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Review Article

SUPPLY CHAIN MANAGEMENT: A REVIEW

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ABSTRACT

In the present competitive world, the dynamics of market does not allow any deviation in quality of end product. Therefore, the importance of quality management is universally espoused by the researchers and practicing managers working in this area. During review of the open literature available in this area, the we observed that in present scenario there are number of related issues in supply chain management which needs immediate attention of the researchers. In this context the quality of supply chain itself can provide a path breaking solution at different levels of supply chain management. In this paper, the we have reported intensive studies based on the work carried out by various researchers in the area of supply chain management in medium scale industries in Maharashtra. Further, an attempt has also been made to identify conceptual interlinking between Supply chain management and Quality management through literature review

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. A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves.

SCM assists the business organization to compete in the dynamic international market. The objective of SCM is to incorporate activities across and within organizations for providing the customer value. This should also be applicable to the academia, which represents a type of non-profit organizations. The goal is to provide the society value by producing high quality graduates and research outcomes. An industrial supply chain involves coordination and information sharing up and down the process among all stakeholders. With technology facilitating information flow, a coordinated supply chain can be designed to meet the strategic, planning, and operating objectives of the educational institutions. It also means establishing effective and feasible relationships both inside and outside the organization.

A collection of items held by an organization for future utilization is known as inventory and a set of policies known as the inventory system. The inventory can be stocked by diverse stages along the production and distribution supply chain. The inventory system aids in estimating the amount of each item to be hoarded, when the low items should be replenished, and the number of items that need to be ordered or manufactured once replenishment becomes necessary. An supply manager is responsible to arrive at a decision on which offers to accept besides updating the estimated future inventory replacement costs.

The concept of SCM has received increasing attention from academicians, consultants, and business managers. Many organizations have begun to recognize that SCM is the key to building sustainable competitive edge for their products and/or services in an increasingly crowded marketplace. The concept of SCM has been considered from different points of view in different bodies of literature, such as purchasing and supply management, logistics and transportation, operations management, marketing, organizational theory, and management information systems. Various theories have offered insights on specific aspects or perspectives of SCM, such as industrial organization and associated transaction cost

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analysis, resource-based and resource-dependency, competitive strategy, and social-political perspective.

LITERATURE SURVEY

Innovation is a complex process as it normally involves many different functions, actors and variables. It comprises a whole sequence of events that occur over time and which involves all the activities of developing a new product/service or process. The development of innovation requires time for organizations and individuals to gain capability, experience, knowledge and information. It is a cumulative and evolutionary process [Bertsekas, D. P] In [Chand, S., and S. Sethi], have put forth and optimization tool that works on basis of a multi-matrix real-coded Generic Algorithm (MRGA) and aids in reduction of total costs associated with in supply chain logistics. They have incorporated procedures that ensure feasible solutions such as the chromosome initialization procedure, crossover and mutation operations. They have evaluated the algorithm with the aid of three sizes of benchmarking dataset of logistic chain network that are conventionally faced by most global manufacturing companies A technique to utilize in supply-chain management that supports the decision-making process for purchases of direct goods has been projected by Scott. RFQs have been constructed on basis of the projections for future prices and demand and the quotes that optimize the level of inventory each day besides minimizing the cost have been accepted. The problem was represented as a Markov decision process (MDP) that allows for the calculation of the utility of actions to be based on the utilities of substantial future states. The optimal quote requests and accepts at each state in the MDP were determined with the aid of Dynamic programming [S. Bylka, S. Sethi, G. Sorger].

The commonly available performance measurement systems (PMSs) suffer from two main limitations when they are used for performance measurement of supply chains. First, their financial accounting principles lack forward looking perspective and measurement is restricted to directly measurable indicators. Secondly, these systems are not suitable for cutting edge SCM applications where performance measurement has to take into account wide range of controlling targets [Clausing, D]. Moreover, most of the firms lack systems approach in which a supply chain must be viewed as a whole entity and measurement system should span across all stages of the supply chain [Cohen, M. A. and R. H. Halperin]. Balanced card approach (BSC) was developed as a tool for aligning business activities to the vision and strategy of the organization, improving internal and external communications and monitoring organization's performance against strategic goals [Cohen, M. A., J. Eliashberg]. It includes four performance indicators, namely, customer perspective, internal-business processes, learning and growth and financials [Fine, C. H. and R. M. Freund, Ettl, M., G. E. Feigin, G. Y. Lin and D. D. Yao, Graves]. Due to its structure BSC provides not only central control mechanism but also includes mechanism for improvement A number of fields such as purchasing and supply, Logistics and transportation, operations management, marketing, organizational theory, management information systems, and strategic management have contributed to the explosion of SCM literature. From the myriad of research, it can be seen that a great deal of progress has been made toward understanding the essence of SCM. The new orthodox of supply chain management, however, is in danger of collapsing into a discredited management fad unless a reliable conceptual base is developed [Grieco, P. L., Jr., and M. W. Gozzo], and many authors have highlighted the pressing need for clearly defined constructs and conceptual frameworks to advance the field.

First, SCM is a field at the confluence of many other disciplines [Hendricks, K. B., and V. R. Singhal], such as marketing (customer relationship management, buying strategies), industrial economics (make-or-buy, international purchasing, procurement, supplier evaluation), operations management (just-in-time, inventory management, production and distribution planning, transportation management), international business and organizational management (teams and internal coordination, strategic issues, organization and procedure, partnering and strategic alliances), and information technology (electronic data interchange, online bidding, bar coding),which have precedence SCM.

The problem is further complicated by the fact that SCM is defined in operational terms related to the flow of products [Hendricks, K. B., and V. R. Singhal], in terms of a management philosophy [Inderfurth, K.], as well as in terms of a management process [Inderfurth, K.]. Some ''authors have even conceptualized supply chain management differently within the same article'' [Krishnan, V., R. Singh, and D. Tirupati, Laseter, T. M]. Such lack of homogeneity in the SCM terminology, slows down research, teaching and managerial progress in the field.

The complexity of the automotive supply chain may be gauged from the fact that a typical vehicle comprises approximately 20,000 components with about 1000 sub-assemblies or modules [Lee, H. L., and C. Billington]. The automotive supply chain includes multitude of Tier 1, 2 and Tier 3 suppliers or manufacturers with many assembly operations and a number of dealerships. Customer demand for varied specific configurations and features add to the high level of response needed from automobile supply chains. The order lead time required by a customer is averaged at 4-6 weeks in the automobile industry [Nurani, R. K., S. Seshadri, and J. G. Shantikumar] and there is a definite correlation between implementation of Supply Chain Management (SCM) practices and quality and conformance of design [Sanderson, S. W].Toyota's Production System enshrining lean thinking has long since been an industry benchmark [Rajagopalan S., Singh M. R., and Morton T. E, Simpson, K. F].

A broader definition is given by Raphael Kaplinsky and Mike Morris [Zhong Shichen] Which defines the value chain as the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use? The definition recognizes the flow of services as well as products in value chains.

According to a USAID brief [Zhong Shichen] the premise underlying both value chain and cluster approaches is that individual firms often face sector-level constraints that they cannot address alone. Therefore, any effort to increase competitiveness must do more than support individual firms,

since inter-firm cooperation is important to achieving this goal. These two approaches have common intellectual roots in Harvard's Michael Porter, who played a key role in developing both theories.

According to Zhong Shichen the most important step in doing a value chain analysis is mapping the market, "If we want to understand more about the rationale behind farmers' decisions *vis-à-vis* the types of seeds that farmers purchase etc. then we also need to know about the extraneous factors that influence the way that the value chain works. This is where the market map comes in useful. The market map is a conceptual and practical tool that helps us identify policy issues that may be hindering or enhancing the functioning of the chain and also the institutions and organizations providing the services.

Supply chain management (SCM) is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers [Xie Liwei, Chung JunJie, Fan Shidong, Yao Yunan]. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption.

Organizations increasingly find that they must rely on effective supply chains, or networks, to compete in the global market and networked economy. In Xie Liwei, Chung JunJie, Fan Shidong, Yao Yunan, this concept of business relationships extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies.

During the past decades, globalization, outsourcing and information technology have enabled many organizations, such as Dell and Hewlett Packard, to successfully operate solid collaborative supply networks in which each specialized business partner focuses on only a few key strategic activities.

This inter-organizational supply network can be acknowledged as a new form of organization. However, with the complicated interactions among the players, the network structure fits neither "market" nor "hierarchy" categories [Xie Liwei, Chung JunJie, Fan Shidong, Yao Yunan]. It is not clear what kind of performance impacts different supply network structures could have on firms, and little is known about the coordination conditions and trade-offs that may exist among the players. From a systems perspective, a complex network structure can be decomposed into individual component firms [Xie Liwei, Chung JunJie, Fan Shidong, Yao Yunan]. Traditionally, companies in a supply network concentrate on the inputs and outputs of the processes, with little concern for the internal management working of other individual players.

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