

Risk Handling Techniques of a New Product Development in the Industrial Sector

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Abstract

The process of New product development and announce economic threat investigation have improved in significance by the reason of the requirement for advancement and speed, inspiring the growth of new models and works concerning this subject matter. As a result of the adjustment of customer necessities, the purposes and performance of products should be enhanced rapidly. In workplaces with aggressive competition, the effective improvement of new products that confirm better functions and performance is essential for commercial existence. Most initiatives have complications in fresh product improvement. Various risk aspects that arise in the course of product development are hindrances for the prosperous development of the goods. This paper is to evaluate and deliberate recent methods working in the extent of threat management in product development. With the resolution of presenting the approaches in a planned fashion, a common risk management process model is introduced. Thus, threat issues that may ensue during the product development must be documented all project steps, desires to be established. The purpose is to bond both concept and practice by uniting a comprehensive review with exploration into the industrial application of threat management.

Keywords: *New product development, risk management, product improvement, customer necessities.*

I. INTRODUCTION

In aggressively modest markets, the announcement of new products with inventive purposes and performance is a required plan for commercial existence and necessary aspect for having the advantage in corporate competition. It is stated that the achievement rate of projects for new product development is very small. Universally, about 75% of producer new product development schemes flop before conclusion. In excess of half of the 25% of prosperous cases miscarry to yields peculation costs and become commercial. Greater costs and more time used than anticipated to attain the project aims. This proposed system is established on inquiry into threat management, its potential for disaster avoidance, and associated learning from great performance sides. The research was academically

embedded in the area of Improvement, which was matched by a solicitation study in product improvement in industry. Here, a subset of the results is offered which are directly related to the methods employed in threat management. The competitiveness in global and local markets highlights the importance of design, quality, productivity, multi-company collaboration, optimal price levels and manufacture process certainty. The producers are stressed to preserve and raise their places in the market. To develop their capability to modernize, fetch products to the market earlier, and decrease industrialized tailbacks, the producers have been enlightening their product development and management capabilities. Corporations have to finance more money to product lifecycle management and initiative resource scheduling systems. Risk management should be an essential part of the management. Quality risk management, its application and combination of management systems denotes substantial values that are added to it. The chief causes why most of the corporations have miscarried in the development of new products are as follows: an rise in time and charges in all the stages and phases for the product because of their consecutive practices, complications in erecting practical development plans and source delivery plans, disappointments to answer back efficiently or capably to the assorted risk issues that occur in growth developments, and the inefficiency of a broad decision-making system based on qualitative and assessable information and resources acquired while employed on past product progress projects. One more reason is that as the life cycle of products has been reduced, the product types required by consumers have been expanded, and technology has become more difficult, risk factors and their grades, which designate the effect of the risk factors, have not been capable to be evaluated. Projected risk issues have not been able to be correctly distributed with it. These details point to the essentiality for efficient risk management systems all over all required steps. The determination of this study is to discover the risk factors that may occur in each phase of the new product project in advance and to develop a systematic risk management framework. This process would permit expecting the probability of scheme achievement by defining the influence range of risk factors during the project stages and the combined threat grade of the whole project. The structure can also suggest the enhanced reacting

actions against numerous risk factors not only to decrease the project time and costs but also to reduce the risk degrees computed in each phase and the integrated risk degree in the entire project.

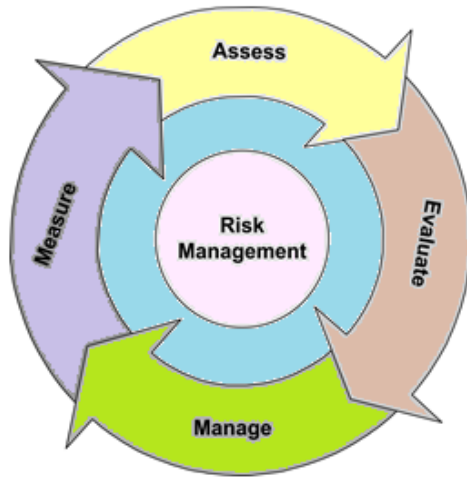


Fig.1: Basic risk management plan

II. LITERATURE REVIEW

A.M. de Klerk(1991) introduced Risk management heuristics in new product development. He explained the development of new products is a classic example of the use of project management. From a risk management perspective, however, this type of project is unique: the risks are high and the very nature of the project is to reduce this risk. This paper examines project risk management in new product development, focusing on technical (rather than commercial) risk and identifying a number of relevant heuristics from the fields of product and systems development.

ItziarRicondoet.al (2006) proposed NPD Risk Management: Proposed implementation to increase new product success. In this paper, Innovation is one of the cornerstones of European manufacturing industry. For small and medium-sized (SMEs) enterprises NPD projects are very often a “win or lose” game. Due to the limited availability of resources, the risk of failure in a single project can endanger the survival of the whole company. SMEs have to deal with the following problems when undertaking the development of new products: (1) lack of information, (2) lack of a risk management methodology, and (3) lack of decision aiding tools. This paper recognizes the need of acquiring suitable information and focuses on Risk Management as a critical process to increase the success of New Product Development. A staged implementation plan composed of 3 steps is proposed: Business Intelligence System, Risk Management System and Optimization of Decision Making Process. Currently

implemented systems and steps are commented, as well as future action points, in order to increase the competitiveness of companies.

Hermann Lýh(2005) developed Concurrent product development and new communication technologies - a research framework. In this work, Development and design have always been driven by the need for communication to integrate different technology and market perspectives into an innovative and successful product or service. The possibilities and characteristics of communication such as face-to-face, telephone, or more recently e-mail, are strong factors determining processes and organizational structures in product development. The paper proposes a layered research framework on routine, project and network level to support the development of a systematic body of knowledge for organizing and leading concurrent product development utilizing the new communication technologies. Research methodologies must be adapted to the context and newness of the ICT. We propose using business experiments in a Living Lab setting as complementary research approach.

Ke-fan Xie et.al (2007) proposed Grey early-warning management of risk in product development process. He demonstrates grey system theory to early-warning management of risk in product development process and proposes the conception and methodology of grey early-warning management. Firstly, the paper analyzes the risks in product development process and the necessity of early-warning management. Then, the paper puts forward the concept, features and framework of grey early-warning management of risk in product development process, and probes into the modeling method of grey early-warning management of risk in product development process. Finally, taking the R&D of mini vehicle as an example, the paper conducts an analysis on grey early-warning management of risk in product development process.

LucimárioGois de Oliveira Silva et.al (2013) developed a Financial Risk Management Model Supported by Subjective Probability for New Product Development. The author suggested that the New product development and release financial risk analysis have increased in importance in the literature due to the need for innovation and speed required, encouraging the development of new models and works regarding this topic. This paper presents an adapted model based on the literature regarding project development a prior risk evaluation in its initial phase, considering uncertainty. With this goal a model is presented that incorporates real options with expert's knowledge elicitation of technical uncertainty, and this uncertainty is modeled as a probability of success over time

III. RISK MANAGEMENT PROCESS

The process mainly concentrated on risk management features on the implementation level, evaluating the improvement of a simulated modeling process. The goal of the simulated process was to report the basic sources of severe plan slippages and

high additional charges in the late stages of the complete development process, caused by high change intensities. These seem to be typical examples of severe risks and probable emergency conditions in product development.

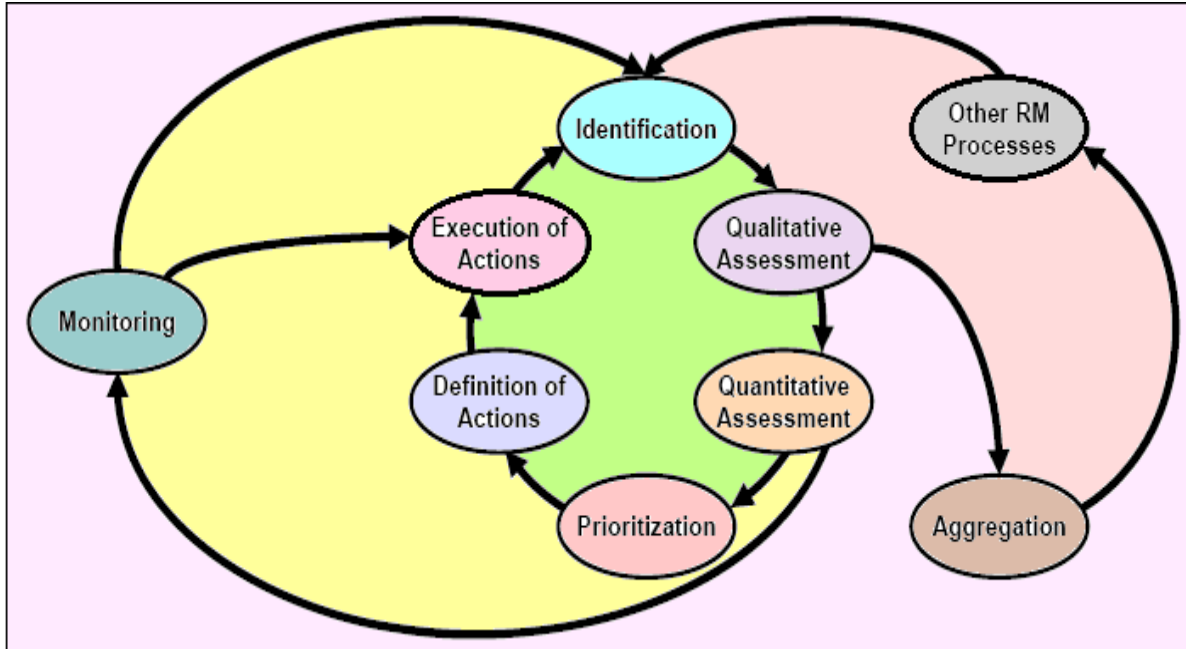


Fig.2: Framework of a Risk Management for New Product Development

The following considerations are essential for new product development and its risk management:

- **Identification of Risk:** Possible risks are identified. It gathers the introductory information offered for every possible risk, comprising the justification for the recognition.
 - **Qualitative Assessment:** Steps that advance develops the consideration of a possible risk, without conveying any mathematical judgment.
- **Quantitative assessment:** Arithmetical values are dispensed to a risk's possibility of existence, extent of impression, and its timeframe. It can contain statistically exact prototypes, as well as other types of quantification, for example the assignment to a certain category based on team discussions.
- **Prioritization:** The ultimately defined risks are selected. The significant process can be directed along a gathering of different measurement or main concern systems, enchanting one or more of the enumerated risk aspects are taken into account.
- **Definition of actions:** Based on the ordered risks, activities are well-defined to reduce the risks. This step is not enclosed in the methods

explanation, as the other method steps showed to be more exciting from a organizational point of view.

- **Execution of Actions:** This step is not deliberated to be preserved by the risk management process, but by the line association responsible for the risk.
- **Monitoring:** It can be intended at the risks themselves, or at the performance of the risk management process. The aim is to provide an apparent and current explanation of the risk condition and to concern trigger impulses to inform decision makers of significant changes.
- **Aggregation:** In the Aggregation step, single risks are aggregated to the next higher level. This step is of central importance if an enterprise-wide integral risk management system is to be established over more than one hierarchical level.

IV. PROCEDURES FOR THE DEVELOPMENT OF NEW PRODUCT

The main goal of appropriate time to market is a tool which can be beneficial in expecting the end date of the said project as well as in chasing the growth of a project. It works in the following way: when plan estimation is made, the prediction date is conspired against the date the prediction was made.

By evaluating active time to market, the team associates will get an early cautioning of possible late distribution and suitable action can typically be taken by the team to sustain schedule reliability. Thus tasks are kept on plan to accomplish appropriate product development. Intersecting means performance of various actions in similar rather than doing them consecutively. By intersecting actions, the cycle time, i.e. the total time taken to accomplish the product development from perception until the creation stretches market, can be greatly concentrated. A lower number of overlay activities specifies a lower degree of concurrency in the progression and may also specify prospects for enlightening the process to attain intentions. Consumer recognition is precarious for this phase to measure whether the product is adequate to the customer, to measure the customer's level of awareness, taste, favorites, and committed to purchase, and to decide those welfares, characteristics, and structures of the product to which the purchaser reacts. Not only essential the product works accurate in the lab or development section, but, more significantly, it must also work right when the customer uses it.

V. DISCUSSIONS

For the bigger organizations too, it is still a critical challenge in launching new product. Many corporations are conscious of the chief role new products must play in their prospect and expedition for wealth: enterprises are continuously searching for techniques to regenerate, reorganize and reshape their product practices and processes for better results. The structure recommends that to realize success, corporations should have a clear and well-connected new product strategy. These firms should have well defined new product arenas along with long term trust, with clear goals. Operational productions and groups of the product have an obligation to the opinion of the customer. It is critical that the administration should collect as many philosophies as possible and a large number of these must come from consumers so that the firm can be in a situation to propose and improve appealing new products. Up-front homework proceeding to the commencement of product design and improvement is found to be a key factor in a firm's success. The quality of performance of the predevelopment steps – early selection, introductory market and practical studies and commercial investigation - is closely tied to the products financial performance. Companies should try to condense the development time so as to reduce the probabilities that the development and customer needs have altered when the product comes into the market. It is significant to confirm and authorize product performance necessities and design conditions along with customer's recognition before launching the product into the market via validation and user field testing.

This study discovered and examined the new product development process and endeavored to classify ways in which organizations can progress their performance when emerging new products, essentially through the study of aspects that are serious to accomplishment. These issues were recognized through a wide spread study of the observation and performance of successful firms presented in the product. A number of different research instructions could provide extra useful information both to companies finding and determining product development achievement as well as to researchers executing research in this area.

VI. CONCLUSION

The requirement of risk management in product development has been deliberated in this proposed system. Considering literature review and manufacturing training into account, it could be shown that there is a strong and rising interest in the field. There occurs a huge pool of knowledge concerning risk management exterior the product development field. An overall process structure was explained and a collection of risk management methods demonstrated. The study exposed that risk management methods are functional in industry, but the application is in large parts still in its beginning stage subjecting to possibility and superiority. It turns out to be clear that risk management in product development comprises a collection of factors. These are typically not preserved in one complete approach, but concentrated in one area, based on the inheritance of the effort. Currently, industrial the developments turn more complex and quicker. The recognition of potential solution is extensive and decisions more refined. Therefore here is enormously significance of novel topics about recognizing risks, handling risks and evasion of risks.

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