



PATHWAY TO SUCCESS: ROLE OF SUPPLY CHAIN MANAGEMENT CAPABILITIES

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Abstract

Supply Chain Management is a methodology of improving the business processes, making them more resilient, more agile and as a result, more competitive. The main function of SCM is to improve the product or service competitiveness. This paper is an endeavour to study, understand and interpret the evolution of supply chain management. On the basis of systematic literature review, we have attempted to explore the future of Supply Chain. We have captured various definitions of SCM provided by experts from the initial to recent period along with major classical definitions. Various dimensions of Supply chain are an integral part of this study. The paper discusses SCM and its dimensions; and tries to delineate SCM from related areas like Logistics Management, Value Chain Management and Operations Management. On completion of thorough literature review, the paper ends with a conclusion and future scope of work.

Keywords: Supply Chain, Supply Chain Evolution, Supply Chain Theories, Future Dimensions of Supply Chain.

Introduction

Supply chains encompass the companies and the business activities needed to design, make, deliver, and use a product or service. Businesses depend on their supply chains to provide them with what they need to survive and thrive. Every business fits into one or more supply chains and has a role to play in each of them. The pace of change and the uncertainty about how markets will evolve has made it increasingly important for companies to be aware of the supply chains they participate in and to understand the roles that they play. "A chain of processes that facilitates business activities between trading partners, from the purchase of raw goods and materials for manufacturing to delivery of a finished product to an end user."

"Supply chain management is the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served." Supply chain Management has assumed a significant role in firm's performance and has attracted serious research attention over the last few years.

In the current competitive scenario supply chain management assumes a significant importance and calls for serious research attention, as companies are challenged with finding ways to meet ever-rising customer expectations at a manageable cost. To do so, businesses must search out which parts of their supply-chain process are not competitive, understand which customer needs are not being met, establish improvement goals, and rapidly implement necessary improvements.

This paper is aimed at presenting the development and concepts of Supply Chains and Supply Chain Management. It provides important definitions and theoretical analysis of both the Supply Chain and Supply Chain management. Supply Chain management is aimed at examining and managing Supply Chain networks. The rationale for this concept is the opportunity (alternative) for cost savings and better customer service. An important objective is to improve a corporate's competitiveness in the global marketplace in spite of hard competitive forces and promptly changing customer needs

Objectives

A well designed SC is expected to support the strategic objectives of:-

1. To ensure that production processes are completed in as little time as possible, freeing up resources for additional production.
2. To reduce stock out and back-order costs by synchronizing raw material delivery with material outflow.



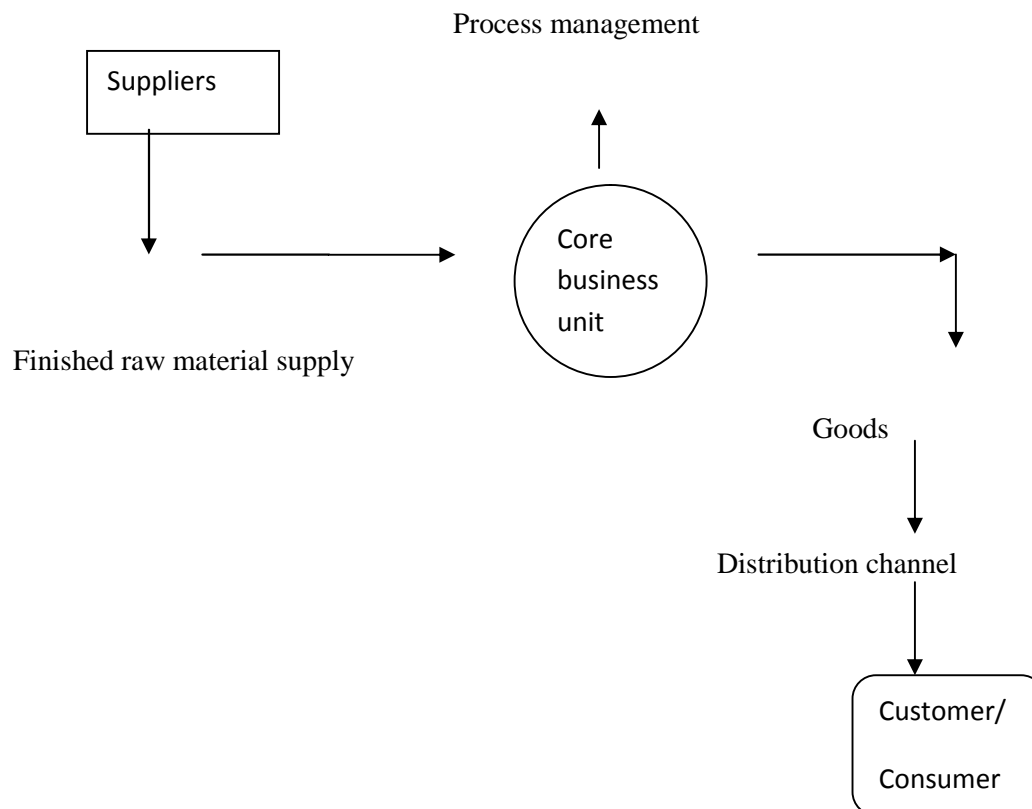
3. To decrease raw materials inventory on hand and ensuring that each production department has exactly the right materials at the right time.
4. To study supply chain process & the relationship between manufacturer and vendor.

Scope of the Study

The true breadth of a Supply Chain is much more than the minimal role ascribed by many organizations. Many people think logistics is the supply chain, others think it is purchasing and still more define it as 'only' an IT system. Proper management of a supply chain, however, requires that the broadest definition is employed...virtually all elements of business operations in every type of business are either a direct part of a supply chain or are directly impacted by supply chain operations.

The scope should cover demand planning, procurement (including analysis of supplier's Supply Chains), through production planning, inventory profiling, warehousing, picking, dispatch and transport.

Supply Chain Management Framework



Review of Literature

A supply chain is a "set of three or more entities directly involved in the upstream and downstream flow of products, services, finances, and information from a source to the customer" (Mentzer et al., 2001, p. 4).

Ballou, Gilbert and Mukherjee (2000) identify three dimensions of SCM, as follows: intra-functional dimension (regarding the management of activities and processes within logistics as a function of the company), inter-functional coordination (refers to the coordination of activities (pertaining to certain functions) between the functional areas of the company) and inter-organizational coordination (concerning the coordination of the chain of activities taking place between legally distinctive companies, in compliance with the product flow).



Chen and Paulraj (2004) stated that a typical supply chain is a network of materials, information, and services processing links with the characteristics of supply, transformation and demand, as you can see in the figure below (Figure no.1):

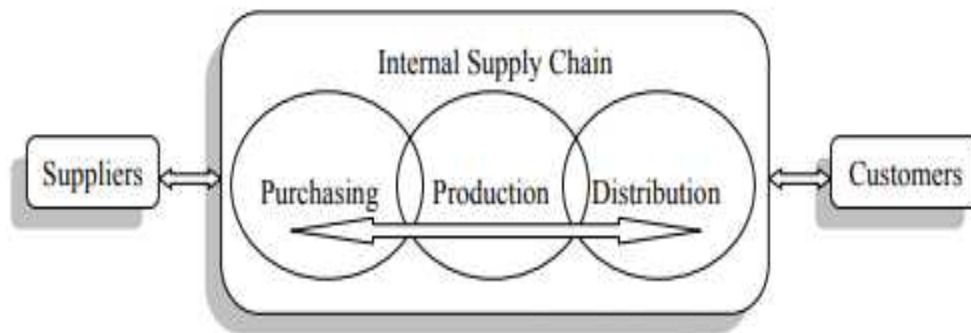


Figure no.1: An illustration of a company's supply chain
Source: Chen and Paulraj, 2004

As a philosophy, SCM takes a systems approach to viewing the supply chain as a single entity, rather than as a set of fragmented parts, each performing its own function (Ellram and Cooper 1990; Houlihan 1988; Tyndall et al. 1998).

In other words, the philosophy of supply chain management extends the concept of partnerships into a multifirm effort to manage the total flow of goods from the supplier to the ultimate customer (Ellram 1990; Jones and Riley 1985). Thus, SCM is a set of beliefs that each firm in the supply chain directly and indirectly affects the performance of all the other supply chain members, as well as ultimate, overall supply chain performance (Cooper et al. 1997).

SCM as a management philosophy seeks synchronization and convergence of intrafirm and interfirm operational and strategic capabilities into a unified, compelling marketplace force (Ross 1998). SCM as an integrative philosophy directs supply chain members to focus on developing innovative solutions to create unique, individualized sources of customer value. Langley and Holcomb (1992) suggest that the objective of SCM should be the synchronization of all supply chain activities to create customer value. Thus, SCM philosophy suggests the boundaries of SCM include not only logistics but also all other functions within a firm and within a supply chain to create customer value and satisfaction. In this context, understanding customers' values and requirements is essential (Ellram and Cooper 1990; Tyndall et al. 1998).

Process is a specific ordering of work activities across time and place, with a beginning, an end, clearly identified inputs and outputs, and a structure for action (Cooper et al. 1997; Cooper, Lambert, and Pagh 1997; Ellram and Cooper 1990; Novack, Langley, and Rinehart 1995; Tyndall et al. 1998).

The idea of viewing the coordination of a supply chain from an overall system perspective, with each of the tactical activities of distribution flows seen within a broader strategic context (what has been called SCM as a management philosophy) is more accurately called a **Supply Chain Orientation**. The actual implementation of this orientation, across various companies in the supply chain, is more appropriately called Supply Chain Management.

Gentry and Vellenga (1996) argue that it is not usual that all of the primary activities in a chain— inbound and outbound logistics, operations, marketing, sales, and service—will be performed by anyone firm to maximize customer value. Thus, forming strategic alliances with supply chain partners such as suppliers, customers, or intermediaries (e.g., transportation and/or warehousing services) provides competitive advantage through creating customer value (Langley and Holcomb 1992).



Bowersox and Closs (1996) argued that to be fully effective in today's competitive environment, firms must expand their **integrated behavior** to incorporate customers and suppliers. This extension of integrated behaviors, through external integration, is referred to by Bowersox and Closs as supply chain management. In this context, the philosophy of SCM turns into the implementation of supply chain management: a set of activities that carries out the philosophy. This set of activities is a coordinated effort called supply chain management between the supply chain partners, such as suppliers, carriers, and manufacturers, to dynamically respond to the needs of the end customer (Greene 1991).

Research Design: Are search design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Research design is the conceptual structure with in which research is conducted. The design which is used in this study is analytical research design.

Sampling Plan: Sample size of the project is 100 (**Middle Level Executives**) from **SCM department of Manufacturing organization.**

Sampling Method: Convenience sampling method is used for this study.

Data Collection Method: Both primary data and secondary data is used for this study.

Sampling Instrument: Well defined Questionnaire is used for collecting data.

Data Analysis and Discussion

Hypothesis 1: To verify whether there is an association between mode of transportation and its influence on getting the raw material from the supplier.

Null hypothesis (Ho): There is no association between time duration for getting the raw material from the supplier and mode of transportation.

Alternate hypothesis (H1): There is association between time duration for getting the raw material from the supplier and mode of transportation.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.829 ^a	3	.281
Likelihood Ratio	4.592	3	.204
Linear-by-Linear Association	1.468	1	.226
N of Valid Cases	100		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .92.

Inference

It is found that the calculated chi square value is 0.281 > 0.05. Therefore H0 is rejected. Hence there is no significant difference between time duration for getting the raw material from the supplier and mode of transportation. Mode of transportation has an impact on the receiving time of the raw material.

Hypothesis 2

To verify whether there is an association between support from the company and integration with the suppliers.

Null hypothesis (Ho): There is no association between support from the company and integration with the suppliers.

Alternate hypothesis (H1): There is association between support from the company and integration with the suppliers.



Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	188.325 ^a	12	.000
Likelihood Ratio	142.221	12	.000
Linear-by-Linear Association	78.692	1	.000
N of Valid Cases	100		
a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .02.			

Inference: It is found that the calculated chi square value is $.000 < 0.05$. Therefore H_0 is accepted. Hence there is no significance difference between support from the company and integration with the suppliers. Management interference doesn't have an influence on integration with the suppliers.

Hypothesis 3: To verify whether there is an association between type of inventory and supply chain process assessment.

Null hypothesis (H₀): There is a significance difference between type of inventory and supply chain process assessment.

Alternate hypothesis (H₁): There is no significance difference between type of inventory and supply chain process assessment.

ANOVA					
Supply Chain Process Assessment					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.796	3	.599	.835	.478
Within Groups	68.844	96	.717		
Total	70.640	99			

Inference: It is found that the calculated p-value is $0.478 > 0.05$. Therefore H_0 is rejected. Hence there is no significant difference between type of inventory and supply chain process assessment.

Hypothesis 4: To verify whether there is an association between SCM process assessment and integration with suppliers system.

Null hypothesis (H₀): There is positive relationship between SCM process assessment and integration with suppliers system.

Alternate hypothesis (H₁): There is negative relationship between SCM process assessment and integration with suppliers system.

Correlations			
		SCP assessed	Integration system
SCP assessed	Pearson Correlation	1	.816 ^{**}
	Sig. (2-tailed)		.000
	N	100	100
Integration system	Pearson Correlation	.816 ^{**}	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed). $r = .816$			



Inference: Since $r(0.816)$ is positive, there is positive relationship between SCM process assessment and integration with suppliers system.

Findings

1. There is no significant difference between time duration for getting the raw material from the supplier and mode of transportation. Mode of transportation doesn't have an impact on the receiving time of the raw material.
2. There is no significance difference between support from the company and integration with the suppliers. Management interference doesn't have an influence on integration with the suppliers.
3. There is no significant difference between type of inventory and supply chain process assessment.
4. There is positive relationship between SCM process assessment and integration with suppliers system.
5. New technology, 80% need to adopt Yes and 20% No. These negative respondents due to their job-security and other problems.
6. That just-in-time concept needs to adopt by company. 96% employees felt that Just-in-time is not adopting. 4% employees is Yes. Because right time right way is the main motto of Just-in-time.
7. Inventory of materials 40% both safety and cyclical inventory each. 20% Seasonal inventory.
8. Satisfaction regarding batch order process is 76% strongly agree, 14% Agree, No-idea 20%.

Suggestions

With respect to effective study on the concern field, various factors found out. According to that following suggestion measure which can improve their supply chain process and Relationship.

1. It is recommended, the tentative production planning should be given to manufacturer and suppliers without any design alteration in carry out their activities.
2. Most of the respondents feel that satisfaction level with suppliers is very low. So the vendors need to maintain a good relationship with the manufacturer with in time supply of materials and to attain profitability.
3. It is suggest that storage capability of the plant to be increased in order to reduce the waste.
4. Public private partnership must be needed in order to assess the supply chain process and reduce the hindrance in the process.
5. Just-in-time concept need to be adopted for the in-time supply of materials.
6. It needs to upgrade the information technology in order to create proper communication between supplier and manufacturer.
7. Need to give rewards/rewards to the suppliers timely delivery of raw materials.
8. Personally, yearly twice supplier meeting should be conducted by the organization.

Conclusion

The study on effectiveness of Supply chain process and Relationship reveals the positive result towards the organization. The factors which add the positive things are ordering process, Inventory maintenance, Replenishment process, Assessment process and so on. In future organizations has to concentrate on these factors.

During this study, it was absorbed that there is an authentic relationship between the vendor and the manufacturer. It was also absorbed that, growth happened only due to the co-ordination given by the vendor towards the function of the organization. In addition to that, supply process taken place in the organization is impartial. In other words, **“The rights are given in right manner to all the suppliers.”**



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