

Comprehensive Analysis on the Various Aspects of Supply Chain Management

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Abstract: *Any organisation needs supply chain management to function. An overview of current innovations in supply chain management is given in this article. A discussion of the difficulties involved in managing supply chains follows the presentation of several definitions and fundamental supply chain management concerns in the first part. Next, we look at the main inefficiencies brought on by subpar supply chain management. The conclusion includes a brief evaluation of prior research efforts and a consideration of upcoming supply chain management challenges.*

Keywords: Supply chain management, operations management, sourcing, outsourcing, procurement, competition, information technology, globalisation, sustainability, manufacturing, service.

I. INTRODUCTION

One of the most crucial aspects of running a business is supply chain management. Since the normal consumer often only notices its effects, many people outside the immediate community (in research and industry) are ignorant of this. Remember how many times you scored a great 'deal' at the end of the season, the unexpected spikes in petrol prices caused by shortages, the times your e-commerce site promised availability but later was unable to send the required product or sent you the wrong product, or the times your customised product (like a computer or kitchen cabinet) arrived damaged or defective? Consumer experiences like the ones stated above and a number of others are all directly related to an organization's supply chain operations. Unlike interactions between businesses and consumers, those between businesses and other businesses are directly impacted by supply chain practises. Amazon, Wal-Mart, and Zara have consistently outperformed the competition in spite of the fact that some businesses suffered from subpar supply chain management.

Supply chain management has changed from being viewed as merely logistics since 1982, when Keith Oliver, a consultant at Booz Allen Hamilton, coined the phrase, to becoming a sophisticated multifunctional business activity that includes procurement, demand forecasting, distribution, and after-sales support. Since supply chain management is such a large topic, several definitions are frequently used depending on the individual's background and experiences. Some people believe that supply chain management is solely concerned with managing suppliers, choosing what to outsource and to whom, and maintaining relationships with suppliers. Others see it as an affordable method of moving goods between locations when you take into account the costs of distribution and transportation. Another group is focused on the integration of information technology and inventory management practises among the numerous businesses in the distribution channel or value chain. A third group views proper fixed and variable asset management as crucial to business operations. All of these classifications are analogous to blind people defining an elephant based on its many organs. Here is a thorough explanation of supply chain management.

According to Swaminathan (2001), a supply chain is the network of parties involved in the development of new goods and services, the acquisition of raw materials, their processing into semifinished and finished products, and their distribution to final consumers. The effective management of the entire process—starting with the product or service's design and continuing through its sale, use, and disposal by the consumer—is known as supply chain management. Configuration and coordination are the two fundamental subcategories of supply chain management issues. Coordination-level issues relate to tactical choices and regular operations, whereas configuration-level issues are related to the supply chain's high-level design and basic infrastructure.

The resources (people, equipment, and computers) have limited processing power, and every step in the supply chain takes time. As a result, not all tasks can be completed after the true requirement has been identified; some must be

completed beforehand (and may or may not be used depending on the true need realised). The limited capacity of the resources also results in uncertainty regarding the real lead time, demanding higher resource requirements at the following stage of the supply chain. The aforementioned issues lead to a variety of supply chain inefficiencies, which are sometimes viewed as "negative impacts" of inadequate supply chain management.

Issues with Supply Chain Management

1. Poor utilisation of inventory assets

Inadequate supply chain management frequently leads to surplus inventory at some stages of the supply chain and shortages at other phases. A company's working capital is largely made up of inventory, hence poor management could lead to significant inefficiencies. A comprehensive description of the risks and possibilities associated with supply chain inventory management is given by Lee and Billington (1992).

2. Inaccuracies in the Information

The bullwhip effect results from a lack of visibility of supply and demand data along the whole supply chain. This effect describes how a little change in customer demand could have a significant impact on the whole supply chain since each entity in the supply chain creates and modifies its own estimations and does not coordinate or share actual demand information. The causes and controls of this effect are described by Lee et al. (1997).

3. stock-outs

Additionally, inadequate supply chain management causes severe stock-outs and delayed delivery. Fundamentally, the failure of the company to anticipate its raw material and equipment capacity requirements as well as the uncertainty associated with on-time product delivery from its suppliers are the causes of these repercussions. According to Fisher et al. (1994), accurate projections for the fashion sector could potentially reduce this inefficiency.

4 Customization Challenges

The delayed delivery of personalised items is one of the primary effects of inefficient supply chain management as the level of customization in the market has increased. Businesses are coming up with a number of strategies to offer variety while keeping costs under control. Delaying product differentiation is one of them, along with fostering increased modularity and commonality throughout product lines (see Swaminathan and Tayur 1998).

New Supply Chain Management Trends

1.Global Supply Chain

Even a modest manufacturing company may find it challenging to retain an international supply relationship in an increasingly globalised world market. Although globalisation is not a new phenomenon, the tendency that began in the first decade of the twenty-first century flattened the world more than any other time in history. But in recent years, the cost gap between industrialised and developing countries has been progressively narrowing. Many businesses are being forced to review their supply chain plans, including their cost-driven outsourcing strategy, as a result of this. Some big and small industrial businesses have relocated manufacturing back to the domestic market in recent years. Meanwhile, the growing market size of developing nations' economies has made increasing the global supply chain footprint a more practical option. A key component of supply chain planning will continue to be finding the ideal ratio of domestic and foreign sourcing.

2. Robust Supply Chains

Environmentalists, NGOs, and businesses have all given the creation of sustainable supply chains a lot of attention during the past ten years. The supply chain strategies of many businesses have been influenced by this society-wide sustainability effort. For instance, Walmart adopted three overarching sustainability goals in 2005: (1) use 100% renewable energy; (2) create zero waste; and (3) provide items that protect our environment and resources (Denend and Plambeck, 2007). The business examined several elements of its supply chains to determine the regions with the most potential for sustainability in order to achieve these goals. Additionally, it used a range of incentives to motivate its suppliers to support its environmental goals.

Supply Chain Research: Past, Present, and Future

The concept of supply chain management first emerged in the early 1950s, when academics started to investigate the best methods for managing inventories. The multiple-level inventory management models developed by Clark and Scarf (1958) represent one of the earliest contributions to this discipline. Numerous researchers have studied similar stochastic and deterministic inventory problems since the 1950s. Under the presumption of centralised supply chain management, researchers have traditionally focused on developing the best rules and recommendations for certain supply chain challenges. Researchers started using a decentralised multi-agent approach to analyse supply chain issues in the 1990s. They also started creating new models for supply contracts and demand forecasting. Finally, they started incorporating product design into supply chain management.

Due to increased worldwide competition and client demands for more variety, quicker and more reliable delivery times, and lower prices, businesses face considerable challenges in the twenty-first century. E-commerce has a lot of potential, but it has also increased the likelihood of logistical mistakes in commercial operations. Customers now buy delivered goods in addition to physical goods. Therefore, achieving happiness is just as important as completing the transaction. Such arrangements are less helpful in the fast-paced electronic business environment, in contrast to older channels where inventory may be retained to hide other inefficiencies, such as long lead times and inaccurate forecasting. As a result, companies are starting to give supply chain management priority. Scholars are anticipated to research numerous supply chain management issues that have arisen in both business-to-business and business-to-consumer e-commerce contexts in the near future.

III. CONCLUSION

Vertical market places that promise to increase the effectiveness of the purchase process in a number of enterprises have emerged as a result of the widespread use of the Internet. On the one hand, these marketplaces are anticipated to minimise product costs for the manufacturer because increased competition will lead to lower prices. According to this school of thought, supply chains in the future could be more adaptable and supplier relationships could be more short-term oriented. On the other hand, many firms understand that using some of these markets for supply chain-wide process integration and cooperation can result in greater benefits. Businesses must build more trust in such a setting if they want to communicate with their supply chain partners. Today, scientists are striving to ascertain the conditions under which one or the other scenario might occur and what new models and studies are required. Global supply chains have become more widespread as a result of the Internet. Remote suppliers now have a much easier time competing for contracts with large developed-country corporations with whom they may not have previously done business. Future supply chain management research is projected to focus heavily on coordination difficulties related to global supply chain management. The management of sustainable supply chains is yet another crucial research topic. Experts have traditionally concentrated primarily on the effective movement of goods from supplier to buyer. The disposal of used goods, the refurbishment of outdated goods, the creation of environmentally friendly packaging, and the selection of suppliers based on environmental factors in addition to the conventional ones of cost, quality, and dependability are all being studied more and more by researchers today.

Another recent topic of study is supply networks in the service sector. Service-oriented supply networks are more complex than traditional manufacturing-oriented supply chains since they cannot keep inventories. In these situations, extra buffer space is used to handle uncertainty. Supply chain management-related behavioural challenges including trust, restricted rationality, mental accounting, etc. are starting to be studied by researchers.

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