

Supply Chain Management

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Abstract : *Supply chain management is the management of the process of procuring, producing, and delivering of products and services to final customers. It is the management of supply chain activities to achieve a sustainable competitive advantage. It revolves around efficient integration of suppliers, manufacturers, warehouses, and stores. This paper provides an introductory primer for understanding supply chain management.*

Key words: supply chain, supply chain management, electronic business

Introduction

The supply chain is a network of interconnected businesses dispersed over a large geographical area or even the globe. A typical supply chain is shown in Figure 1 [1]. It involves procuring the raw materials, manufacturing items at factories, shipping the finished goods to warehouses for storage, and distributing to retailers or final customers. Supply chains are becoming global. Supply chain management is basically the management of such a chain.

Supply chain management (SCM) is the strategic coordination of business within a particular company and across businesses within the supply chain, for the purpose of creating value for customers and stakeholders. It encompasses all activities associated with the flow of goods from raw materials through to the end user [2]. It assures that goods are produced and distributed at the right quantities, to the right destinations, and at the right time in order to minimize cost. Its main goal is to increase sales of goods and service to the customer. The management of the supply chain includes ordering raw material, storage, finished goods, and logistics. SCM practice draws from the areas of industrial engineering, operations management, logistics, information technology, and marketing.

The term “supply chain management” was introduced in the early 1980s to express the need for integrating key business processes. Since 1990s, SCM has become a major modern management model. It has become a new way of managing business and its relationships. Strategies of SCM vary depending on the priorities, objectives, and strategies of the organization. The importance of corporate culture across the supply chain cannot be underestimated [3]. A conceptual model of SCM is illustrated in Figure 2 [4].

Change Management

For many reasons, supply chain management has changed drastically over the last few years, including information sharing, outsourcing, offshoring, lean manufacturing, globalization, sustainability, the Internet, e-business, and just-in-time. Environmental protection and sustainability issues are drawing global attention and accelerating the development of green SCM. Green SCM is being adopted by companies as their strategy to advance brand image and win

the trust of the customer. The major activities of green SCM include green design, green purchasing, green manufacturing, and green transportation [5].

Advances in information technology are introducing new possibilities to improve SCM

Recently, RFID (radio frequency identification) has been adopted in SCM to guarantee some security services and to provide ubiquitous computing capabilities. Secure tracking enables tracing the product path during all phases of the supply chain [6].

Nothing has rocked the field of SCM like the Internet. E-business is the marriage between the Internet and SCM. The Internet has had a profound impact on the SCM products. For example, the Internet is used in purchasing and procurement. The huge amount of data coming from Internet transactions causes information overload [7].

Supply chains now generate big data from many data sources such as sensors, RFID, and tracking devices. Supply chain professionals are seeking for ways to handle big data and give valuable insights to their organizations. Big data offers new opportunities, monetary gain, and operational excellence to supply chain practices [8].

The use of blockchain in SCM increases accountability and transparency. Blockchain also provides an accurate means of measuring product quality during transportation [9].

Applications

SCM practices have been adopted by organizations all over the world to improve their performance and profits. The agri-food industry sector has become a leader in supply chain good practice. SCM is applied in other areas such as healthcare/medicine, semiconductor industry, hospitality or tourism, automobile industry, food industry, and leather industry. Examples of supply chains include Procter & Gamble, Wal-Mart, Dell, Amazon, Toyota, and GM.

Benefits and Challenges

SCM has proven to be an effective tool that helps organizations in the development of competitive advantages. It creates value for the customers and achieves benefits for the organizations, including reducing expenses, raising efficiency, improving productivity, minimizing warehouse costs, reducing inventories, lower cycle times, developing better customer relationship, minimizing direct and indirect costs, enhancing inventory management, assisting companies in minimizing waster, and achieving a high level of quality [10,11].

Supply chains are complex, multifaceted systems, and managing them is quite challenging. They are currently a challenging problem in e-commerce. There are risks in supply chain management which may occur at various stages in the buyer/supplier interface. Travel times will never be certain, machines will break down, vehicles will be involved in

accidents, and customer demand varies with time. Matching supply and demand is a major challenge. Although uncertainty and risk cannot be eliminated, they can be minimized. Global supply chains pose challenges because there are more issues involved, such as multiple currencies, policies, legal regulations, different tax laws, and different trading protocols. Corruption (“abuse of public power for private benefit”) in supply chains prevents them from achieving desired performance [12].

CONCLUSION

A typical supply chain consists of interrelated entities such as suppliers, manufacturers, warehouses, distributors, and customers. Supply chain management is the active management of the flow of goods, services, and information. A successful SCM is vital to achieving and sustaining a competitive advantage in the current global condition.

The field of SCM is large and growing. Manager, researchers, and educators increasingly realize the importance of successful SCM and its impact on corporate performance. Many schools of engineering and management now offer courses in supply chain management. This serves to fuel the demand for SCM education [13]. More information on SCM can be found in [4,14-17] and other similar books available on Amazon.com. One should also consult an international journal exclusively devoted to SCM: *Supply Chain Management*.

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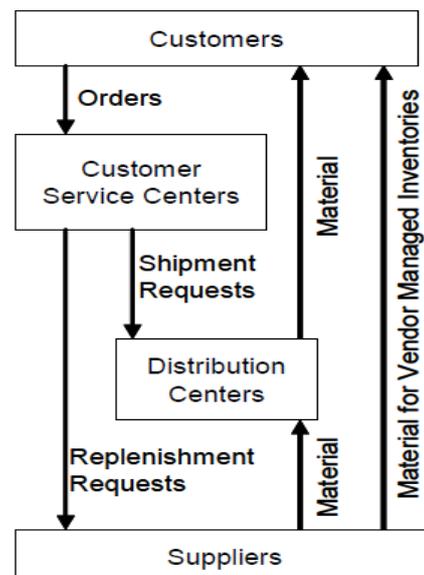


Figure 1 A typical model for supply chain [1].

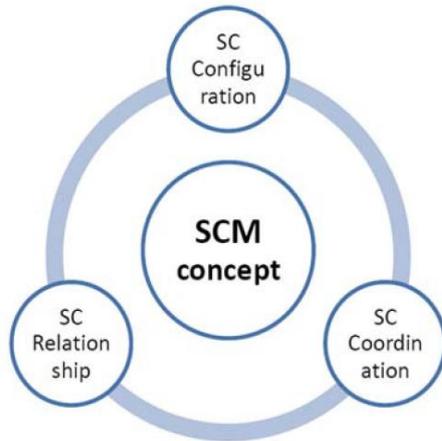


Figure 2 Conceptual model for supply chain management (SCM) [4].