

STATE OF THE ART IN SUPPLY CHAIN MANAGEMENT A COMPREHENSIVE REVIEW

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ABSTRACT

Supply chain Management (SCM) has assumed a significant role in firm's performance. In last few years Supply Chain Management has attracted serious research attention. The main aim of this paper is to review the literature on Supply Chain Management. A literature review reveals a considerable increase in research in theory and practice of SCM. We have presented a literature review for 20 research papers for the period between 2010 and 2017.

KEYWORDS— Supply Chain Management (SCM), Supply Chain key performance, Literature Review.

I. INTRODUCTION

In the current competitive scenario supply chain management assumes a compelling importance and calls for serious research attention, as companies are challenged with searching ways to meet ever rising customer expectations at affordable and manageable price. 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. In old days' manufacturers were the drivers of the supply chain managing the pace at which products were manufactured and distributed. Now, customers are calling the shots, and manufacturers are scrambling to meet customer demands for options/styles/ features, quick order fulfillment, and fast delivery.

In Real based Scenario, supply chain based companies (for example- Dell, HP, Samsung, Toyota, Lenovo, Sony, Moto etc.) have used different types of performance management tools to support their supply chain strategies. Monitoring and improvement of performance of a supply chain has become a progressively difficult task. A complex performance management system includes many management processes, such as identifying measures, defining targets, planning, communication, monitoring, reporting and feedback.

Manufacturing good quality product a long time competitive differentiator is approaching parity across the board, so meeting customer's specific demands for product delivery has emerged as the next critical opportunity for competitive advantage. So many Companies that learn how to improve management of their supply chain will become the new success stories in the global market place. Study on Benchmarking shows significant cost differences between organizations that exhibit best in class performance and traditionally, Supply Chain Management (SCM) has been a melting pot of various aspects, with influences from logistics and transportation, operations management and materials and distribution management, marketing, as well

as purchasing and information technology (IT). Ideally, the all-encompassing philosophy of SCM embraces each of these functions to produce an overall supply chain strategy that ultimately enhances firm performance

This paper focusing on making a literature review based on 20 randomly chosen research papers on supply chain management where each research covers different objects and features of supply chain management. There is too small amount of research papers to be reviewed, that's why there is no intention to make any recommendations on supply chain management performance or improvement, the only purpose is to make general review based on these research works which have been done during the years from 2010 to 2017.

II. SUPPLY CHAIN MANAGEMENT CONCEPT DEFINITION

Before making review of chosen papers there is a need to make a small discussion on what is supply chain management itself. SCM has been interpreted by various researchers. Based on the relatively recent development of the supply chain literature, it is not surprising that there has been much debate as to a specific SCM definition. Ganeshan and Harrison [1] has defined SCM as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Lee & Corey [2] stated that SCM consists of the integration activities taking place among a network of facilities that procure raw material, transform them into intermediate goods and then final products, & deliver products to customers through a distribution system. Christopher [3] defined the supply chain as the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer. SCM is the "strategic and systematic coordination of the traditional business functions and the tactics across these business functions within a particular firm and across businesses within a supply chain, for the purposes of improving the long term performance of the individual companies and the supply chain as a whole[4]. While the separation of supply chain activities among different companies enables specialization and economies of scale, there are many important issues and problems that need to be resolved for successful supply chain operation this is the main purpose of SCM.[5]

III. BEST VALUE SUPPLY CHAINS

Most of researches are intend to find optimum solutions for operations management in today's competitive landscape and best value supply chains are the chains that

are most likely to prosper within this today's competition. Best value supply chains use strategic supply chain management in an effort to excel in terms of speed, quality, cost, and flexibility. Despite the value of this concept to modern firms, little is known about how prominent theories can help shed light on what distinguishes these chains from others and makes them exceptionally successful. Authors showed implications for the best value supply chain concept offered by nine prominent theoretical perspectives: transaction cost economics, agency theory, resource dependence theory, institutional theory, game theory, network theory, social capital theory, strategic choice, and the resource based view/knowledge based view. [6] On our own we can say that prior to elaborating on the nine theories, it is important to state that a number of other theories can also help explain supply chain phenomena (e.g., behavioral theory of the firm, punctuated equilibrium, industrial organization, contingency theory, evolutionary economics, and population ecology). Here we would like to perform comparison analysis done by Ketchen where he compares best value and traditional supply chains. A recent survey done by Feller et.al.[7] of the main usages of the term "value" in the economics, marketing, strategy, and operations fields indicates that the notion of a value chain may actually be a misnomer, although a widely used one. According to this study, only resources move along the chain of linkages between firms supplies going one way and money going the other, while value is a metaphysical perceived quality associated with the benefits that occur at the various points of exchange along the resource chain. According to this study and analysis of results, value surrounds the movement of resources is perceptual and accrues to both parties in a transaction, suppliers and customers.

Therefore, value chains can be thought to operate in both directions, with suppliers accruing value from the financial resources, payment terms, stability, and future order cover that their customers provide, while customers derive value from the delivered products and services.

IV. A COMPARISON OF A VALUE CHAIN WITH A SUPPLY CHAIN

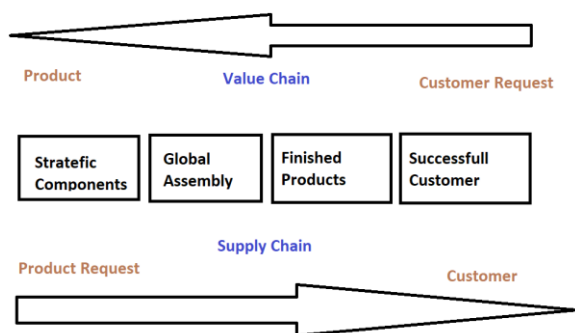


Fig : A Comparison of a Value Chain with a Supply Chain[R]

V. EVALUATION AND OPTIMIZATION METHODS OF SCM

There are so many techniques and methods have been suggested over the years for SCM evaluation. Traditional methods focus on well-known financial measures, such as the return on investment (ROI), net present value (NPV), the internal rate of return (IRR), and the payback period.

These methods are best suited to measure the value of simple SCM applications. Unfortunately, evaluation methods that rely on financial measures are not well comfortable for newer generation of SCM applications. These complex supply chains typically seek to provide a wide range of benefits, including many that are intangible in nature. There are set of assumptions about cause-and-effect. If cause-and-effect relationships are not adequately reflected in the BSC, it will not translate and communicate firm's vision and strategy. These cause and-effect relationships can involve several or all four of the perspectives in the BSC framework. For example, flexibility of service systems to meet particular customer needs (internal business operations perspective) will be more likely to meet customer expectations (customer perspective). Higher level of customer expectations will lead companies to supply more innovative products and services (learning and growth perspective). This in turn will increase the market share and profitability (financial perspective).

Also there is no doubt about the importance of informing in the supply chain and about the fact that information technology (especially various Internet applications) can greatly reduce the costs, strategic planning of this process and utilization of information is crucial. Information should be readily available to all companies in the supply chain and the business processes should be structured in a way to make full use of this information. The most important measures of SCM successfulness can be the final level of service, customer satisfaction and supply chain competitiveness and profitability as a whole. However as these are difficult to measure or use as a guideline to monitor improvement, more operational measurement methods and indexes were developed. On a more operational level the key performance indicators are total costs, quality and lead times in the supply chain. Survey of performance measures showed that cost and customer responsiveness dominate as the most often mentioned measures.

Research study of Caddy and Helou -addresses the question of whether the field of general systems theory could make a contribution towards a greater understanding of supply chains. Where the first principle indicates that if organizations are to have „agile“ or „quick response“ supply chains, simpler supply chains, in terms of their topology, or type and nature of the product being exchanged, should be preferred to more complex ones. The second principle indicates that organizations need to manage their supply chains on the basis of their activity, devoting more management resources to highly active ones as compared to less active ones. The third principle allows organizations to better understand their supply chains by decomposing these systems into smaller and more easily understood sub-systems. The fourth principle indicates that organizations need to accept the fact that supply chains are dynamic rather than static, and so need to focus the attention of managers at all levels on the types of changes required, and the resource implications that these changes will have on the operation of the supply chain. Regular review and change of management practice will also be necessary in order to maintain supply chain effectiveness.

According to Chow et al, analyze SCM in comparison of two different countries US and Taiwan and to see if methods used for optimization can be equal for any environment. Through structural equation modeling, difficult components of supply chain management are found to have considerable effects on organizational performance. The findings of Chow et al. are summarized as follows:

Supply chain competencies have positive effects on organizational performance in both the US and Taiwan.

Supply chain competencies are developed around quality and service, operations and distribution, and design effectiveness. The goal of supply chain competencies is to satisfy customer requirements.

- Supply chain practices, which are made up of supply chain features, integration, and customer services, have direct impact on organizational performance in Taiwan, but they have only indirect impact in the US.

- Supply chain practices and competencies are significantly associated in both the US and Taiwan. However, supply chain concerns and practices are associated in the case of the USA only.

Study shows that the practice of supply chain management may be structurally or situation-dependent. So, there may be different perceptions from country to country on how to effectively manage a supply chain. Thus, it is not the case of "one size fits all." Each country's situation may be different and would need to be understood to effectively manage the supply chain. The evidences presented in this study reinforce the notion that effective supply chain management would enable enterprises to become competitive in the new economy and significantly improve their performance. Supply chain competence has positive influence on organizational performance. Managers need to focus attention on developing such competencies.

In our opinion there can be different approach not only by countries but also by industries. Carlsson et.al on his own made a quite interesting research on supply chain management on example of pulp and paper industry. Authors conclude that the pulp and paper industry depends on a long and integrated supply chain. The lead time from the first step to the last is long and it involves many steps operated by several companies and organizations. They are more focused on planning process which is one of significant aspects in chain management. Planning problems are divided into strategic, tactical and operative in a supply chain matrix and described their characteristics. They conclude that the need for information and decision support for planners in each of these areas is significant. This relates to a planning within a single company as well as integrated planning across several.

While SCM studies are in most cases based on researches about manufacturing industry, there is some literature which reviews supply chain management within the context of tourism. Extensive research by Zhang et al. has shown that coordination among supply chain partners in the early stage of product development benefits the successful development of new products in the era of mass customization. Recent research also shows the advantages

of optimizing the product design, process design, and supply decisions in an integrated and simultaneous manner.

It is clear that the overall performance measurement of a supply chain system involves not just financial or operational measurement. Given the complexity of assessing such a flexible system, various frameworks which are used in industry to manage supply chain have been proposed. As in other service industries, customer satisfaction (tourist satisfaction) is one of the most important performance measures for the tourism supply chain. Tourism researchers have investigated the measurement of overall tourist satisfaction with a particular destination and tourist satisfaction with specific service sectors, such as accommodation, restaurants, attractions, travel agencies, package tours, and retail shops.

In today's competitive environment, the sheer number of tourism service suppliers provides abundant input possibilities for tour operators to assemble tour packages, and it is believed that effective integration of suppliers with tourism product development processes could increase the competitive edge of tour operators as well as benefit the TSC as a whole.

VI. CONCLUSION

There are so many Organizations have multiple objectives like enhanced competitiveness, better customer service and increased profitability etc. To seek these objectives organizations, employ various defensive as well as offensive business performance improvement approaches. As well as we have discussed (SCM) covers all functional areas of organization. It is the network of customers, suppliers, manufacturers, and distributors concentrating the flows of material, information, and finance through physical and human resources.

As well as this paper suggested that managers must probe why to manage, what to manage and how to manage the supply chain. We focused on the concept of supply chain management along with the need of SCM from organization point of view. This provides deeper insights for those managers investigating the concept of supply chain management (SVM). In order to explore the domain of supply chain management we have argued that one must examine the nature, interrelations and dependency among business operations. We interrogated the theory and research practice to find what are the various supply chain activities

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