

Supply Chain Management - Its Key Factors and Challenges

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ABSTRACT

SC management has taken a conspicuous operations strategy position in both service and manufacturing industries, and for many years industries have genuinely implemented SCM strategies in their enterprises. India is becoming a global manufacturing pivot. Increasing demand in domestic and international markets is opening a new world of opportunities for the Indian Industries. Increasing competition, because of globalization is making unavoidable for the Indian industries to provide cost effective quality output with rigid delivery schedules. This paper explains SCM and its some of the important key factors and challenges. Briefly, where the SCM is considered as strategic part of a company then maintaining both control and control all the way through the entire SC are key factors and important to success. On the contrary, finding the right partner to manage the non-strategic SC would be another important key factor. To define the most important key factors within SCM a thorough understanding of Supply Chain's components, procedures, workflow, processes and the importance of SCM into maximizing company's value. SC operations reference model are able to give solid information about measuring performance and identifying urgencies within SCM will help us to understand the important key factors by investigating its elements i.e. Plan, Source, Make, Deliver, Return. These elements cover all the important challenging areas from first to third tier of SCM.

Key words: Supply chain management, Logistics, Key factors of SCM, Challenges in SCM.

I. INTRODUCTION

Fierce competition in today's global markets, the introduction of products with shorter life cycles, and the heightened expectations of customers have forced business enterprises to invest in, and focus attention on, their supply chains. This, together with continuing advances in communications and transportation technologies (e.g., mobile communication, Internet, and overnight delivery), has motivated the continuous evolution of the supply chain and of the techniques to manage it effectively. In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage, and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain. The supply chain, which is also referred to as the logistics network, consists of suppliers, manufacturing centers, warehouses, distribution centers, and retail outlets, as well as raw materials, work-in-process inventory, and finished products that flow between the facilities.

Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize systemwide costs while satisfying service level requirements. Two or more parties linked by a flow of resources – typically material, information, and money – that ultimately fulfill a customer request is termed as supply chain.

Supply Chain Management deals with the management of materials, information, and financial flows in a network consisting of suppliers, manufacturers, distributors, and customers. Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is primarily concerned with the efficient integration of suppliers, factories, warehouses and stores so that merchandise is produced and distributed in the right quantities, to the right locations and at the right time, and so as to minimize total system cost subject to satisfying service requirements.

II. LITERATURE REVIEW-

(Mary J. Meixell and Vidyaranya B. Gargeya, 2015) in their paper “Global supply chain design: A literature review and critique” they review decision support models for the design of global supply chains, and assess the fit between the research literature in this area and the practical issues of global supply chain design.

Analytically, a typical supply chain is simply a network of materials, information and services processing links with the characteristics of supply, transformation and demand. It is the collection and interaction of these elements that impact system-level qualities, properties, characteristics, functions, behavior, and performance (Cloutier et al., 2010). (Omera Khan and Bernard Burnes, 2007) in their study “Risk and supply chain management: creating a research agenda” develop a research agenda for risk and supply chain management. The paper shows that there are a number of key debates in the general literature on risk, especially in terms of qualitative versus quantitative approaches, which need to be recognized by those seeking to apply risk theory and risk management approaches to supply chains. The term supply chain management“ has not only been used to explain the logistics activities and the planning and control of materials and information flows internally within a company or externally between companies (Christopher 1992, Cooper et al., 1997 and Fisher, 1997). Researchers have also used it to describe strategic, inter organizational issues (Cox, 1997, Harland et al., 1999), to discuss an alternative organizational form to vertical integration (Thorelli, 1986 Hakansson and Snehota, 1995), to identify and describe the relationship a company develops with its suppliers (Helper, 1991 and Hines, 1994, Narus and Anderson, 1995), and to address the purchasing and supply perspective (Morgan and Monczka, 1996 and Farmer, 1997).

III. CRITICAL FACTORS WHICH AFFECT SUPPLY CHAIN MANAGEMENT

It's impossible to find out two identically Supply Chains. Analysing two chains of two different companies which make and deliver the same article will be find out the same factors with different influence on each Supply Chain. The difference between two Supply Chains appears or from the environmental uncertainty or from the information technology by its communication and planning tools or from relationships with suppliers and customers or from value added within manufacturing process or from Supply Chain Management performance or from the type of management or from customer satisfaction obtained. Environmental uncertainty is given by company environment, Government or Authorities support and uncertainty aspects from overseas as political and social uncertainties.

In order to understand how a supply chain works, it is important to identify the factors affecting supply chain management. The identification of these factors has been based on previous work by Li (2002), and Quesada and Meneses (2010). The following sections show generic supply chain management factors and sub-factors that might affect supply chain management activities.

Environmental uncertainty

Environmental uncertainty refers to the environmental issues in the product chain (Dwivedi and Butcher, 2009). Ettlie and Reza (1992) described this as the unexpected changes of customer, supplier, competitor, and technology. It was said by Yusuf (1995) that government support plays an important role for business success. Paulraj and Chen (2007a) mentioned that environmental uncertainty is an important factor in the realization of strategic supply management plans. The increase of outsourcing activities in the industry had augmented the awareness of the importance of strategic supply management, which leads to better relationship among organizations. Under this factor, three sub-factors were identified: environment, government support, and uncertainty aspects from overseas.

Information technology

Telecommunications and computer technology allow all the actors in the supply chain to communicate among each other. The use of information technology allows suppliers, manufacturers, distributors, retailers, and customers to reduce lead time, paperwork, and other unnecessary activities. It is also mentioned that managers will experience considerable advantages with its use such as the flow of information in a coordinated manner, access to information and data interchange, improved customer and supplier relationships, and inventory management not only at the national level but also internationally (Handfield and Nichols, 1999). Also the advantages will include supply contracts via internet, distribution of strategies, outsourcing and procurement (Simchi-Levi et al., 2003).

All companies are looking for cost and lead time reductions with the purpose of improving the level of service but also to enhance inter-organizational relationships (Humphreys et al. 2001). A study carried out by Tim (2007) states that through the use of communication tools, such as the web sites, industrial organizations can build value in their supply chain relationships. According to Turner (1993), another key for supply chain management success is the use of planning tools. He also mentions that without the use of information systems, companies cannot handle costs, offer superior customer service and lead in logistics performance. Turner (1993) indicates that firms cannot effectively

manage cost, offer high customer service, and become leaders in supply chain management without the incorporation of top-of-the-line information technologies. Li (2001) identified 14 such information technology tools, among them electronic data interchange (EDI), enterprise resource planning (ERP), internet, and extranets. Li grouped these tools into three groups in terms of their primary purpose: communication tools, resource planning tools, and supply chain management tools. Given this classification, two sub factors are considered in this research: communication and planning tools.

Supply chain relationships

Supply chain relationships play an important role in achieving the firm's goals. The coordination and integration of activities with suppliers and understanding of customer's needs results in greater benefits for companies. According to Fraza (2000), supply chain management is directly related to relationship management, which includes suppliers and customers. Strategic supplier partnerships and customer relationships are main components in the supply chain management practices (Li et al., 2005), leading to information sharing, which is one of the five pillars in achieving a solid supply chain relationship (Lalonde, 1998). Two sub-factors are considered in the model relationship with suppliers and customers.

Value-added process (manufacturing)

Value-added products can be commodity processes or products that already exist; you only have to use smart modifications and apply them. According to Bishop (1990), value-added is defined as "adding those manufacturing or service steps to a commodity product, which the customer perceives as increasing its value". Customers always want to pay the cost that they think is correct, and if they get something additional to the product, they got value-added. Two factors are significant when we talk about value-added: flexibility and quality. And, as stated by Benetto, Becker and Welfring (2009), production processes contribute to improved value-added. For example, Dramm (undated) affirms that the forest products industry is mainly focused on acquiring the highest value throughout the manufacturing process at the lowest cost, improving efficiency, quality, and productivity. Thus, it is important to include the production system as a part of the value-added process.

Supply Chain Management performance

SCM performance is defined as the operational excellence to deliver leading customer experience (Simchi-Levi et al., 2003). Beamon (1999) mentions some features present in effective performance measurement systems and these include the following: inclusiveness (measurement of all pertinent aspects), universality (allows for comparison under various operating conditions), measurability (data required are measurable), and consistency (measures consistent with organization goals). Also, the strategic goals include key elements such as the measurement of resources (generally cost), output (generally customer responsiveness) and flexibility. Stevens (1990) states that to build up an integrated supply chain requires the management of material flow from three perspectives: strategic, tactical, and operational. From these perspectives, the use of systems, facilities, and people must be seen as a whole and work in a coordinated manner.

He also mentions that a company can measure the supply chain performance by inventory level, service level, throughput efficiency, supplier performance, and cost. Lear-Olimpi (1999) also stated that logistics play an important role in pursuing supply chain excellence which will lead to improved business performance (Lear-Olimpi, 1999). Another critical sub-factor of successful supply chain management is the analysis of the supplier market (Purchasing, 2007). An important point according to Canbolat, Gupta, Matera and Chelst (2008) is outsourcing, which is significant in the supply chain management for the opportunities and risks that it offers. Then, this factor comprises four sub-factors logistics, supplier markets, supplier performance, and materials sourcing.

Business management

Business management consists of leading, planning, organizing, monitoring and controlling all the involved actors and activities in a company to achieve goals and objectives. It is described by Ford and Mouzas (2010) as "the process of managing networking between companies". Fast changes in customer demand, globalization of markets, and changing technology require companies to focus their efforts on improving competitiveness, trying to achieve customer's satisfaction through adding more value to their products (Hung, 2010).

Thus, improving business process performance is critical for business management (Linzalone, 2008). Also, process strategy is used to improve manufacturing performance, and as result business performance (Thomas et al., 2008). Marketing strategy is viewed by managers as a tool for improvement of their financial returns (Peterson, 1989). And innovation should be seen as part of business management, allowing the implementation of new processes, products, and services to respond promptly to customers' requirements (Leavy, 2010).

Customer satisfaction

The customer's perception is not always the same as the product manufacturer's perception. Customers may give more value to low cost, on time delivery, delivery date certainty, or receiving a customized product (Simchi-Levi et al., 2003). According to Kurata and Num (2010), manufacturers and retailers are always looking for practical after-sales policies that will permit them to enhance customer satisfaction levels. Furthermore, an analysis conducted by Ou, Liu, Hung and Yen (2010) showed that customer-firm-supplier relationship management improves operational performance and customer satisfaction. Based on this, a sub-factor customer service is identified.

IV. SUPPLY CHAIN CHALLENGES

Current supply chains are growing in complexity due to several factors. Customers are demanding innovative products at the right time and at a reasonable price. This creates challenges for companies since creating both responsive and cost-effective supply chains is critically difficult. Following are the challenges in today's supply chain.

Globalization

One of the biggest challenges that companies are facing is how to reduce their supply chain cost. In order to satisfy customers' price expectations, companies have opted to relocate manufacturing to low cost countries around the world in an effort to reduce direct and indirect costs and to minimize taxes. But, having global suppliers contributes significantly to complexity that comes from extended delivery lead times. Customers not only want lower prices, but they also want their products on time.

Customer Preferences

As stated above, global supply chains are complex. Add to that product features that are constantly changing, and the challenge is even greater. A product is released and customers rapidly pressure companies to come up with the next big thing. Innovation is important since it allows companies to stay competitive in the market, but it's also a challenge. To enhance a product, companies have to redesign their supply network and meet market demand in a way that's transparent for customers.

Market Growth

Another factor that presents a challenge is the pursuit of new customers. The cost of developing a product, from R&D to product introduction, is significant. Therefore, companies are trying to expand their distribution to emerging markets in order to grow revenues and increase market share. Companies all around the world are expected to expand in their home and foreign markets. The introduction to new markets is difficult due to trading policies, fees, and government policies.

Customers' expectations

Nowadays are more demanding than ever. As described here, companies have responded with global networks, product innovation, and market expansions. This means that companies now rely on supply chain managers to optimize their value chains in order to stay competitive. As such, it's no surprise that these professionals are in high demand. So customers, rest assured - experts in supply chain management, including our own Grainger Centre graduates - are behind the scenes tackling these complexities each and every day and are eager to delight the customer experience. In nut shell one can conclude that main challenges in the SCM are Global supply chain with long lead times, Rising and shifting customer expectations, Increase in labor costs in developing countries Increase in labor costs in developing countries, Increase in logistics costs Importance of sustainability and Unprecedented Volatility etc.

CONCLUSIONS

Creating value for customers and gaining competitive advantages are the objectives of all companies. In order to achieve them the companies pay attention, increasingly more, to managing of supply chain. Effectively managing the supply chain requires commitment from all parties involved. Since supply chain management consists of managing the flow of information, products and services across a network of supply chain partners, manufacturing plants, and customers, the most challenging key factor would be an accurate communication. Communication between supply chain partners, processes, activities, functions both vertically and horizontally means efficient information. Based on it, the management of company takes decision for all business level. Through information flows supply chain partners share up to date information with regards to sales, demand forecasts, inventory levels, production capacity, minimum boundaries, marketing campaigns, and so on.

Inaccurate or distorted information leads to the bullwhip effect, the moment when a stable demand becomes lumpy orders through the supply chain. Better results by managing of supply chain are obtained when key factors are known and used in an efficient manner. The importance of supply chains' keyfactors is according to what the company is striving to do with its own supply chain.

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