EE
E u r o E c o n o m i c a
Issue 3(37)/2018 *ISSN: 1582-8859*

Supply Chain Management – A Critical Review of Its Impact on Competitive Potential

Shaifali Garg[1]

Abstract: Supply chain management has been the focus area for every manufacturing industry worldwide as a tool to gain competitive advantage in the globalized economic scenario. Subjects such as suppliers' and customers' management, integration, internal supply chain management; quality management, information management, logistics management and relationships management have been extensively discussed at various platforms world over. Concerns are frequently raised regarding gaps between theory and practices, effective implementation of practices and the success rate of such practices. Extensive literature is available on supply chain management in form of books, journals and conference proceedings. This research intends to explore the literature with an objective to assess the impact of implementing supply chain management practices on performance and competitive potential of manufacturing industry. It was concluded that though the companies taking initiative in implementing SCM practices face a number of hurdles at an initial phase, over a long term they are bound to benefit from effective implementation of such practices.

Keywords: Supply chain management; competitive potential; literature review

JEL Classification: Q11

Introduction

Supply Chain includes all those parties engaged in providing a product or service to the customer. Supply chain management (SCM) refers to effective integration and management of all the processes and facilities used in making goods or services available to the customer by optimizing supply chain as a whole rather than adopting any piece meal approach. It offers an opportunity to minimize operations cost, improving quality and customer service level and the market share. Many firms striving to improve their competitive potential have adopted SCM practices considering it to be the next source of opportunity to improve operational efficiency. The manufacturing industry, in particular has taken the lead. The industry has been struggling to deal with difficult issues of achieving high customer satisfaction while maintaining cost competitiveness. Hence, the need to improve supply chain efficiency is being given high priority.

Supply chain management practices such as outsourcing non-core functions, reducing supply base, supplier training and development, supplier integration in ongoing processes, maintaining active communication links with suppliers and giving cost, quality and delivery targets to suppliers, all aimed at arranging and managing supply resources, have changed the way of conducting business with the suppliers. Internal supply chain management practices such as such as forming cross functional design and development teams, use of computer aided design and manufacturing systems, adopting total quality management approach, Just-in-time approach, and collaborative planning are aimed at fulfilling the demand generated by the customers in time and at lowest cost. Customer management practices such as maintaining database of customer profile, understanding customer expectations and analyzing demand patterns and customer feedbacks are aimed at retaining the current customers and generating

[1] Assistant Professor, GLA University, Mathura, Corresponding author: shefali_garg@yahoo.co.in.

new markets. Information systems and technologies such as internet, E-commerce, electronic data interchange, bar coding and scanning, data warehousing, intranet, extranet, global positioning system and radio frequency identification and detection provide opportunities for faster responsiveness to customer demand. Cost associated with information and communication technologies have come down drastically over last few years making them affordable even for small and medium enterprises. However despite showing initial enthusiasm in adopting SCM practices by the manufacturing sector, it is still not clear whether SCM concepts have been translated into business reality.

In the contemporary era of globalization and increased competition, companies are searching for new ways to enhance operational performance, increase market share and profits. In 1970s and 1980s, companies developed new manufacturing technologies, which they deployed to gain competitive advantage over their rivals. But in last few years, firms world over, have realized that adopting supply chain management practices is the next step they need to take in order to improve operational performance and profits (Simchi-levi, 2000). Many academicians and researchers have supported this notion as well. For example, a research on impact of supply chain management practices on performance of small and medium enterprises in Turkey indicate that supply chain management practices have significant and direct impact on operational performance (Koh, 2007). Another study (Tan, 1999) identifies several supply chain management factors that directly and positively impact corporate performance. These include analyzing future customer requirements and strategies of the competitors. Forker et al (1997), for example, examined the relationship between the quality management practices and the resulting performance. The research hypothesized that extent of implementation of TQM in intermediate manufacturing facilities has a positive impact on quality performance. Result from linear regression analysis however showed no support for the hypothesis. This was attributed to structural differences among the supplier firms and hence their relative efficiency at carrying out the TQM practices to improve output quality.

The remaining part of the paper discusses various definitions, features and challenges posed while implementing SCM as well as its linkages with competitive potential enjoyed by a firm.

Defining Supply Chain Management

Before going into depth of SCM, it becomes imperative to give definitions of SCM given in the available literature. Many different and overlapping definitions are present in the literature but a supply chain basically consists of three types of entities: suppliers, manufacturers and customers. The extended supply chain consists of supplier's suppliers and customer's customers. Thus we can say that a supply chain is the network of all the parties involved directly or indirectly in transforming of raw materials into finished goods to achieve the end customer satisfaction. Supply chain management optimizes the processes of acquiring input from suppliers; convert these inputs into finished products, and delivering these products to the customers. Thus, supply chain management can be defined as management of the network of raw material suppliers, production sites, distribution facilities as well as the customers such that each operation in the network is optimized.

According to Handfield and Nicholas (2005), supply chain encompasses all activities associated with the flow and transformation of goods from raw material stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships, to achieve a sustainable competitive advantage. It is a set of approaches utilized to efficiently integrate supplier, manufacturers, and warehouses and stores so that merchandise is produced and distributed in the right quantities, to the right locations and at right time, in order to minimize system wide costs while satisfying service level requirements. Objective of SCM is to be efficient and

cost effective across the entire system; total system wide costs from transportation and distribution to inventories of raw materials, work in process, and finished goods are to be minimized. Thus, the emphasis is not on simply minimizing transportation cost or reducing inventories, but rather, on integrating and optimizing overall operational process. However, Simchi-Levi (2000) caution that achieving supply chain integration is difficult for many reasons. One, different facilities in SC have different conflicting objectives. Second, supply chain is a dynamic system that evolves over time. Customer requirements and supplier capabilities change over time, supply chain relationships also evolve over time. Matching supply and demand is a major challenge. Many supply chain problems are new and there is no clear understanding of all the issues involved. For example, product life cycles are becoming shorter and shorter for products such as computers and printers. Significant price declines in these industries are also common, reducing the product value during its life cycle.

Some researchers argue that supply chain management not only involves the coordinated flow of materials and products across the enterprise and with trading partners but it also includes the management of information flow, cash flow and process/work flows. Mastery and integration of these flows provides operational excellence. Chopra and Meindl (2006) consider that supply chain consists all parties involved directly or indirectly in fulfilling the customer request. A supply chain is dynamic and involves the constant flow of information, product and funds between different stages. The objective of supply chain is to maximize the overall value generated.

Beamon and Ware (1998) consider a manufacturing supply chain as an integrated set of business functions, encompassing all the activities form raw material acquisition to final customer delivery. Delivering the right product at right time, in right amount are essential objectives of efficient and effective supply chain management system. According to Romano and Vinelli (2001) SCM refers to integrated management of network of entities, that starts with supplier's suppliers and end with customer's customer for the production and delivery of goods and services to the final customer. According to this approach, companies do not seek to achieve cost reduction or profit improvements at the expense of their supply chain partners but rather seek to make supply chain more competitive as a whole. Kui, Madu, Lin, and Chow (2002) report that the traditional focus of SC was on transactions and delivery. In today's faster paced markets, the focus has shifted to meet the market demands correctly, rapidly, and profitably. A debate can be perceived in literature regarding how supply chain management is different from seemingly analogous terms such as integrated logistic management, purchasing and supply management and so on. Romano and Vinelli (2001) explain that what differs such terms and practices, is the scope of supply network. SCM has been developed into a concept with broad span of concerns and an approach to manage across company boundaries. In other words, purchasing and supply as well as physical distribution relate to only one part of supply network upstream and down streams respectively. Logistic and material management take a large part of supply network while SCM includes the whole networks going beyond integrated logistics because it aims to integrate all business processes, from user end to original suppliers, which provide products, services and information that adds value for the customers. The difference between supply chain management and logistics management can be further clarified from the definitions given by "Council of supply chain management professionals" (CSCMP) that was established in 1963. According to this organization, SCM includes the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Further, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers, thus integrating supply and demand management within and across channel partners. CSCMP clarifies that logistics management is that part of supply chain management which plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customer requirements. The following section discusses certain features of SCM.

Features of SCM

Delivering right product in right amount, at right time and at right place are the essential objectives of supply chain system (Beamon, 1998). According to Chopra and Meindl (2006), the objective of supply chain is to maximize the profitability, that is the difference between the revenue generated from the customer and overall cost across the supply chain. Handfield (2005), brings out the reasons why SCM has come to forefront for management's attention are the information revolution, emergence of new forms of inter-organizational relationships and the customer demand in the areas of product and service cost, quality, delivery, technology and cycle time brought about by increased global competition.

According to Chopra and Meindl (2006), information is the key supply chain driver because it allows other supply chain drivers to work together with the goal of creating an integrated and coordinated supply chain. According to the authors, IT consists of the hardware, software as well as people throughout the supply chain that gather, analyze and execute upon information. But the authors warn that to make supply chain decisions, information must be accurate and timely. Li and Lin (2006) state that by timely sharing of information, firms at downstream stage can alert disruption at upstream stage, derive the correct early warning time and make proper decision for offsetting the impact of disruption. According to the Handfield (2005), with emergence of personal computers, Internet and World Wide Web, cost and availability of information allow easy linkages, and eliminates information related delays in supply chain network. Organization are moving towards electronic commerce where transactions are completed via variety of electronic media such as electronic data interchange (EDI), electronic fund transfer (EFT), bar code, voice mails, etc. But the authors highlight that though the importance of information and supporting technologies to SCM is evident, determining which specific system can provide a specific supply chain with greatest benefits is not at all clear.

Handfield (2005) points out that the single most important factor for success of supply chain may be "trusting relationship" between partners in supply chain where each party has of the supply chain has mutual confidence in other members' capabilities and actions. Without a good relationship, all other systems (information systems, inventory, contract, etc.) cannot function properly.

SCM and Quality

The quality revolution started from Japan in early 1950s. Deming was the first quality guru who succeeded in spreading quality control concept in Japan in a big way in early 1950s. He introduced statistical quality control techniques and stressed on pride of workmanship, education and training. Juran defined quality as fitness for use and introduced managerial dimensions of planning, organization and controlling a process. He laid emphasis on top management commitment to quality. Feignbaum introduced total quality control, which laid the foundation of contemporary TQM. He stressed on integrated efforts by various groups in an organization to develop, maintain and improve quality. Philip Crosby argued that quality is free. He defined quality as conformance to requirements and introduced the concept of zero defects. All the quality gurus believe that management and system, rather than workers are cause of poor quality. They strongly believe that inspection is not the answer to quality improvement. It requires long term commitment and organization wide efforts.

Cristobal and Angel R. (2004) analyzed and classified quality management practices in purchasing and assessed the relationships of these practices with measurements of a firm purchasing operational performance (POP), internal customer satisfaction and business performance. A bi-variate correlation analysis showed that six constructs comprising the quality management strategy in purchasing were highly correlated with each other thus providing evidence for their mutual support and joint

implementation. A study by Sila, Roethlein and Ackerson (2004) conducted a study, focused on passing on and interpreting quality goals and objectives, alignment of quality goals and existence of partnership within a connected automobile supply chain. The researchers concluded that the main reason for success of supply chain is the strength and the dominance of manufacturer. Strong and frequent unidirectional communication exist between manufacturer and supplier and between manufacturer and distributor. These connections are a crux of the supply chain. From this strong relationship, the supply chain is able to remain successful while communication weakens and disappears either ends of the supply chain.

Kannan and Tan (2007) studied the impact of operational quality management practices within a supply chain. Their research tried to establish relationship between a firm's internal and external operational quality practices and measures of product quality and customer service. It was concluded that both internally and externally focused quality management practices impact performance. Interestingly, externally (supplier and customer focused) focused efforts have greater impact on performance and seam to be considered of higher importance by managers as well. Kuei, Lin and Chow (2002) developed a framework on supply chain quality and technology management. Through empirical assessment, the authors found that IT enabled operations are a major source of supply chain excellence. The authors have emphasized the deployment process in achieving the supply chain excellence and the fact that no sustainable development can take place without involving people who understand internal quality and technology in the supply chain. Gunasekaran (2003) explored the question that whether the TQM principles and techniques that have been very successful in traditional organizations are equally successful when applied to inter-organizational processes and activities involved in supply chain management. The author suggests that six major dimensions of SCM are partnership, information technology, operational flexibility, performance measurement, and management and demand characterization. TQM enablers such as training and education, cross-functional teams, communication, teamwork, empowerment, job satisfaction and technological support can impact any one or all the dimensions of the supply chain. Kannan and Tan (2004) studied supplier alliances and differences in attitude to suppliers and quality management of adopters and non- adopters. Faced with increasing pressure to improve responsiveness to rapidly changing market needs, authors suggest that firms must respond to challenges of how to improve supply reliability and quality while simultaneously reducing the cost. Their study presents results of a survey of supply chain management professionals that examined attitude of adopters and non-adopters of supplier's alliances to supplier and quality management. Results indicated significant difference in attitudes existing between alliance adopters and non-adopters and that the differences have direct and significant impact on key managers of a buying firms business performance. Poulymenakou and Tsironis (2003) explore the relationship of electronic commerce and quality management from five different viewpoints. Specifically, two research questions have been addressed: how can electronic commerce contribute to promotion of quality and how can quality management practices contribute to electronic commerce business? The research concluded that supply chain becomes through electronic commerce the main context for application of quality management practices that seeks to introduce improvements in collaboration among trading communities. Parameters such as quality of information become important because of simplicity and ease of use. In particular timeliness, compactness and reliability of information flow are parameters that need to concern a particular organization.

Kim and Oh (2005) in their research focus on manufacturers and suppliers who engage in strategic relationships for quality improvement and new product development. They found that depending on the balance power of bargaining power in relationships, each partner's resource commitment to the activity such as quality improvement and new product development may vary. These have implications for both manufacturer and supplier profitability. The research investigates, how variation in structure of decision-making process (i.e. manufacturer dominated, supplier dominated or balanced) affects the performance of each partner in strategic collaborative relationships. The findings show that supply chain

partners can expect better performance from their collaboration when both their perspectives are accommodated equally. Levy, Bessant, Sang and Lamming (1999) studied selection of suppliers in electronic and telecom industry. They studied quality based customer supplier relationship from both customer and supplier view points. The research concludes that scope exists to extend organizational processes, tools and techniques of internal total quality into the supply chain. Measurement of efficiency of the relationship is crucial to the understanding whether the relationship is really delivering competitive edge. An efficient, joint, total quality relationship will need to be adaptive to environmental changes. The key issue regarding extending a total quality approach across organizational interface is essentially one of integration. Mechanisms that facilitate integration be they organizational or technological based are of prime importance.

SCM and Firm's Performance

A number of studies have focused on SCM and its performance measurement. While there are many ongoing research efforts on various aspects and areas of SCM, so far little attention has been paid to performance evaluation and hence to measures and matrices of supply chains (Gunasekaran, 2001). Saad and Patel (2006) also highlight the lack of significant study of SCM practices and its performance, in developing countries, in general and India, in particular. To study the impact of SCM on performance, a basic question that needs to be addressed is: What are the important performance matrices for companies working in supply chain environment? Tan (1999) considers that there is a lack of consensus regarding a valid cross industry measure of corporate performance. One approach can be the use of financial performance indicators such as return on investment (ROI) and return on assets (ROA). But most economists disagree about the use of accounting data to measure the firm's performance as it ignores time value of money (Tan, 1999).

Several researchers have studied the impact SCM has on various measures of firm's performance. A research by Voss, Calantone and Keller (2005) examined the relationship between employee performance and service, supply chain and financial performance of US distribution centers. For this, survey was carried out in 18 distribution centers across USA and correlation was employed to test the proposition that front line employee performance has a positive effect on distribution center service, supply chain and financial performance. The research shows how a firm orientation, which facilitates high level of internal service, can have significant effect on external service and supply chain performance. People, their interaction, and the organization in which they are a part, ultimately determine the success or failure of service offerings and supply chain success. A research by Speckman, Spear, Kamauff (2002) brings out the fact that though effective implementation of supply chain practices results in lower cost, higher ROI and a higher return to stake holders, yet effective implementation of SC is not easily accomplished. But another study by Cagliano, Caniato and Spina (2006) tried to establish empirical relationship between two supply chain integration dimensions-integration of information flow and integration of physical flow with two manufacturing improvement programs-lean production and ERP systems. The data was drawn from 297 European manufacturing companies. Surprisingly, though adoption of lean manufacturing model showed strong influence on integration of information and physical flows, no significant influence emerged from adoption of ERP. Research by Burca, Fynes, and Marshall (2005), tried to find out how small and medium enterprises are responding to contemporary technologies such as ERP and internet to enhance performance and found that though they each of the SMEs have taken some steps to extend ERP, they have taken a conscious approach to future. Researchers have brought out the fact that failure in implementing SCM software meant to improve firm's value can cause losses, embracement and disappointment for the firm. Hence implementation of new SCM software demands a very careful approach. Information technology can be exploited to help supply chain members strengthen partnership. IT can effectively reduce bullwhip

effect (Yu, Yang, Chang, 2001). A research by Koh, (2007) studied the SCM practices of Turkish manufacturing SMEs and tried to establish relationships between SCM practices, operational performance and organizational performance. The research grouped the SCM practices into two factors namely outsourcing and multi suppliers and strategic collaboration and lean manufacturing. Their research showed that both the factors have significant impact on operational performance but not on organizational performance.

Tan, Kannan, Hanfield and Ghosh (1999) examined linkages between a firm's competitive environment, TQM, supply base management and customer relation practices and firm's performance. The study presents details of a survey carried out to determine whether particular quality management, supply base management, and customer relation practices, can impact corporate performance. In addition, it examines the impact, analyzing the competitive environment has on performance. Regression model identifies several factors that directly and positively impact corporate performance. These include the extent to which companies analyze the strategies of competitors, and determine future customer requirements, and commitment they have to evaluating performance through out the supply chain. Lyman, Wisner and Tan (2002) conducted a research, which stated that supply chain management has become a significant strategic tool for firms striving to improve quality, customer service and competitive success. They surveyed senior managers in various industries to study the prevalent supply chain management and supplier evaluation practices. The study reduced these practices to a smaller set of constructs and showed that many constructs were correlated with firm's performance and that some constructs were found to adversely affect performance. The research indicates that a truly integrated supply chain needs commitment by all the members of the chain. Buyers may have to over haul purchasing processes and integrate suppliers engineering teams and product designers directly. Also, since cost of changing partners can be huge, the purchasing firms can become captive to its suppliers. Purchasing firms need to worry about poor supplier performance, possibility of suppliers passing trade secrets to competitors or venturing out as competitors. Fynes and Voss (2005) investigated the impact of supply chain relationship dynamics on manufacturing performance. A conceptual framework was developed incorporating various dimensions of supply chain relationship dynamics and manufacturing performance. Data was collected from suppliers of electronic components in the Republic of Ireland. Analysis of data showed that there was mixed support for impact of relationship dynamics on manufacturing performance. While cost and quality make significant improvements with stronger relationships, flexibility and delivery were not significantly affected.

Research by Sahay, Cavale and Mohan (2003) investigated SCM practices in Indian industry and found that while some companies are moving fast towards improving supply chain efficiencies, most of them have still not realized its affect on business performance. Sahay and Mohan (2006) studied the impact of using third party logistics services on business performance in India. The research points out that though adoption of 3PL practices is at an early stage in India, their use have a positive influence on business performance. Jharkharia and Shankar (2006) explored the dissimilarities in supply chain practices among different sectors of Indian manufacturing industry. The research included four sectors in Indian manufacturing industry: Automobile, engineering, process and fast moving consumer goods industry. It was observed that companies in automobile sector differed significantly from those belonging to the rest of the three sectors in adoption of SCM practices.

SCM for Customer Satisfaction

Achieving customer satisfaction and customer delight is an obsession for most firms today. Lings (2000) explored the different service requirements of internal customers with the aim of improving effectiveness of various internal marketing programs in the supply chain environment. He suggests that there are two possible types of customers in inter-firm, inter-departmental type of relationships: the direct internal market involves interactions between adjacent departments in the value chain, while

indirect internal market involves interaction between support departments and supply departments. Internal customers have different service expectations. All individuals in an organization should have easily identifiable customers, both internal and external and a clear responsibility to maintain the quality of service they provide to those customers. This would help to make the firm truly market oriented. Keller (2002) identifies the need for supply chain members to foster healthier relationships within the firm in order to realize success and obtain the benefits associated with external partnerships. The concept of internal relationship marketing is employed and a model is proposed to aid companies in identifying the variables associated with marketing to internal customers. In this paper, an attempt has been made to illustrate the importance of treating personnel who are in frequent contact with external customers as internal customers themselves. Mascarenhas, Kesavan and Bernacchi (2004) suggest that managers should invite target customers to be involved at all the stages of the value chain. This in turn will enhance customer relationship management; supply chain management, employee relationship management, as well as retailer partners' relationship management. The advantage of customer value chain involvement would be, it could provide continuous customer feedback and enable more objective quality assessment and judgment. It can also elevate customer satisfaction to customer delight that spawns lifetime loyalty and positive referrals.

SCM and Flexibility

Building flexibility assumes importance in case the company strategy dictates winning customers by providing them highly customized products. But as incorporating flexibility into the system can be a costly affair, it is imperative to plan which type of flexibility and to what extent is it required to lure the customers. Ndubisi, Jantan, Hing, and Ayub (2005) examine the impact of supplier selection and management strategies on manufacturing flexibility (such as product flexibility, launch flexibility and volume flexibility). Researchers used purposive sampling method (non probabilistic) and data were analyzed using multiple regression models. It was found that the selection of suppliers based on technology is important for manufacturers whose focus is on product and launch flexibility. According to Sanchez and Perez (2005), there exists a positive relationship between a firm's superior performance in flexibility capabilities and firm's performance. But all flexibility dimensions are not equally important for all firms. Supply chain flexibility should be implemented and managed using a three-stage approach: required flexibility identification, implementation and shared responsibility, feedback and control (Kumar & Fantanzy, 2006).

SCM and Responsiveness

Exhibiting high responsiveness can be a major source of competitive potential. Researchers like Mason-Jones and Towill (1998) indicate that for total cycle time compression in supply chain and effective information management is the key strategy in SCM. Salvador, Forza, Rungtusanatham and Choi (2001) studied how and why an organization interacting with suppliers and with customers across the supply chain, would achieve improved time performance. Their research suggested two findings. First, when an organization interacts with its suppliers and customers on quality management issues, the organization would improve its time performance indirectly as a result of complete mediation by internal practices for quality management; inter unit coordination, and vertical coordination. Secondly, when an organization interacts with suppliers and with customers on material flow management issues; the impact on time related performances could either be completely or partially mediated by internal practices.

ISO and SCM

Interestingly some researchers have also studied the linkages between ISO implementation and SCM. For example, Casadesus and Castro (2005) studied the impact of implementing ISO 9000 on improvement if any on supply chain management. From the survey carried out in ISO 9000 companies

and subsequent analysis, it was found that some indicators show clear improvements in SCM but there are other aspects in which the companies themselves recognize their limitations. The study shows, it is not possible to affirm that ISO 9000 implementation totally favors SCM philosophy. 60 percent of the certified companies said that relationships with suppliers have improved, 80 percent said that customer satisfaction has increased and 63 percent said that customer complaints have decreased. However 62 percent say that implementation has not led to stock management (inventory) and only 31 percent have seen reduction in logistics cost. Motwani and Keirnan (1998) explain the course that ABC automotive inc. executed in order to receive quality certification for QS 9000, which has the goal of developing fundamental quality systems that provide for continuous improvement, emphasizes defect prevention and reduction of variation and waste in the supply chain.

Challenges in Implementing SCM

Some researchers have pointed out the difficulties faced in implementing SCM practices. A research by Shepherd and Gunter (2006) argues that despite considerable advances in implementation of SCM practices, a number of important problems have not yet received adequate attention. These include implementation of performance measurement systems for supply chains. Even a study in UK SMEs shows that there is a lack of effective adaptation from tradition adversarial relationships to modern collaborative supply chains (Quayle, 2003). An empirical investigation into SCM by Spekman, Kamauff (1998) indicates that though managers are well aware of virtues of implementing SCM, business has yet not fully operationalized the concept of SCM. Research by Barrat (2004) reports that supply chain collaborations are difficult to implement. There has been over reliance on technology to implement it. Companies usually fail to understand with whom to collaborate. Fundamentally, there is a lack of trust between the supply chain partners. The paper suggests that SCM approach based on customer service and customer buying behavior is most appropriate for facilitating supply chain collaborations. Hervani, Helms and Sarkis (2005), report a number of concerns in applying performance measurement tools and systems across the supply chain. These include overcoming mistrust, lack of understanding, lack of control, different goals and objectives, different information systems, lack of standardized performance measures, difficulty in linking measures to customer value and deciding where to begin.

Conclusion

Extensive literature that is available on SCM and its impact on performance was studied. From the research it can be comprehended that implementation of SCM and integration of various processes through out the value chain can be a challenging task. It demands a cautious approach. Emphasis should be laid on optimization of overall supply chain rather than adopting a piecemeal approach. Some research work indicate failure of SCM in bringing about any major change in business performance, but it can be attributed to superficial implementation of such practices. Most researchers indicate significant positive impact of SCM practices on operational performance and business performance. Sahay (2003) has aptly pointed out that future competition will not be among individual business but between entire supply chains. Hence, effective implementation of SCM practices is no more an option but a necessity.

References

Barrat, M. (2004). Understanding the meaning of collaboration in SC, Supply Chain Management. *An International Journal*, Vol. 9, No. 1, pp. 30-42.

Beamon, B.M. & Ware, T.M. (1998). A process quality model for the analysis, improvement and control of supply chain systems. *Logistics Information Management*, pp. 105-113.

Burca, S.D. & Fynes, B. (2005). Strategic technology adoption: extending ERP across SC. *Journal of Enterprise Information Management*, Vol. 18, No. 4, pp. 427-440.

Casadesus, M & Castro, R. (2005). How improving quality improves SCM. *The TQM magazine*, Vol. 17, No. 4, pp. 345-357.

Caglaino, R. & Caniato, F. (2006). The linkage between SC integration and manufacturing improvement programmers. *International Journal of Operations and Production Management*, Vol. 26, No. 3, pp. 282-299.

Chopra, S. & Meindl, P. (2006). *Supply chain management strategy planning and operations*. Pearson Education Asia, Delhi 110 092.

Chow, W.S. (2004). The quest for e-fulfillment quality in supply chain. *International Journal of Quality and Reliability Management*, Vol. 21, No. 3, pp. 319-328.

Christopher, M. & Lee, H. (2004). Mitigating supply chain risk through improved confidence. *International Journal of Physical Distribution and Logistics Management*, Vol. 34, No. 5, pp. 388-396.

Cristobal, S.R. & Angel, R.M. (2004). Quality management practices in purchasing functions. *International Journal of Operations and Production Management*, pp. 666-681.

Forker, L.B. & Mendez, D. (2001). An analytical method for benchmarking best peer suppliers. *International Journal of Operations and Production Management*, pp. 195-209.

Forker, L.B.; Mendez, D. & Hershaurs, J.C. (1997). Total quality management in supply chain: what is its impact on performance? *International Journal of Production Research*, pp. 1681-1701.

Fynes, B.; Voss, C. & Burca, S. (2005). Impact of supply chain relationship dynamics on manufacturing performance. *International Journal of Operations and Production Management*, Vol. 25, No. 1, pp. 6-19.

Gunasekaran, A. (2003). TQM in supply chain management. *The TQM magazine*, Vol. 15, No. 5, pp. 361-363.

Gunasekaran, A. & Patel, C. (2001). Performance measures and matrices in a supply chain environment. *International Journal of Operations and Production Management*, Vol. 21, No. 1/2, pp. 71-87.

Handfield, R.B. & Nichols, E.L. (2005). *Introduction to supply chain management*. Pearson Education, Delhi 110 092.

Hervani, A.A.; Helms, M.M. & Sarkis, J. (2005). Performance measurement for green supply chain management. *Benchmarking and International Journal*, Vol. 12, No. 4, pp. 330-353.

Jharkharia, S. & Shankar, R. (2006). SCM some sectoral dissimilarities in Indian manufacturing industry. *Supply Chain Management-An International Journal*, Vol. 11/4, pp. 345-352.

Jones, R.M. & Towill, D.R. (1998). Time compression in the SC, information management is the vital ingredient. *Logistics Information Management*, Vol. 11, No. 2, pp. 93-104.

Jones, R.M. & Towill, D.R. (1997). Information enrichment: designing the supply chain for competitive advantage. *Supply Chain Management*, Vol. 2, No. 4, pp. 137-148.

Kannan, V.R. & Tan, K.C. (2004). Suppliers alliance: differences in attitudes towards suppliers and quality management of adopters and non adopter. *Supply Chain Management: An International Journal*, Vol. 9, No. 4, pp. 279-286.

Kannan, V.R. & Tan, K.C. (2007). Impact of operational quality a supply chain view. *Supply Chain Management: An International Journal*, Vol. 12, No. 1, pp. 14-19.

Keller, S.B. (2002). Internal relationship marketing, a key to enhanced supply chain relationships. *International Journal of Physical Distribution and Logistics Management*, Vol. 32, No. 8, pp. 649-668.

Kim, B. & Oh, H. (2005). The impact of decision making sharing between supplier and manufacturer on their collaboration performance. *Supply Chain Management: An International Journal*, pp. 223-236.

Koh, S.C.L. & Bayraktar, E. (2007). The impact of SCM practices on performance of SMEs. *Industrial Management and Data Systems*, Vol. 107, No. 1, pp. 103-124.

Kuei, C.H.; Madu, C.N. & Lin, C. (2001). The relationship between supply chain quality management practices and organizational performance. *International Journal of Quality and Reliability Management*, Vol. 18, No. 8, pp. 864-872.

Kumar, V. & Fantazy, K.A. (2006). Implementing and management framework for supply chain flexibility. *Journal of Enterprise Information Management*, Vol. 19, No. 3, pp. 303-319.

Levy, P.; Bessant, J.; Sang, B. & Lamming, R. (1995). Developing integration through total quality supply chain management. *Integrated Manufacturing Systems*, Vol. 6, No. 3, pp. 4 -12.

Lings, I.N. (2000). Internal marketing and supply chain management. *Journal of Services Marketing*, Vol. 14, No. 1, pp. 27-43.

Li, G. & Lin, Y. (2006). Enhancing agility by timely sharing of supply information. *Supply Chain Management: An International Journal*, Vol. 11/5, pp. 425-435.

Lyman, S.B.; Tan, K.C. & Wisner, J.D. (2002). Supply chain management, a strategic perspective. *International Journal of Operations and Production Management*, Vol. 22, No. 6, pp. 614 – 631.

Mascarenhas, O.A.; Kesavan, R.K. & Bernacchi, M. (2004). Customer value chain involvement for co-creating customer delight. *Journal of Consumer Marketing*, Vol. 21, No. 7, pp. 486-496.

Motwani, J. & Keirnan, S. (1998). Case study: A supplier's journey to achieve quality certification. *Logistics Information Management*, Vol. 11, No. 1, pp. 53-57.

Ndubisi, N.O.; Jantan, M.; Hing, L.C. & Ayub, M.S. (2005). Supplier selection and management strategies and manufacturing flexibility. *Journal of Enterprise Information Management*, Vol. 18, No. 3, pp. 330-349.

Poulymenakou, A. & Tsironis, L. (2003). Quality and electronic commerce a partnership for growth. *The TQM magazine*, Vol. 15, No. 3, pp. 137-151.

Quayle, M. (2003). Study of supply chain management practices in UK industrial SMEs. *Supply Chain Management: An International Journal*, Vol. 8, No. 1, pp. 79-86.

Roethlein, C. & Ackerson, S. (2004). Quality communications within a connected manufacturing supply chain. *Supply Chain Management: An International Journal*, Vol. 9, No. 4, pp. 323-330.

Romano, P. & Vinelli, A. (2001). Quality management in a supply chain perspective. *International Journal of Operations and Production Management*, Vol. 21, No. 4, pp. 446-460.

Saad, M. & Patel, B. (2006). An investigation of supply chain performance measurement in the Indian automotive sector. *Benchmarking, an International Journal*, Vol. 13, No.1/2, pp. 36-53.

Sahay, B.S. (2003). Supply chain collaboration the key to value creation. *Work Study*, Vol. 52, no. 2, pp. 76-83.

Sahay, B.S.; Cavale, V. & Mohan, R. (2003). The Indian supply chain architecture. Supply Chain Management: *An International Journal*, Vol. 8, No. 2, pp. 93-106.

Sahay, B.S.; Gupta J.N.D. & Mohan R. (2006). Managing supply chains for competitiveness: the Indian scenario. *Supply Chain Management: An International Journal*, Vol. 11, No. 1, pp. 15-24.

Salvador, F.; Forza, C.; Rungtusanatham, M. & Choi, T.Y. (2001). Supply chain interactions and time related performance. *International Journal of Operations and Production Management*, Vol. 21, No. 4, pp. 461- 475.

Simchi-Levi (2000). *Designing and managing the supply chain*. Irwin McGraw-Hill Publication, pp. 1-13.

Spekman, R.E. & Kaumauff J.W. (1998). An empirical investigation into supply chain management. *International Journal of Physical Distribution and Logistics Management*, Vol. 28, No. 8, pp. 630-650.

Spekman, R.E. & Spears, J. (2002). SC competency: learning as a key component. *Supply Chain Management: An international journal*, Vol. 7, no. 1, pp. 41-55.

Tan, K.C.; Kannan, V.R.; Hanfield, R.B. & Ghosh, S. (1999). Supply chain management: An empirical study of its impact on performance. *International Journal of Operations and Production Management*, Vol. 19, No. 10, pp. 1034-1052.

Voss, M.D.; Calantone, R.J. & Keller, S.B. (2005). Internal service quality: Determinants of distribution center performance. *International Journal of Physical Distribution and Logistics Management*, Vol. 35, No. 3, pp. 161-176.