Chapter 2

SUPPLY CHAIN MANAGEMENT

2.1 Supply Chain Management

The term ‘supply chain management’ originated in the late 1980s by Oliver and Weber and came into widespread use in the 1990s. Before that time, the terms like ‘operations management’ and ‘logistics’ were used. SCM has received a lot of attention and terminology has been used by companies to describe the set of manufacturing and logistics activities that result in delivering products and services to their customers. Many researchers like LaLonde (1997) asked “Does Supply Chain Management really exist?” Other researchers like Burgess (1998) caution that SCM may become just another management fad or even a “parochial arena for a guild of specialist researchers”. Amid this confusion, Skjoett-Larsen (1999) quoted, “SCM concept was not well defined”. Cooper et al. (1997) added, “Research is needed to define and expand the boundaries of supply chain management”.

The SC stated off as a concept that stresses mainly as a coordinated, holistic view of various segments in the SC and demand of functional areas and the strategic importance of this. The concentration was on internal SC and broader view of former operational logistics activities. Over the times, researchers and practitioners picked up the term and assigned meaning to it. Boulding (1956) discussed the concept of general system theory, which brought up the understanding that the “[...] behavior of a complex system cannot be understood completely by the segregated analysis of its constituent parts”. The notion subsequently evolved mainly driven by the logistics discipline to arrive at the significance SCM has in today’s academic environment
and business literature. Later, Forrester and Jay (1958) related SCM to internal perspective and identified the principles of SCM.

Before 1975, the markets were dominated and controlled by the original equipment manufacturer (OEM). Manufacturers focused on their own operations with little or no cooperative supplier relationships. Purchasing and procurement were not perceived as an integral component of production (Schönsleben, 2004) rather than a “servant for production”. During this period, emphasis was made on production costs with little product and process flexibility. The concept of Material Requirement Planning (MRP) coined in 1970s, managers realized the impact of work-in-process inventory on key performance drivers such as cost, quality, delivery lead time and new product development. In the following years the concentration was focused on coordination and integration of the functions within the organizations. These efforts led the development of more sophisticated and better organized management concepts like Total Quality Management (TQM), ISO certification, Just-In-Time (JIT) and Manufacturing Resource Planning (MRP-II). These concepts identified the benefits of involvement of immediate suppliers, transportation and distribution specialists (Tan et al., 2000).

The global competition increased after 1990. This led to strategic alliance not only at the national but also at the international levels. At the same time, information technology picked up speed and product data management, computer integrated manufacturing (CIM) and, enterprise resource planning (ERP) boosted the industrial performance. Suppliers were included as strategic partner to reduce the product cost and improve the product quality. The unclear conceptual boundaries of SCM made it difficult to design educational and research program in SCM without
large overlap with other areas such as; logistics, purchasing and operations management. Moreover it was difficult to implement SCM unless it is well defined.

2.1.1 Definitions of Supply Chain Management

A variety of definitions of SCM are available in literature. These are given below:

- **Haulihan** (1987): Integration of various functional areas within an organization to enhance the flow of goods from immediate strategic suppliers through manufacturing and distribution chain to the end user.

- **Ellram and Cooper** (1993): SCM is an integrative philosophy to manage the total flow of distribution channel from supplier to ultimate user.

- **Berry** (1995): It is a system whose constitute parts include material suppliers, production facilities, distribution services and customers linked together by feed forward of flow materials and feedback flow of information.

- **Ganeshan and Harrison** (1995): A network of facilities and distribution options that performs the functions of procurement of material, transform those materials into intermediate and finished products and distributes products to customers.

- **Johnson** (1995): It is a process of strategically managing the movement and storage of materials, parts and finished inventory from suppliers through the firm and onto the customers.

- **Lee and Billington** (1995): The integration activities taking place among a network of facilities that procure raw materials, transform them into intermediate goods and then final products and, deliver products to customers through a distribution system.

- **New and Payne** (1995): It is the chain linking each element of the manufacturing and supply process from the raw materials through to the end user, encompassing several organizational boundaries.
• **Harland** (1996): Managing business activities and relationships within the organization with immediate suppliers, first and second-tier suppliers and customers along the supply chain and the entire supply chain.

• **Thomas and Griffin** (1996): Management of materials and information flows both in and between facilities such as vendors, manufacturing and, assembly plants and distribution centers.

• **Sengupta and Turnbull** (1996): SCM is the process of effectively managing the flow of materials and finished goods from vendors to customers using, such as manufacturing facilities and warehouses as intermediate stops.

• **Cooper et al.** (1997): Supply chain management is “… an integrative philosophy to manage the total flow of distribution channel from supplier to ultimate user.”

• **Farley** (1997): Supply chain management focuses on how firms use their supplier’s processes, technology, capability to enhance competitive advantage, and the coordination of the manufacturing, logistics and materials management functions within an organization.

• **Monczka and Morgan** (1997): An organizational concept is there whose primary objective is to integrate and manage the sourcing, flow and control of materials using a total system perspective across multiple functions and multiple tiers of suppliers.

• **Christopher** (1998): Supply chain management is the management of upstream and downstream relationships with suppliers and the customers to deliver superior customer value at lesser cost to the chain as a whole.

• **Quinn** (1998): All those activities are associated with moving goods from the raw-materials stage through the end user. This includes sourcing and procurement, production scheduling, order processing, inventory management, transportation, warehousing and customer service. Importantly, it also embodies the information systems necessary to monitor all those activities.
• **Stevens** (1989): The objective of managing the supply is to synchronize the requirements of the customers within the flow of materials from suppliers in order to affect a balance between what are often seen as conflicting goals of high customer service, low inventory management and low unit cost.

• **Beamon** (1999): An integrated process where raw materials are transformed into final products then delivered to customers.

• **Handfield and Nichols** (1999): SCM is integration of activities associated with flow and transformation of goods from raw materials stage through to the end user as well as associated information flows through improved supply chain relationships to achieve sustainable competitive advantage.

• **Leenders and Fearon** (1999): It is often used to refer to the purchasing department’s efforts to develop better and more responsive suppliers.

• **Ballou et al.** (2000): The supply chain management refers to all those activities associated with the transformation and flow of goods and services including their attendant information flows from the sources of raw materials to end users. Management refers to the integration of all these activities both internal and external to the firm.

• **Kalakota** (2000): An integrating process is there based on flawless delivery of basic and customized services.

• **Mentzer et al.** (2000): All the traditional business functions should be included in the process of SCM.

• **The Institute of Supply Chain Management** (2000): The identification and management of specific chains are critical to a purchasing organization’s operations.
• Zheng *et al.* (2000): SCM is the process of optimizing a company’s internal practices and improving the interaction with its suppliers and customers.

• Mehmet *et al.* (2002): Network of member companies connected via vendor-customer relationships from the ultimate supplier to the ultimate customer, entails multi-party coordination of logistics planning activities that add value on the chain such as forecasting, planning, scheduling, and control.

• Swaminathan and Tayur (2003): SCM is the efficient management of the end-to-end process, which starts with the design of the product or service and ends with the time when it has been sold, consumed, and finally, discarded by the consumer. This complete process includes product design, procurement, planning and forecasting, production, distribution, fulfillment, after-sales support, and end-of-life disposal.

• Simchi-Levi *et al.* (2003), SCM is the process of planning, implementing and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point-of-origin to point-of-consumption for the purpose of conforming to consumer requirements.

• Busch and Dangelmaier (2004): SCM is the inter-company coordination of material and information flows among the entire value creation process from raw material over the individual processing steps to the end consumer-with the goal to optimize the entire process in terms of time and cost aspects.

• Chen and Paulraj (2004): SCM, as we envision, is a novel management philosophy that recognizes that individual business no longer completes as solely autonomous units, but rather as a supply chains. Therefore, it is an integrated approach to the planning and control of materials,
services and information flows that adds value for customers through collaborative relationships among supply members.

- **Christopher** (2005): SCM is the management of upstream and downstream relationships with suppliers and consumers to deliver superior customer value at less cost to the supply chain as a whole.

- **The Council of Supply Chain Management Professionals (CSCMP)** (2005): SCM encompasses the planning and management of all activities in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, who can be suppliers, intermediaries, third-party service providers, and customers. In essence, SCM integrates supply and demand management within and across companies.

- **Soroor and Tarokh** (2006): A supply chain is defined as the integration of key business processes from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders.

The definitions quoted above show the development in industrial sectors. As it is good saying that necessity is the mother of invention and it is applicable to the field of SCM. The researchers started with the vague concept and tried to discover whether SCM exists and in search of answers for questions they broaden the domain of SCM. Nowadays, the competition is not among industrial sectors but among the supply chains. It is aimed to deliver products and services efficiently and effectively to the right person at the right place and time with minimum efforts and cost. This discovery is not an end in itself but has left many questions for the researchers as what more could be added to it?
2.1.2 Supply Chain Management in Non-Livestock Retailing

NLR is selling of agricultural and horticultural products directly to the consumers for their personal or non-business use. Zuubier et al. (1996) classified food SC for production and distribution of vegetables or animal products. In general, we identified three main types of farm retailing supply chains:

1. **Supply chains for non-lives stock products** (such as fresh vegetables, fruits, spices, pulses and flowers, etc.). These include agricultural and horticultural products. In general, these supply chains may comprise growers, auctions, wholesalers, importers and exporters, retailers and retail stores. All these SC stages maintain the characteristics of the products. The main processes include handling, storing, packing, transportation and trading of these goods. These supply chains are very complex and difficult in nature due to short product life, seasonal availability and customers’ willingness to get best quality at lower prices. Also they are routine consumption items and need regular and efficient supply.

2. **Supply chains for lives-stock products** (such as meat, milk, eggs, etc.). These include farm products as meat, eggs and milk etc. Farmers maintain the animals in the protected sheds and after the animals grow they produce these products. The quantity and quality of these products is directly linked with the health, breed and feed for the animals. In these supply chains, the intrinsic value may or may not change. For example, milk and eggs are distributed directly or through distributors, wholesalers and retailers to the customers. Meat products are processed and then sent to the retailers. These supply chains have to pay more attention to retain product quality as many of the products have very short product life. The deteriorated product may adversely
affect health of consumers. The wastage of these products is difficult to recycle and ultimately, may reduce profits.

3. **Supply chains for processed food products** (snacks, desserts, and canned food products, oils, fats, etc.). These products are processed to be stored for longer period of time. In these supply chains, farm products are used as raw materials for producing consumer products with higher added value. Usually, conservation and conditioning processes extend the shelf life of these products. In this study, we have concentrated on the agricultural and horticultural product supply chains. These products flow from farmers through distributors or wholesalers to the retailers and finally to the end consumers. The basic SC stages are shown in Fig. 2.1 as hereunder:

![Figure 2.1: Non-livestock commodity marketing channels](image)

Figure 2.1 shows a typical marketing channel for non-livestock commodity in developing countries. It shows that rural marketing channels are much simpler and direct as compared to urban marketing channels. In the rural areas, retailers or consumers directly buy from the farmers, whereas in the urban areas more distributors, wholesalers and retailers are involved. It
shows that rural distribution is simple as compared to urban distribution. The money flows from consumer to the farmer and intermediaries retain their share and the information flow both ways. In this study, we have to focus on urban areas where organized retailers either directly purchase from the farmers or distributor/wholesales.