

Adoption of Supply Chain Management Practices: Review of Determining Factors

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Abstract

Different companies may adopt different supply chain management practices to enable them achieve the objectives of their supply chain. This becomes necessary due to the fact that the modern business environment puts managers in demanding situations where they have to balance between the demands of consumers and the company's desire for growth and enhanced profitability. Most of the managers have therefore realized that for them to efficiently and effectively manage such a situation, they must focus on supply chain management from a strategic perspective. This article focuses on a review of the factors that determine the supply chain management practices that are adopted by organizations. It is clear that there are several determinants of the supply chain management practices that organizations adopt. They include: the size of the firm, its position in the supply chain, capital, government policy, the industry the firm operates in and the structure of the organization among others.

Keywords: Determinants, Supply Chain Management

1. Introduction

For any firm to earn good returns and create value for its customers, embracing excellent supply chain management (SCM) practices is very paramount. Implementation of sound supply chain management practices provides a firm with a competitive advantage over its competitors and enables it to enhance its revenues and drastically reduce its operational costs. Effective and efficient supply chain management now has become a very valuable and important way to remain competitive in the market and to improve the organizational performance (Moberg, Cutler, Gross, & Speh, 2002). It plays a very important role in staying competitive because the competition among the organizations is effected by the SCM. Therefore organizations have to understand the concepts and the practices of SCM if they have to remain competitive and enhance their profitability (Childhouse & Towill, 2003).

Chopra, Sunil and Mendl (2001) define a supply chain as all stages involved, directly or indirectly, in fulfilling a customer request. They also assert that a supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves. This implies that a supply chain is a network of firms that work together to deliver value to a customer. Every business enterprise fits into one or more supply chains and has a role to play in each of them. The pace of change and the uncertainty about how markets will evolve has made it increasingly important for companies to be aware of the supply chains they participate in and to understand the roles that they play. Those companies that learn how to build and participate in strong supply chains will have a substantial competitive advantage in their markets (Willey, 2009).

Effective SCM requires mutually sharing risks and rewards that yield a competitive advantage. Risk and reward sharing should happen over the long term since it is important for long-term focus and cooperation among the supply chain members. There are a number of Supply chain management practices that organizations may adopt according to the need the organizations has. Tan et al. (2002) argue that there are six main supply chain management practices that are common in most organizations. The first practice involves the need to integrate the supply chain of an organization so that real-time processing and information sharing is made possible. Some organizations also take keen interest on the characteristics of their supply chains to ensure they meet company objectives. The other practices include customer service management and Just in Time practice in production and delivery of products.

Supply chain management is increasingly being recognized as the integration of key business processes across the supply chain. For instance, Hammer (2001) argues that since companies have implemented processes within the firm, they need to integrate them between firms. Streamlining cross-company processes is the next great frontier for reducing costs, enhancing quality, and speeding operations. He further asserts that this

decade's productivity wars will be fought using the supply chain. The victors will be those companies that are able to take a new approach to business, working closely with partners to design and manage processes that extend across traditional supply chain boundaries. They will be the ones that make the leap from efficiency to super efficiency in the supply chain through implementation of good supply chain management practices.

2. Supply Chain Management

The origin of Supply Chain Management can be traced back to the 1980s when it came into existence. However, it is not until the 1990s when the concept became popular and most organization started recognizing and implementing it. Before this period, businesses used terms such as Logistics and Operations Management instead. Dewitt et al, (2001) define Supply Chain Management as the systemic and strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole. Wiley (2009) also defines Supply Chain Management as the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served. These definitions concur that SCM is basically the coordination of activities across the entire supply chain network for the sole purpose of ensuring the efficient movement of products and information along the entire supply chain.

Although a supply chain extends across many organizations forming a network of entities, SCM views the supply chain and the organizations in it as a single entity. This is made possible by applying the systems approach to understanding and managing the different activities needed to coordinate the flow of products and services to best serve the ultimate customer. This systems approach provides the framework in which to best respond to business requirements that otherwise would seem to be in conflict with each other. Taken individually, different supply chain requirements often have conflicting needs. For instance, the requirement of maintaining high levels of customer service calls for maintaining high levels of inventory, but then the requirement to operate efficiently calls for reducing inventory levels. It is only when these requirements are seen together as parts of a larger picture that ways can be found to effectively balance their different demands (Mills, Schmitz and Frizelle, 2004).

For any business firm to achieve efficiency and effectiveness in supply chain management activities, There is need to have deliberate improvements in both customer service levels and the internal operating efficiencies of the companies in the supply chain. Customer service at its most basic level means consistently high order fill rates, high on-time delivery rates, and a very low rate of products returned by customers for whatever reason. On the other hand internal efficiency for organizations refers to the ability of the organization to get an attractive rate of return on their investments in inventory and other assets as well as establishing ways to lower their operating and sales expenses. This is very important due to the fact that each supply chain has its own unique set of market demands and operating challenges and yet the issues remain essentially the same in every case (Storey, 2002).

There are several decisions that companies have to make in order for them to achieve efficiency and effectiveness in the supply chains. The first and important decision focuses on production since firms must decide what products are needed in the market as well as the volume of products to produce and the time to do the production. Production decisions therefore include the creation of master production schedules that take into account the capacity of the plant, workload balancing, quality control, and equipment maintenance (Ho, 2002). Decisions on inventory management form the second category of decisions that companies must make since inventory constitutes a significant portion of the company's working capital. Organizations have to establish the inventory to be stocked at each stage in a supply chain as well as the how much inventory should be held as raw materials, semi finished, or finished goods. The primary purpose of inventory is to act as a buffer against uncertainty in the supply chain. Location decisions are also significant in Supply chain management. Firms must decide where facilities for production and inventory storage should be located; where the most cost efficient locations for production and for storage of inventory can be found and whether to use existing facilities or to build new ones (Ho, 2002).

When a firm has made the two categories of decisions above, product distribution becomes very important since the end product has to be availed to the market. This involves making sound transportation decisions that address issues such as how to move inventory from one supply chain location to another as well as the mode of transportation that will be cost effective. For instance air freight and truck delivery are generally fast and reliable but they are expensive while Shipping by sea or rail is much less expensive but usually involves longer transit times and more uncertainty. If a firm chooses sea or rail transport, the uncertainty must be compensated for by stocking higher levels of inventory (Ellinger, 2000). The last type of decisions to make in Supply Chain Management relate to information management. Firms need to decide on the how much data to collect and how much information to share with other stakeholders in the supply chain. Timely and accurate information holds the promise of better coordination and better decision making. With good information, people

can make effective decisions about what to produce and how much, about where to locate inventory and how best to transport it (Ellinger, 2000).

2.1 Supply Chain Management Practices

Tan et al. (2002) argue that supply chain management practices can be divided into five different categories. The first and most important among these categories involves relationship management at both suppliers and customer levels. The level of information sharing along the supply chain is also very critical for any organization; quality of information sharing and postponement. These five dimensions are very essential in measuring SCM practice. The five constructs cover upstream (strategic supplier partnership) and downstream (customer relationship) sides of a supply chain, information flow across a supply chain (level of information sharing and quality of information sharing), and internal supply chain process (postponement). It should be pointed out that even though the above dimensions capture the major aspects of SCM practice, they cannot be considered complete. Other factors, such as geographical proximity, JIT/lean capability Tan et al. (2002), cross-functional teams, logistics integration, agreed vision and goals, and agreed supply chain leadership are also identified.

Alvarado & Kotzab, (2001) assert that the modern evaluation of the SCM practices that comprises of partnership with the supplier, process of outsourcing, compression of cycle time, continuousness of process flow and sharing or Information Technology are very important in defining the success of contemporary business organizations. Adopting various types of information technology for instance the Electronic Data Interchange (EDI) enables elimination of excessive inventory by lowering the customizations in the way to the supply chain. It also assists organizations to share real time information that is essential for decision making (Tan, Lyman, & wisner, 2002).

According to Min & Mentzer (2004) the concept of SCM must be able to agree with the vision and goals of an organization. SCM also involves sharing of information, award and risk sharing, cooperating with other stakeholders in the process of integration as well as having long-standing relationship with stakeholders and maintaining leadership in supply chain. One of the most important SCM practice is strategic supplier partnership. This is the long-term based association between a company and the supplier. The purpose is to achieve the long term based objectives of the organization. Strategic supplier partnership provides the organization with the critical suppliers and they help the organization in the process of planning and solving production problem. In strategic supplier partnership it is important to encourage supplier involvement in the product and service designing process if cost efficiency has to be achieved (Tan, Lyman, & wisner, 2002).

Another important SCM practice involves Supplier relation management. Mettler & Rohner (2009) describe Supplier Relationship Management (SRM) as a comprehensive approach to managing an organization's interactions with the firms that supply the products and services it uses. They also assert that the immediate objective of SRM is to streamline and make more effective the sourcing processes between an enterprise and its suppliers. SRM also aims at quality-related improvements of information, products, services, and work force capabilities. A strategic partnership with suppliers focuses on direct, long-term association and encourages mutual planning and problem solving efforts. SRM involves the use of information technology in order to facilitate and enhance communication between the organization and the suppliers (Mettler & Rohner, 2009).

Tan et al. (2002) suggest that customer relationship management is another important SCM practice that entails all those measures that are put in place by an organization to manage customer complaints, build long-term relationships with customers, and improve the satisfaction customers get from using the products of the organization. Organizations need to have committed relationships with their customers because of their inherent barriers to competition. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival. Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs (Tan et al., 2002).

Information sharing is also a very important SCM practice. Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information. By taking the data available and sharing it with other parties within the supply chain, information can be used as a source of competitive advantage. Sharing of information is one of five building blocks that characterize a solid supply chain relationship. Supply chain partners who exchange information regularly are able to work as a single entity. An organization and its suppliers when they have strategic partnership can easily understand the needs of the end customer better and hence can respond to market change quicker (Mentzer et al, 2000). Effective use of relevant and timely information by all functional elements within the supply chain is a key competitive and distinguishing factor. The empirical findings of Childhouse and Towill (2003) reveal that simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain.

As information moves along the supply chain, divergent interests and opportunistic behavior of supply

chain partners, and informational asymmetries across supply chain affect the quality of information. There is a possibility that organizations in the supply chain network may deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and customers. This implies that there is some level of reluctance by organizations to give away more than minimal information since information disclosure is perceived as a loss of power. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM. Organizations need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion (McAdam & McCormack, 2003).

Postponement is also among the supply chain management practices. It is the practice of moving forward one or more operations or activities such as making, sourcing and delivering to a much later point in the supply chain. Two primary considerations in developing a postponement strategy are: determining how many steps to postpone, and determining which steps to postpone. Postponement allows an organization to be flexible in developing different versions of the product in order to meet changing customer needs, and to differentiate a product or to modify a demand function (Waller and Dabholkar, 2000). Postponement needs to match the type of products, market demands of a company, and structure or constraints within the manufacturing and logistics system. Postponement can only be done under specific conditions such as when dealing with innovative products; when dealing with products that have high monetary density; if the organization has high specialization and wide range of products; markets characterized by long delivery time; low delivery frequency and high demand uncertainty; and manufacturing or logistics systems with small economies of scales and no need for special knowledge (Waller and Dabholkar, 2000).

2. 2 Factors Affecting Supply Chain Management Practices

2.2.1 Organizational structure

The structure of an organization is a very important determinant of the supply chain management practices that are adopted by the firm. Organizational structures can take a variety of forms. In the past, centralized organizational structures were regarded as those in which the purchasing staff was in a single physical location. Meanwhile, decentralized structures placed supply within the business units or plants. Today, physical location may have little to do with reporting relationships. The ability to place corporate supply managers with key user groups has been supported through technological developments. There was general consensus among the group that organizational centralization should be thought of in terms of the amount of spend controlled by corporate purchasing, not in terms of where the purchasing staff was located geographically (Fraser and Ivey, 2003).

Decentralization can occur on four levels. The first is the business unit level. Each business unit has a separate supply group, which is supported by a 55-person corporate supply group. This structure allows the divisional supply organizations to focus on their division's specific needs, so that priorities and resources can be established on a business-unit level. Differences exist in supply organizations structures, roles, and responsibilities. These differences reflect the business strategies at each company and the contribution that the supply organization is expected to deliver. Although supply organizations have different names, each is expected to play an important role within the company and to deliver value to the bottom line (Fraser and Ivey, 2003). The organization structure therefore mars significantly influence how the various types of SCM practices are adopted in the organization.

2.2.2 Capital

According to a study carried out by Deloitte (2012) there is very little correlation between higher inventory levels and better fill rates. However, the study found that the highest-performing companies had high forecast accuracy and relatively low SKU count per billion dollars of revenue. It was also evident that companies with the lowest service levels had relatively complex product portfolios. Top-performing companies had fewer than 1,000 SKUs per \$1 billion in revenues (Deloitte, 2012).

When business entities grow in size and complexity and their operations span across global boundaries, maintaining and improving working capital performance can be challenging. At the same time, tighter access to credit and economic uncertainty are pushing firms to improve working capital performance. Companies looking to improve their forecasting processes should ensure regular inputs from various cross-functional groups, including sales, marketing, research and development, as well as finance, so that delivery planning can be tied closely to promotions, new product introductions or other activities being driven by other functions (Deloitte, 2012). This implies that firms may find it challenging to adopt some SCM practices because of capital constraints.

2.2.3 Size of Organization

It is also evident from research that some factors such as the size of the firm may affect the adoption of some SCM practices. Researchers who have already studied the relationship between the company size and SCM establish that there is lack of comfortable fit between small and medium size enterprises such as Small and medium Enterprises and SCM practices. This has been confirmed by several studies (Quayle, 2003, Arend & Wisner, 2005 and Vaaland & Heide, 2007). They argue that unless these practices are adopted in conjunction

with large customers (Quayle, 2003) or key partners (Arend & Wisner, 2005) then it may be difficult to have them implemented. Thakkar, Kanda, & Deshmukh (2008) also verified differences between large and small and medium enterprises in terms of adoption of key SCM practices.

2.2.4 Government Policy

The government policy determines the type of supply chain management policy to be adopted by organizations. For instance regulations on environmental management dictate that Supply chain environmental management should be viewed in the context of greening the entire supply chain. It shares with these other programs the core characteristic of pushing business to perform beyond government standards. Similarly, although firms manage supply chains for business reasons, there are spillover effects in terms of positive externalities for society. Although supply chain policies often began as single-firm initiatives, they have become the subject of collective action by groups of firms. Existing research in the field of private sector environmental management has found several common drivers that influence a firm's decision to adopt beyond compliance environmental practices. One such practice is a movement towards creating a greener supply chain and integrating downstream and upstream suppliers through environmental standard setting (Reinhardt, 2000).

2.2.5 Position and Industry

Some researchers have suggested that the position of a firm in the supply chain may largely affect the type of supply chain management practices it adopts. For instance Li et al., 2005 and Li et al., 2006 affirm that the company's position in its main chain differentiates it in terms of performance perception. Relationship with customers and quality of information exchanged are affected depending upon the location of the company on the SC and its proximity to the consumer.

It is also evident that that some studies have established the existence of a significant relationship between the industrial sector in which a firm operates and the type of SCM practices it adopts. For example Wong, Arlbjorn, and Fohansen (2005), conducted case studies with toy manufacturers in European countries, a sector marked by seasonality and unpredictability, ascertained the importance of mixing SCM strategies and initiatives to meet the demands of their customers. Another similar study was carried out by Jharkharia and Shankar (2006) involving four different Indian companies. The findings of the study revealed that the industry's SC characteristics, such as leadership in operations management practices, bargaining power of the chain and configuration of the chain such as number of small size suppliers and large size auto manufacturers, can affect the adoption of SCM practices.

3. Conclusion

The existing literature reveals that there are several supply chain management practices that can be adopted by organizations. However, these SCM practices are not universal to all firms since each firm has its own reasons for adopting a specific SCM practice. One of the determinants of SCM practices adopted is capital required to implement some of the practices. The other factor that may determine the SCM practices adopted is the size of the organization. Organizations exist in different sizes depending on the scale of their operations and the. Smaller organizations such as SMEs may adopt different SCM practices from those adopted by larger organization.

It is also clear that the position of the firm in the SC will also determine the type of SCM practices to be adopted. The supply chain is a network of firms and all the firms occupy different positions both in upstream and downstream sides of the chain. The SCM practices adopted by each of the firms may thus differ significantly depending on the position. The structure of an organization does influence the supply chain management practices that are implemented by organizations. When organizations have structures that are highly hierarchical in nature, they tend to delay the decision making process and this has a negative influence on implementation of supply chain management practices.

Government policy is essential in influencing supply chain management practices among organizations. The government has put in place laws that govern various activities and this dictates the SCM practices that organizations adopt. Another determinant is the industry in which a firm operates. Firms adopt different SCM practices that are suitable to the industry they operate in.

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