edge [2]

Paths of Future Research on Product Development:

From the literature briefly reviewed, it can be seen that the product development process is conceptualized in different ways, many conceptualized by including project review points. Then the reviewer can use these review points to examine technical, marketing and financial performance projections to determine whether to continue new product development or discontinue. The phase review process can be viewed as the beginning of an influx of many ideas that go in the concept phase and, through a series of screenings during development, narrowed down to a few appropriate resource projects with a high probability of market success. At the end of each phase, a review is held to determine the direction of the project whether to continue, cancel or redesign. In each phase, a number of activities are executed simultaneously across a number of different functions. At certain points, at specific points in the phase contained in the review section. On the basis of the information provided, the program will be allowed to proceed to the next stage with a commitment in funding and resources provided, given instructions to resume again, or cancelled. This review activity ensures that the programs funded are consistent with the company's strategic and financial objectives and supported with resources in a way that increases the likelihood of success. In the early part of this phase, very little can be known about the concept or target market to be applied. As a result, information to support opportunities may become vaguer and vaguer. However, over time and as the program moves through phases, the level of completeness and accuracy of supporting information will increase. As a result, it will be possible to approve increased levels of resources to support opportunities as the quality of information improves over time.

Conclusion:

In this article I have highlighted that innovation cannot be broken down into small pieces but needs to be put together. There has been a general development of generic ways that have attempted to address various activities for effective product development. The implementation of the ways has resulted in many gains in the effectiveness of product development. However, while much has been made of the advantages and benefits through the adoption of the encompassing framework, there is still considerable scope for improvement. To adopt parts of an innovation framework often leads to failure through reduction, but attempts to embed large-scale radical change can also result in failure, through commissions. Companies need to carefully balance benefits with implementation costs before embarking on any action program.

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