Project Supply Chain Management in Product Development: Study of Literature and its Development

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***Abstract*— The focus on logistics and supply chain management in most industries is as means for improving the competitiveness of the industry or companies. It is require developing a project supply chain management that reduces its cost, process and product development time, to stand in the market also not lose the benefits in the global market. To achieve a process and product that have low cost and improved quality there is requirement of combining project management techniques with current engineering resources. A good product team always works on the improvement of product quality, efficiency and cost effectiveness. They know that there are always new and innovative ideas are implemented. It is require setting the priorities of these ideas. This paper studies the different approaches of project supply chain management to developing a good product. There are many challenges faced by the developer to grow and expanding the products.**

Keywords; *product; project; supply chain management; developement.*

1. Introduction

Project supply chain management is known as the application of tools, skills, techniques and knowledge to determine the needs of the project. To achieve a specific target and to produce a successful project it is a practice of initiating, planning, executing and controlling. It is very essential for the project management team to produce the project according to given constraints. The information of constraint is usually described at the beginning of the process of development. Scope, budget and quality are considered as the primary constraints of any project.

A business model is created with all the decisions that take by the company. These decisions have sex elements i.e. “what, who, where, why, when and how”. They work to get need of the company and for getting the best outcome in minimum efforts. There are some changes including in business that use to develop a new product development (NPD) they are:

1. Continuously changes in environment of market
2. Short life cycle of product
3. Enhance the level of competition
4. High technical obsolescence

Be the first in the market is described in many sources. The company which launches the product first with innovative ideas, services and products in the market get many benefits like:

1. Through large cycle of sale it helps to increase the sales
2. Enhancement of product loyalty
3. Increase the response of market
4. Increment in margins
5. Can achieve the leadership position
6. Resale opportunities will increase

In several organizations there is no need to set the title of project manager who lead the project. Each member in the team has their own dusty. He or she can manage the project in their own way; it is not consider whether he or she working individual or he is the leader of the team [1]. Many times these distinction of position are not required. Only concern about the successful completion of the project and get the objective of the project. There is no need of job title, methods or any special hierarchies in these types of strategies. So if a team works on a project each member has some responsibility to get the outcome and they have to follow that [2].

2. Literature Review

Approaches of project supply chain management concern with the Stage-Gate (SG) structure, they support the decisions of investments in research and development. They also help to provide the better charters for decision makers and interdisciplinary teams. Before development

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stage it creates the work around the review gate. Additional resources are added in this stage. Stage gate is not use for controlling or monitoring the project.

The task the board order has been blamed for having lost its importance for development activities since it overemphasizes arranging and power over adaptability, prompting approaches that are ineffectively adjusted to high-vulnerability attempts [3]. Accordingly, the ideas of focused adaptability [4] and versatile task the executives [5] have been proposed. Under this worldview, the particular qualities of a task—its vulnerability [6], basic and dynamic intricacy [7], or multifaceted nature, oddity, innovation, and pace [8]— are methodicallly considered to tailor venture the board methodologies adjusted to extend needs. Proposed adjustments incorporate task and contracting structures that attention on testing suppositions through cycles and parallel preliminaries [9] and "tight-free" the board approaches that award procedural opportunity for some venture viewpoints, while firmly controlling and institutionalizing others ([10]. In addition, the length of task stages, the level of convention and documentation, and the degree of group independence are changed in accordance with the profile of each venture [11]. Be that as it may, to date there is no acknowledged practice for recognizing the necessities of a specific advancement venture in its beginning times and for proactively picking the fitting undertaking the executives approach. To close this hole, this examination explores momentum industry practice and its difficulties and triumphs, and combines proposals for directors and scientists [12].

3. Project supply chain management development process

Designing products to match the processes and supply chains, processes to match product platforms and supply chains, and supply chains to match the product platforms and process are the ingredients in today's fast developing markets. There are 4 ways through which it can include the project management in product development process are given below:

3.1. Need of the documents that what is the requirement

The first thing that has to be clear in a product development process it to describe the target or goal of the project, in which direction the team has to done the work. There use a flowchart which show the requirement the product. It consider as the documents of the requirement, through flow chart the product can implement.

Depending on the condition the requirement documents can be detailed and large or simple and short. It is very important that the documents should be approved by all the partners.

It helps to avoid the fake consensus by writing the requirement documents, in false consensus every member think that he know about the product but some of them have their own decisions, in this way it can avoid this situation. As the process begins and work will starts many changes will occur then there require a process that updates the document? All the partners should take knowledge about the changes and why there is need of changes .To change in code and then retest the code is very difficult. But it is very easy to change the arrow in flow chart,

3.2. Require a process to begin and end the product

If a company start a product development there are several developing stage and project management grow with these stages. It is like growing and maturing the company. When company grows then generally project management is one or two stapes behind then its actual position.

As it grows there is requirement of a process to begin the project. But it is very important to get the requirement documents and the knowledge of the resources that will work during the development. If a project does not required in whole process then there require a process which can kill that project. Priority list of every project helps to show the information about the conflicts of resources. At the end by getting the list of pending projects, helps to give the idea that when resources will free to begin the process.

3.3. Like other priorities, also treat the project management

Every company wants to increase the size and numbers of the project that it's having and want to grow the project management maturity of the company. In a big company there is the responsibility of the mechanical engineer and director to monitor and control the developing of the whole project.

It is also consider that it should use good quality tools. If it is using the good quality tools then it helps to increase the productivity and efficiency of the project.

3.4. Make the product which allow to add the value

There are some projects that do not allow adding the value. So there is needed to update the previous process so it can include the new value and accept the changes that help to complete the requirement of the product.

The process which always adds the value is known as bug tracking. If there is a bug that cannot be fixed then there is need of a database which store all the data. If there is a bug which is known and decided by the developing team then it is better than the unknown bug. Because it have low risk than risk of unknown bug. Some unknown bugs are always there in the project. There require to set the priority of the bug in the database.

4. Research Framework: Product Development in Supply Chain

In project management based on adaptive project management the research is very important. Specially it shows how the project management work to complete the process and how it make the innovative project, what are the degree of innovation ex. Incremental versus radical , success of innovation for ex. Acceptance of market, and efficiency of the innovative process for ex. Amount of rework and budget adherence [8].

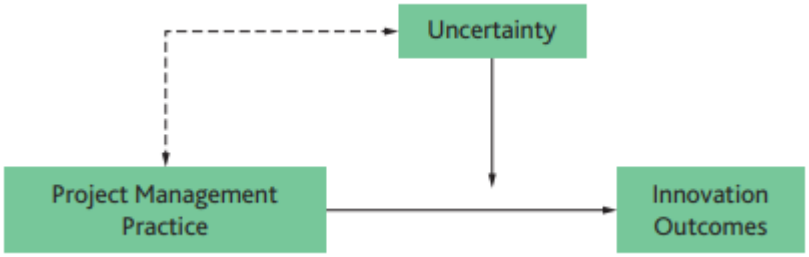

Figure 1. overview of research [8]

Planning Principles for Radical Innovation	Project Management Practices for High Performance
Invest heavily in planning	Planning and management attention in proportion to budget
Create a plan and metrics for success from scratch	Use the last project as a template and modify
Discuss data and assumptions	Focus on data
Document a clear hypothesis of record	Document clear expectations
Find a way to spend a little and learn a lot	Be on budget, on time, and on spec
Create a separate forum for discussing radical innovation projects	All innovation projects are discussed in the same forum
Frequently reassess the plan	Deliver the results in the plan
Analyze trends	Analyze totals
Allow formal revisions to predictions	Revisions are frowned upon
Evaluate innovation leaders subjectively	Evaluate based on results

Figure 2. Planning approaches [8]

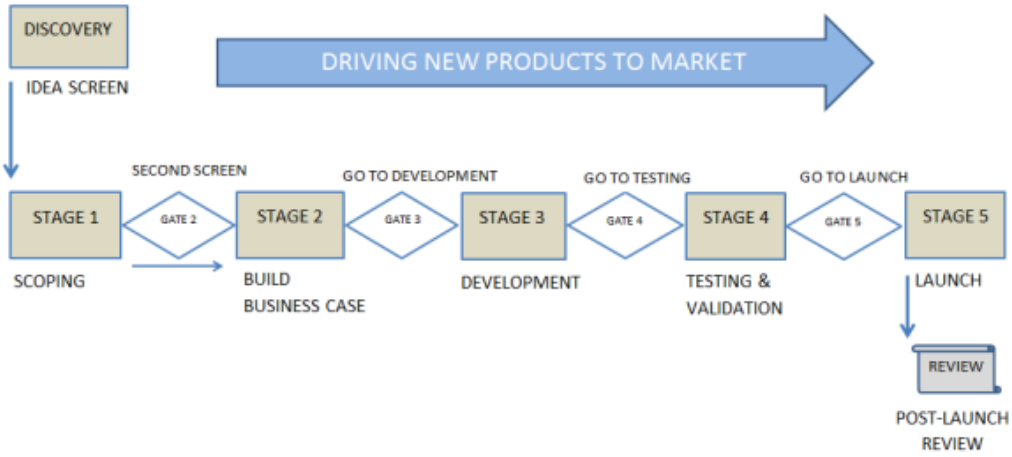

Figure 3. Driving new product to market [9]

It is described in the figure that there is the beginning of the new product from discovery and the product finished when it launch in the market. When product launch in the market then a review is consider about the quality and efficiency of the product.

5. Project Management on New Product Development

5.1. Idea Generation for new Products

To create a set of product a company undertakes the idea of the concept generation. The generation of concept helps to create many concepts as it is the stage in the product development process. For future development review of the concepts helps to decide the best choices. [10]. the use of good or bad product can set the success and unsuccessful of the project. As the thoughts generation will prompt the new items which can be offered to the clients. Company can work on many different ideas. So it is important to generate new ideas and consider a process for developing new ideas. It helps to generate successful products [9]. It is useful to decide the strategy of the product that define the product area and focus on the area which use for new development. If the specifications are clear then it helps to generate more effective and clear ideas, which are hard to get from a dissipated hunt.

In every business industry new product development is most significant worth making forms. To fulfill the requirements of a customer in lower evaluated and better, progressively helpful way the new product make energy, interest and new business openings. Several members think that working together of suppliers and distributors can decrease the cost of the product development. And it can make the better product than previously created product. There is no requirement to change in business methods and operation of the world remains stable. Although the company created in moving environment so it can change according to the requirements. In any case, firms work in unique conditions, not steady ones. Accordingly, the executive's procedures should likewise change after some time with the goal that organizations can stay viable and gainful through this evolving circumstance.

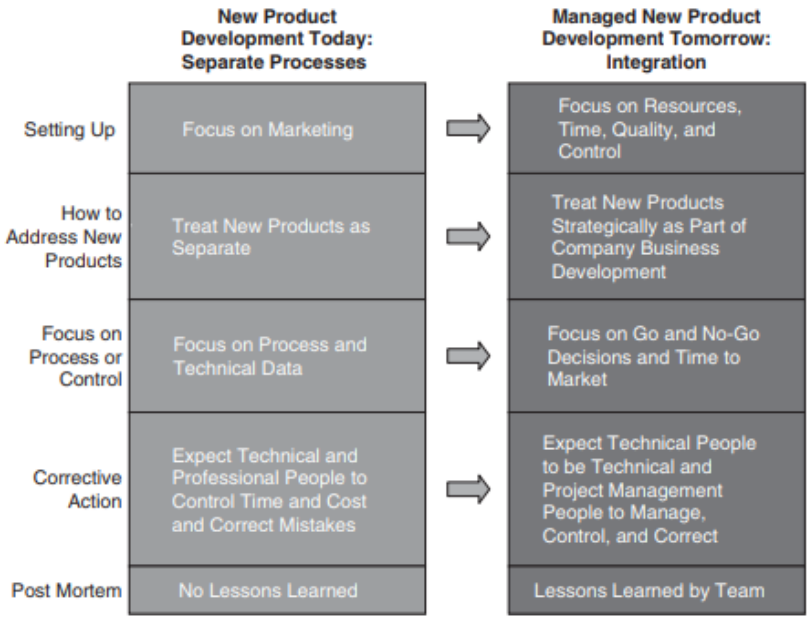

Figure 4. Changes in new product developments

6. Findings and Practical Implications

A supply chain is needed both for the development of the facilities as well as keeping the facilities in operation. The costs of developing and operating the facilities are to a large extent procured costs, i.e. costs inherent in the supply chains. The costs materialised through the development supply chain are referred to as capital expenditures, while the costs of the operations supply chain may be referred to as operational expenditures. The development and operations supply chains may be used to refer to a two-parted supply chain scheme for the project object. The two-parted supply chain scheme reflects that one supply chain is needed for the project object development, while another supply chain is needed for the operations of the project object. As the development of the internet there increase the change in the development of new process. There are many sources on internet like YouTube, Innocentive and Wikipedia. Information of simulations, model, performance of a new product is available on the internet, through that the product developer can get new ideas and instead of search for information of current product they can get the information of new product also. In this way creativity and innovation of new product increasing day by day and it focus on enhance the services and products.

SCM refers to management between companies by means of their business processes; where they seek to maximize potential synergy, reduce waste, increase efficiency and the effectiveness of business processes, with the objective of adding value for the clients and stakeholders, making the supply chain more competitive.

Nature of the project	Technology or Market Uncertainty	Recommended project management approach
Innovative New Product new functionality with potential to change current technology paradigm; market adoption by visionaries.	High	Trial-and-Error: initial planning steps are non-linear, non-orderly, and non-predictable and simultaneously focused at discovery and feedback learning.
Significant Improvement Product Significantly improved functionality through adding and removing of features that makes the product attractive to mainstream adopters and adjacent markets.	Medium to Medium-High	Planning steps are focused at testing/validating assumptions through experimentation and feedback, but approaches differ with regard to their initial structure: • Recursive: loosely coupled, unstructured steps are decided on as feedback. Information becomes available, making the actual project activities and outcome relatively unpredictable. • Evolving: project steps and feedback loops are planned upfront, but length and outcome of each feedback cycle are unknown. • Selection: project steps are designed to generate and test alternative solutions in parallel and select the best alternative after testing. Learning occurs ex-post.
Incremental New Product Moderate changes in existing functionality, targeted at existing markets.	Low to Low- Medium	Linear: Process consists of a fixed sequence of several defined gates and stages.

Figure 5. Recommended project management approaches for different levels of uncertainty

7. Conclusion

This paper describes the development of the product in a new manner by project supply chain management. To guide the supply chain strategies in today's competitive world there require to be an experienced and steady management. So product management and project managements are very important at their distinct positions. To achieve the objective of a product the project supply chain manager focused internally and completes the project according to providing budget and time. When the project is finished then there no need to manage it.

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