**LSCM UNIT 4.1 MODULE 4**

**DEFINITIONS OF SUPPLY CHAIN MANAGEMENT**

1. Supply Chain Management (SCM) is the management and oversight of a product

 from its origin until it is consumed.

SCM involves the flow of materials, finances and information.

This includes product design, planning, execution, monitoring and control.

The goal of this process is to reduce inventory, increase transaction speed and improve work flow with profit in mind.

2. APICS, the Global Association for Supply Chain Management Professionals, defines Supply Chain Management as:

“the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.”

3. SCM is the management of a network of all business processes and activities involving procurement of raw materials, manufacturing and distribution management of Finished Goods. SCM is also called the art of management of providing the Right Product, At the Right Time, Right Place and at the Right Cost to the Customer.

4. Supply chain management is the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.

5. CSCMP’s definition is: Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities.

6. SCMA defines Supply Chain Management (SCM) as: The process of strategically managing flows of goods, services, finance and knowledge, along with relationships within and among organizations, to realize greater economic value through: Supporting enterprise strategic objectives, Contributing to the achievement of strategic competitiveness of the enterprise, Contributing to the enhancement of the competitive advantage of the enterprise and Enhancing customer satisfaction.

7. Supply Chain Management (SCM) is the broad range of activities required to plan, control and execute a product’s flow, from acquiring raw materials and production through distribution to the final customer, in the most streamlined and cost-effective way possible.

8. Supply Chain Management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business’s supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

**OBJECTIVES OF SUPPLY CHAIN MANAGEMENT**

SCM is the practice of managing the movement of products and services across different processes and locations. It includes the storage and transportation of raw materials, work-in-process inventory, finished items, and end-to-end order fulfilment from the point of origin to the point of consumption. The Supply Chain Management system is regarded to be the backbone of today’s commercial organisations. Suppliers who adhere to SCM principles are expected to deliver significantly more value to customers than those who have not implemented SCM concepts into their operations. The following are the most important objectives of Supply Chain Management:

**1. Improving Efficiency**

One of the most crucial objectives of Supply Chain Management is efficiency. Efficiency is synonymous with waste minimisation. Waste can manifest itself in a number of ways, including wasted materials, wasted money, wasted person-hours, wasted delivery time, and many other forms. Keeping waste to a minimum is a critical component of Supply Chain Management. It tries to reduce waste by managing manufacturing, inventory, transportation, and logistics. It does this by identifying opportunities to improve systems in order to reduce waste. If, for example, your company shares inventory data with a supplier and keeps it updated in real-time using ERP software, the company may replenish inventory promptly to meet buyers’ demand. The process of effectively managing these functions can be a difficult one to master, but knowing how to do so can be extremely beneficial to your business’ overall success.

**2. Improving Quality**

Supply Chain Management is not solely concerned with waste reduction. Another key objective is to ensure that the product is of the highest possible quality. Quality Assurance can be characterised as adherence to various customer-specified quality attributes, ranging from performance to specific features. This includes adhering to food safety regulations, demonstrating ethical and sustainable practices, and other similar actions. It is critical to establish precise standards that involve supply partners from the start. Being agile in managing change and variation to that specification in real-time is essential to allow products to continue flowing across the supply chain. SCM has a direct impact on the quality of a company’s products as well as its overall profitability.

**3. Optimising Transportation and Logistics**

The optimisation of transportation and logistics is yet another vital goal of Supply Chain Management. In an independent business environment, each company is responsible for its own role in ordering, shipping, and transporting goods. Costs are relatively higher in this business strategy due to poor scheduling and coordination. Supply Chain Management ensures that your processes flow smoothly and that suppliers, manufacturers, wholesalers, and retailers are always on the same page. SCM enables you to optimise transportation and logistics activities with any vendors or purchasers with whom you do business. Orders are automatically entered into a system, which notifies other facilities that additional resources are required to fulfil this request. This makes the entire process very smooth and seamless.

**4. Reducing Costs**

It is the goal of Supply Chain Management to reduce a company’s operating expenses. It lowers the cost of all types of business expenses, such as the cost of purchasing, manufacturing, and delivering goods, by establishing an optimised supply chain. It is possible to shorten the holding period of both raw materials and finished items by allowing a smooth flow of raw materials between a supplier and a company and the movement of finished goods between a company and its customers. This helps to reduce losses and keep the overall cost of doing business as low as possible.

**5. Enhancing Customer Satisfaction**

One vital objective of SCM is to maximise customer satisfaction. Your supply chain is by far the most effective means of customer service. It has a direct influence on the two most critical components of client satisfaction: pricing and delivery. Having an efficient supply chain enables you to outperform your competition in terms of retail pricing and profitability. Having high-performing operations also helps you to meet or exceed your customers’ expectations for product delivery. Providing your customers with what they want, when they want it, and at the lowest price possible is critical to maintaining their satisfaction.

**6. Improving Distribution**

Businesses benefit from Supply Chain Management because it streamlines the distribution process. In order to facilitate the speedier movement of goods, it is necessary to achieve proper coordination between various transportation channels and warehouses. Supply Chain Management enables businesses to reduce overhead costs while also delivering items more quickly. As a result, the entire distribution system is improved, allowing for the delivery of products at the appropriate time and location.

Hence, it is wise to invest in effective technology that allows you to manage inventory quickly, generate thorough reports, automate delivery, provide real-time tracking, and perform other distribution functions seamlessly.

**7. Maintaining Better Coordination**

Supply Chain Management strives to improve coordination between the business’s various stakeholders. A channel is established, allowing employees, customers, and suppliers to communicate with the company efficiently. Managers can quickly direct their staff, and employees can communicate with their supervisors via the established channel in the event of an emergency. Additionally, customers can obtain necessary information via self-portals established as part of the customer support system. It facilitates information sharing between all stakeholders and contributes to building an organisation with exceptional coordination.

**8. Collaborative Relationships**

Supply Chain Management highlights the importance of collaboration between suppliers, manufacturers, distributors, and customers, leading to better communication and coordination.

**9. Cost Reduction**

**Cost reduction:** SCM helps to reduce the system-wide cost of the company to satisfy service level requirement

**Company costs:**Manufacturing, Fixed assets, inventories, transportation

**Service levels:** Response time Hrs/day/week/month

**10. Better Decision**

SCM helps top as well as middle level management in better decision. It can be used as a strategic management tool for competitive advantage.

**Conclusion**

Supply Chain Management is a blend of art and science that focuses on how your business acquires the raw materials necessary to build a product or service, manufactures that product or service, and delivers it to customers. SCM’s primary goal is to keep a firm afloat and ultimately to drive it to success. Other objectives of SCM include improving efficiency and quality, minimising costs, optimising delivery and distribution and providing the best possible experience to your customers. Supply Chain Management is, indeed, the backbone of any business.

**IMPORTANCE OF SUPPLY CHAIN MANAGEMENT**

It is well known that Supply Chain Management is an integral part of most businesses and is essential to company success and customer satisfaction.

1. **Boost Customer Service**
2. Customers expect the correct product assortment and quantity to be delivered.
3. Customers expect products to be available at the right location. (i.e., customer satisfaction diminishes if an auto repair shop does not have the necessary parts in stock and can’t fix your car for an extra day or two).
4. Right Delivery Time – Customers expect products to be delivered on time (i.e., customer satisfaction diminishes if pizza delivery is two hours late or Christmas presents are delivered on December 26).
5. Right After Sale Support – Customers expect products to be serviced quickly. (i.e., customer satisfaction diminishes when a home furnace stops operating in the winter and repairs can’t be made for days)
6. **Reduce Operating Costs**
7. Decreases Purchasing Cost – Retailers depend on supply chains to quickly deliver expensive products to avoid holding costly inventories in stores any longer than necessary. For example, electronics stores require fast delivery of 60” flat-panel plasma HDTV’s to avoid high inventory costs.
8. Decreases Production Cost – Manufacturers depend on supply chains to reliably deliver materials to assembly plants to avoid material shortages that would shutdown production. For example, an unexpected parts shipment delay that causes an auto assembly plant shutdown can cost $20,000 per minute and millions of dollars per day in lost wages.
9. Decreases Total Supply Chain Cost – Manufacturers and retailers depend on supply chain managers to design networks that meet customer service goals at the least total cost. Efficient supply chains enable a firm to be more competitive in the market place. For example, Dell’s revolutionary computer supply chain approach involved making each computer based on a specific customer order, then shipping the computer directly to the customer. As a result, Dell was able to avoid having large computer inventories sitting in warehouses and retail stores which saved millions of dollars. Also, Dell avoided carrying computer inventories that could become technologically obsolete as computer technology changed rapidly.
10. **Improve Financial Position**
11. Increases Profit Leverage – Firms value supply chain managers because they help control and reduce supply chain costs. This can result in dramatic increases in firm profits. For instance, U.S. consumers eat 2.7 billion packages of cereal annually, so decreasing U.S. cereal supply chain costs just one cent per cereal box would result in $13 million dollars saved industry-wide as 13 billion boxes of cereal flowed through the improved supply chain over a five year period.
12. Decreases Fixed Assets – Firms value supply chain managers because they decrease the use of large fixed assets such as plants, warehouses and transportation vehicles in the supply chain. If supply chain experts can redesign the network to properly serve U.S. customers from six warehouses rather than ten, the firm will avoid building four very expensive buildings.
13. Increases Cash Flow – Firms value supply chain managers because they speed up product flows to customers. For example, if a firm can make and deliver a product to a customer in 10 days rather than 70 days, it can invoice the customer 60 days sooner.

Lesser known, is how supply chain management also plays a critical role in society. SCM knowledge and capabilities can be used to support medical missions, conduct disaster relief operations, and handle other types of emergencies. Whether dealing with day-to-day product flows or dealing with an unexpected natural disaster, supply chain experts roll up their sleeves and get busy. They diagnose problems, creatively work around disruptions, and figure out how to move essential products to people in need as efficiently as possible.

1. **Societal Roles of SCM**

Ensure Human Survival

1. SCM Helps Sustains Human Life – Humans depend on supply chains to deliver basic necessities such as food and water. Any breakdown of these delivery pipelines quickly threatens human life. For example, in 2005, Hurricane Katrina flooded New Orleans, LA leaving the residents without a way to get food or clean water. As a result, a massive rescue of the inhabitants had to be made. During the first weekend of the rescue effort, 1.9 million meals and 6.7 million liters of water were delivered.
2. SCM Improves Human Healthcare – Humans depend on supply chains to deliver medicines and healthcare. During a medical emergency, supply chain performance can be the difference between life and death. For example, medical rescue helicopters can save lives by quickly transporting accident victims to hospitals for emergency medical treatment. In addition, the medicines and equipment necessary for treatment will be available at the hospital as a result of excellent supply chain execution.
3. SCM Protects Humans from Climate Extremes – Humans depend on an energy supply chain to deliver electrical energy to homes and businesses for light, heat, refrigeration and air conditioning. Logistical failure (a power blackout) can quickly result in a threat to human life. For example, during a massive East Coast ice storm in January 1998, 80,000 miles of electrical power lines fell resulting in no electricity for 3,200,000 Montreal, Quebec residents. Due to extreme cold, 30 died and 25% of all Quebec residents left home to seek heated shelter. In addition, economic costs included $3 billion in lost business, $1 billion in home damage and $1 billion in government expenditures.

**GLOBAL SUPPLY CHAIN MANAGEMENT FUNCTIONS**

Going “global” through global supply chains helps facilitate entry into new markets, enables business growth and provides firms with access to new technologies through partnerships with foreign firms. Global supply chain management involves planning how the entire supply chain will function as an integrated whole, with the aim of generating an optimum level of customer service while being as cost efficient as possible. Other aims include increasing the speed your product reaches your customers, as well as flexibility in dealing with customer transactions.
**Five Supply Chain Management Functions**

The following are the five functions of supply chain management:

1. Acquiring/Purchasing

Purchasing is the first role in supply chain management. Raw materials are necessary throughout the manufacturing process in order to create items and products. It is critical to buy and supply these supplies on schedule to allow manufacturing to commence. This will involve collaboration with delivery firms and suppliers to prevent any delays.

2. Business operations

Demand forecasting are often necessary prior to material procurement, since the demand market dictates the number of units to be produced and the amount of material necessary for manufacturing. This function is critical in supply chain management because firms must estimate demand properly to avoid having too much or too little inventory, which results in revenue losses. To prevent such errors, demand plan and projection must be integrated with inventory management, manufacturing, and shipping.

3. Transportation and logistics

Logistics is the component of supply chain management that organises all parts of planning, buying, manufacturing, storage, and transportation to ensure that items reach the end customer without delay. Appropriate communication across numerous departments is necessary to ensure that items are sent to consumers swiftly and at the lowest possible cost.

4. Management of Resources

Raw resources, technology, time, and labour are all used during production. Resource management ensures that adequate resources are distributed optimally to the appropriate activity. This will guarantee that an efficient production schedule is produced in order to increase operational efficiency. When determining available capacity, you should take into account the attributes of each resource and assess if they are capable of doing the work placed on them. This can help you avoid over-promising orders and ensuring that your manufacturing plan is viable and precise.

5. Workflow of Information

The exchange and dissemination of information is what keeps all of the other supply chain management operations on track. If the information process and communication are inefficient, the whole chain may break down. Numerous supply chain interruptions may be avoided with greater visibility and communication. By implementing a standardised system across all departments, you can guarantee everyone is operating with the same set of data, avoiding miscommunications and time wasted alerting everyone on new developments.

Depending on the work that supply chain management systems perform, they are divided into two categories, namely, supply chain planning systems, and supply chain execution systems.

**TYPES OF SUPPLY CHAIN MANAGEMENT (SCM) SYSTEMS**

**1. Supply Chain Planning Systems**

These systems provide information that helps businesses plan their supply chain. Some important supply chain planning works are as follows:

* Predict the demand for specific products and prepare sourcing and production plans for those products.
* Determine the quantity of product that must be produced within a certain period of time.
* Decides where to store finished items.
* Transport mode identification used to deliver goods.
* Determining the level of deposit for raw materials, intermediate products, and finished products.
* The quantity of the product should be determined to meet the needs of all customers in the business.

**2. Supply Chain Execution Systems**

These systems provide information that helps businesses implement their supply chain measures. The following are some of the key supply chain tasks:

* Ensuring proper delivery of products from manufacturers to retailers and ultimately to customers
* Provide information on the processing status of orders so that sellers can provide customers with accurate delivery dates
* Tracking the invoice and accounting for products that have been returned or repaired and serviced

**SUPPLY CHAIN MANAGEMENT - PROCESS**

Supply Chain Management is a process used by companies to ensure that their supply chain is efficient and cost-effective. A supply chain is the collection of steps that a company takes to transform raw materials into a final product. **Supply Chain Management Process** plays a huge significance in running key operations for almost every organization. Without a successful supply chain, processes could halt at the floor level and ultimately bring down the results. For so many decades, supply chains have gone through a journey of their own from being so simple to recently developed algorithm based ones. With ever-evolving supply chain concepts, Supply Chain Management process has become a dedicated function. Supply chain managers are given the responsibility to ensure that supply chain, be it external or internal, is efficient and cost-effective both. The five **basic components** of Supply Chain Management are discussed below:

1. Plan

The initial stage of the supply chain process is the planning stage. We need to develop a plan or strategy in order to address how the products and services will satisfy the demands and necessities of the customers. In this stage, the planning should mainly focus on designing a strategy that yields maximum profit.

For managing all the resources required for designing products and providing services, a strategy has to be designed by the companies. Supply chain management mainly focuses on planning and developing a set of metrics.

1. Develop(Source)

After planning, the next step involves developing or sourcing. In this stage, we mainly concentrate on building a strong relationship with suppliers of the raw materials required for production. This involves not only identifying dependable suppliers but also determining different planning methods for shipping, delivery, and payment of the product.

Companies need to select suppliers to deliver the items and services they require to develop their product. So in this stage, the supply chain managers need to construct a set of pricing, delivery and payment processes with suppliers and also create the metrics for controlling and improving the relationships.

Finally, the supply chain managers can combine all these processes for handling their goods and services inventory. This handling comprises receiving and examining shipments, transferring them to the manufacturing facilities and authorizing supplier payments.

1. Make

The third step in the supply chain management process is the manufacturing or making of products that were demanded by the customer. In this stage, the products are designed, produced, tested, packaged, and synchronized for delivery.

Here, the task of the supply chain manager is to schedule all the activities required for manufacturing, testing, packaging and preparation for delivery. This stage is considered as the most metric-intensive unit of the supply chain, where firms can gauge the quality levels, production output and worker productivity.

1. Deliver

The fourth stage is the delivery stage. Here the products are delivered to the customer at the destined location by the supplier. This stage is basically the logistics phase, where customer orders are accepted and delivery of the goods is planned. The delivery stage is often referred as logistics, where firms collaborate for the receipt of orders from customers, establish a network of warehouses, pick carriers to deliver products to customers and set up an invoicing system to receive payments.

1. Return

The last and final stage of supply chain management is referred as the return. In the stage, defective or damaged goods are returned to the supplier by the customer. Here, the companies need to deal with customer queries and respond to their complaints etc.

This stage often tends to be a problematic section of the supply chain for many companies. The planners of supply chain need to discover a responsive and flexible network for accepting damaged, defective and extra products back from their customers and facilitating the return process for customers who have issues with delivered products.

**PARTICIPANTS IN SUPPLY CHAIN**

There are four kinds of participants in every supply chain. They perform the activities that make a supply chain work and provide a reason for it to exist. A supply chain is made up of a corporation and its suppliers and consumers in its most basic form. A simple supply chain is made up of these three sorts of organisations – supplier, company, and customers.

**1) Producers**

Producers (manufacturers or service providers) are organizations that make products or services.  This includes companies that are producers of raw materials and companies that are producers of finished goods.  Producers of raw materials are organizations that mine for minerals, drill for oil and gas, and cut timber.  It also includes organizations that farm the land, raise animals, or catch seafood.  Producers of finished goods use the raw materials and sub-assemblies made by other producers to create their products. Service providers are producers of services, and manufacturers are producers of products. Some producers are also consumers or customers of products made by other producers. Producers supply the products and services used by other supply chain participants.

**2) Distributors**

Distributors (or wholesalers) are companies that take inventory in bulk from producers and deliver a bundle of related product lines to customers. They typically sell to other businesses and they sell products in larger quantities than an individual consumer would normally buy.  Distributors buffer the producers from fluctuations in product demand by stocking inventory purchased from producers, and doing much of the sales work to find and service customer needs.

In addition to product promotion and sales, distributors also perform activities such as inventory management, warehouse operations, product movement, customer support and post sales service. A distributor can also be an organization that only brokers a product between the producer and the customer and never takes ownership of the product.  As the needs of customers evolve, and the mix of available products changes, distributors continually track customer needs and match them with products to meet those needs.

**3) Retailers**

Retailers stock inventory and sell in smaller quantities to customers in the general public.  Retailers closely track the preferences and demands of their customers.  They advertise to their customers and use combinations of price, product selection, service, and convenience as their primary draw to attract customers.  Discount stores attract customers using low price and wide product selection.  Upscale stores offer a unique line of products and high levels of service.  Retailers offer products and services to meet the demand of individual customers who buy in smaller quantities.

**4) Customers**

Customers (or consumers) are individuals or organizations that purchase and use a product or service.  A customer may be an organization (a producer or distributor) that purchases a product in order to incorporate it into another product that they in turn sell to their customers (ultimate customers). Customers depend on producers, distributors, and retailers to meet their needs for products and services.

**Service Providers**

These are organizations that provide services to producers, distributors, retailers, and customers. Service providers have developed special expertise and skills that focus on a particular activity needed by a supply chain. Because of this, they are able to perform these services more effectively and at a better price than producers, distributors, retailers, or consumers could do on their own.

Some common service providers in any supply chain are providers of transportation services and warehousing services. These are trucking companies and public warehouse companies and they are known as logistics providers. Financial service providers deliver services such as making loans, doing credit analysis, and collecting on past due invoices. These are banks, credit rating companies, and collection agencies. Some service providers deliver market research and advertising, while others provide product design, engineering services, legal services, and management advice. Still other service providers offer information technology and data collection services. All these service providers are integrated to a greater or lesser degree into the ongoing operations of the producers, distributors, retailers, and consumers in the supply chain.