UNIT 3 LOGISTICS AND SUPPLY CHAIN MANAGEMENT – INTER RELATIONSHIP*

Structure

3.0 OBJECTIVES

After reading this Unit, you should be able to

- Provide a conceptual framework of supply chain management;
- Distinguish logistics from supply chain management;
- Discuss the processes of supply chain management and their inter relationship across the supply chain;
- Explain the areas for application of tools of supply chain management; and
- Examine the challenges in supply chain management.

3.1 INTRODUCTION

Supply chain management (SCM) encompasses a series of interrelated activities from movement and storage of raw materials; work in progress inventory and of finished goods from point of origin to point of consumption. SCM has lot of activities relating to industrial engineering, system engineering, logistics and information technology.SCM is an umbrella concept that links together multiple processes. Logistics refers to movement, storage and flow of goods, services, and information within the overall supply chain. This unit familiarises you with important aspects of inter-relationship between SCM and logistics.

3.2 SUPPLY CHAIN MANAGEMENT: CONCEPTUAL FRAMEWORK

A supply chain is a complex and dynamic supply and demand network with the sequence of organisations in their facilities, functions, and activities, which are

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involved in production and delivery of a product or service. It comprises a network of suppliers, distributors, distribution centres, retailers, etc. All have a common goal of transforming and delivering the final products to customers. Supply chain management (SCM) is an integrating function for linking major business functions and processes within and across companies into a unified, high-performing business model. It includes all logistics management activities, manufacturing operations, coordinating processes/ activities across marketing, sales, product design, finance, and information technology.

SCM has evolved from an initial focus on improving relatively simple, but labour-intensive processes to the contemporary practice of engineering and managing of extraordinarily complex global networks. The term SCM was developed to express the need to integrate the key business processes, from end user to original suppliers. There has been a tremendous impact of information technology on logistics and supply chain management. The trend now is more on third-party service providers (outsourced) to improve purchasing and supply management with focus on transportation and logistics for quick response and integrated logistics. Nowadays, customers want not only the products but also the guaranteed efficient services, including environmentally friendly and recycling practices.

3.3 DISTINCTION BETWEEN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Globalisation's influence brought to fore the need for logistics strategies to deal with complex networks including multiple entities spanning multiple countries. There is distinction between logistics and supply chain management. Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective flow (forward as well as reverse) and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. Supply chain management is the systemic and strategic coordination of the traditional business functions 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. SCM refers to strategic issues, and logistics and operational issues.

All the activities, associated with the sourcing, procurement, consumption and logistics management, come under the SCM incorporating the coordination and collaboration with the parties such as suppliers, intermediaries, distributors and customers comprising the entire flow that brings a product or service to sale.

Logistics management is a small segment of SCM that deals with the management of goods in an efficient way, focused on the transportation and storage. SCM is a broader term and refers to the connection, right from the suppliers to the ultimate consumer. Over the years SCM evolved as an improvement over logistics management.

The key differences between logistics and SCM are:

a) Supply chain covers procurement, logistics, and other functions while logistics is a separate function that focuses on product movement between suppliers and stores/customers.

b) Logistics refers to the movement, storage, and flow of goods, services and information inside and outside the organisation.SCM is the movement and integration of supply chain activities in a way to link major business processes within and across companies into a high-performance business model.

c) **Logistics management** mostly involves transportation functions, focusing on movement of freight from one point to another on time and in the most cost-efficient way possible; and includes creating partnerships with transportation companies.

d) The main aim of logistics is meeting customer requirements for their satisfaction. The main objective of SCM is to gain a substantial competitive advantage.

e) SCM controls a broader number of functions and focuses on achieving customer satisfaction and maximising profit in a long-term manner, encompassing the management of supply and demand, control over cost allocation and all collaborations.

f) A single organisation is involved in logistics while there are multiple organisations in SCM.

g) SCM is a new concept as compared to logistics, while logistics is an activity within the SCM.

3.4 SUPPLY CHAIN MANAGEMENT: ACTIVITIES AND PROCESSES

SCM involves a series of activities which may or may not be interconnected to one another, the important components being:

a) **Planning**: It represents a strategic segment to manage resource utilisation for satisfying customer requirements for their products and services.

b) **Information**: Detailed information of all components is critical for effective SCM which is managed through systems and computers.

c) **Source**: Selecting the best suppliers for supplying raw material to produce the product. It requires developing a set pricing and delivery system in the supply chain.

d) **Production**: In manufacturing, the supply chain manager should schedule the activities needed to produce, test, package, and label. It is the most important component of the supply chain.

e) **Delivery**: This part is mainly referred to as logistics by the supply chain manager, which starts with the receipt of orders from the customer. It has a network of warehouses for storing the product, choosing carriers to deliver the product to the customer and establishing a system for receiving payments.

f) **Return of goods**: This is a critical part of the system, wherein a flexible and responsible network is created to take back excess or defective products

delivered to customers and also providing support services to those who encounter some problems with its usage.

SCM has several processes. These include:

a) **Customer Relationship Management**: It plans, controls, and assesses customer interaction and data with the aim of building strong relations.

b) **Customer Service Management**: It assists in administering product and service contracts.

c) **Supplier Relationship Management**: It guides in developing and maintaining a good relationship with the suppliers. At the time of selecting suppliers, priority is given to supplier's capability regarding quality, reliability, innovation, services, and cost reductions.

d) **Manufacturing Flow Management**: It covers activities associated with the movement of products inside and outside the factories, to ensure flexibility in the manufacturing process.

e) **Demand Management**: A comprehensive structure is provided to best understand the customer's needs.

f) **Order Fulfilment**: It encompasses all the activities which identify customer needs, the logistics network, and fulfils orders.

g) **Product Development and Commercialisation**: A framework is provided for developing and introducing new products into the market.

h) **Returns Management**: It is concerned with functions associated with returns, reverse logistics etc. It is an indispensable part of the SCM process.

Check Your Progress 1

Note: 1) Use the space given below for your answers.

2) Check your answers with those given at the end of the Unit.

1) What is the interrelationship between logistics and supply chain management?

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2) Describe the components of supply chain management.

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3.5 APPLICATION OF SUPPLY CHAIN MANAGEMENT TOOLS: AREAS

A supply chain management system is needed for the timely manufacture of goods and assuring the consumer that requirements are efficiently fulfilled. It is important to focus on where and how specific tools can be used to improve the overall performance and reduce the total cost of a supply chain. The measurement, management and optimisation of processes in the supply chains are critical business activities that require a set up to understand information, and to determine, analyse and track the performance of this information.

SCM tools help enhance the efficiency of logistics operations. The key components in SCM that can be automated are inventory management and control, system integration and procedural costs. All these can save time and money, bring in automation of operational processes, transparency, and accuracy. Advanced Planning and Scheduling (APS) Software encompasses software tools that generate production schedules based on demand forecast, production requirements, and various other components pertaining to production planning and scheduling. APS has become a necessity for manufacturers who are seeking to take their manufacturing operations to the next level. There are many tools, techniques, strategies, and platforms in logistics and SCM. These are useful in following areas of SCM.

1) **Shipping Status**: Shipping status tools are a simple way to keep track of all the shipments. The network technologies provide real-time alerts update to every party involved in the transaction and of the situations and potentially solve a problem before it becomes a large issue. One can also schedule alerts to know when the shipment is completed, or if the estimated time of delivery has changed, so that necessary adjustments can be made.

2) **Order Processing**: Software is available that provides order processing tools, making tasks easier and more efficient. It supports all functions across order processing, such as billing, sales order processing, order management, order fulfillment, and so on. This reduces the time involved in the conventional processes pertaining to orders which were manually generated.

3) **Supplier Management**: Businesses having complicated supplier management activities can use tools that make supplier management both easier and more effective. These can track contributions being made by suppliers to the current supply chain. This information is used to renegotiate contracts or change suppliers, cutting the costs without disrupting supply.

4) **Managing Bids and Spending**: The entire procure-to-pay system can be set up and managed efficiently. It also helps one to take a closer look at how much is being spent where and the time it takes for the production. The overall goal is to optimise production planning by cutting down on warehouse space, inventory costs, and the different procedures of storing excess inventory.

5) **Demand Forecasting:** To run an effective lean inventory operation, one needs to meet the ever-changing demand for goods from clients and consumers. The available tools not only do provide insight into past trends,

but it can also create forecast for future needs. Through utilising past trends and real-time data, supply chain software can help one anticipate future consumers' demand.

6) **Collaboration Portal Tools:** Collaboration portal tools facilitate communication of matters pertaining to the supply chain. This includes issues such as bottlenecks, order issues, and various others. Utilising portals will help all concerned parties have access to production progress, order forecasts, product specifications, purchase orders shipment history, and so on. The collaboration portals allow for transparency in supply chain.

7) **Analytics and Reports Tools:** After the supply chain software collects information, analytics and reporting tools are the most effective way to move forward. Analytics is one of the most important technologies in an effective supply chain. Data collected is comprehensive and beyond inventory and shipment can give information on every sector of a company. In conjunction with demand forecasting, analytics can also find any errors or gaps in the supply chain. Reports are the result of analytics. Analytics can lead to various types of reports that depict the data. Each report will reveal how the supply chain is able to meet the pre-established key performance indicators.

8) **Security Tools:** Supply chain managers are generally focused on the supply chain but ignoring safety can expose your business to threats. Data theft is a serious problem among businesses, potentially driving the partners and customers away and affecting the company's reputation. Anyone who purchased goods from the firm is also at risk of having passwords, credit cards, and personal information stolen. The risk of data theft can significantly decrease through SCMS security features. Smart businesses will limit access to their SCMS so that employees only have access to the information they need, to do their jobs. This mitigates the risk of someone accidentally misusing the information.

9) **Compliance Tools**: There is a growing concern amongst consumers in knowing where the products are made and how they are produced. As a result, suppliers are concerned to ensure that their standards comply with industry, government policies, and consumer expectations. Also, it enables easy access of records to establish compliance in the event of an audit.

Many tools are available that individually impact the supply chain, but it is best to utilise these tools in conjunction with one another. Many of these tools are designed to function with other tools, thereby increasing the overall effectiveness of supply chain.

3.6 SUPPLY CHAIN MANAGEMENT: CHALLENGES

Supply chains are an integral part of the economy and new supply chains and processes are being created every day. The supply chain opportunities are expanding from global sourcing of goods to distribution, sales and fulfilments touching all areas of SCM. There are certain challenges which are described below:

- **Manufacturing:** The supply chains begin with the process of manufacturing and end with getting the product into the hands of the consumer. The production department is responsible for coordinating production schedules, determining how long the manufacturing process of a product will take and keeping track of the inventory of finished products. The materials analyst keeps track of inventory and material schedules and coordinates materials with production schedules.

- **Data analysis:** Data management by data analyst, data acquisition engineer, data manager, data administrator or statistician is a key component in supply chain. A proper understanding and analysis of this data helps supply chains work efficiently. In fact, data analysis and management are vital within SCM, since all the processes involved in serving consumers effectively have to be data driven.

- **Procurement: P**rocurement, focusing primarily on identifying and purchasing the raw materials needed to create products, is a key part of what keeps supply chains going. There is a wide range within this, from procurement analyst focusing on one specific aspect of purchasing, to purchasing managers who oversee the purchasing decisions for an entire organisation.

- **Transportation:** Getting products into the hands of consumers is the main goal of a supply chain and meeting this goal is possible through transportation. This is the responsibility of transportation analysts or logistics analysts under a transportation manager with primary focus on getting products from the factory to the consumer.

- **Customer service:** Always a crucial part of any interaction between a business and a consumer, customer service ensures that customers are satisfied with the products they receive. There are many roles from accounts specialist at a logistics firm working to coordinate product shipments and resolve customer issues, to a customer service manager overseeing the satisfaction of a company's entire client base.

Innovations in supply chain management imply making a business more efficient by improving the way inventory and logistics are handled. The challenges are to be transformed into opportunities. It could be through:

1) **Predictive Analytics and Machine-learning:** Big data can predict outcomes from various supply chain scenarios, make recommendations, and manage supply risk. .

2) **Corporate Cards to Streamline Supply Chain Payments:** These automated payments make supply chains more efficient by reducing processing errors and eliminating invoicing. These are streamlined and more secure. In current times these have more acceptance.

3) **Strategies outside Current Boundaries**: Many companies are introducing innovations in the supply chain by focusing on what improvements they can bring about in their current partnerships and arrangements. They need to forge new arrangements within their supply chain to improve productivity and meet their targeted benchmarks.

4) **Improve Operating Techniques**: Most companies look for the latest high-tech SCM tools to make their supply chain division more effective. One way that many supply chain professionals have been able to improve efficiency is through imbibing the Japanese philosophy of business improvement known as *Kaizen,* a process philosophy that emphasises teamwork, lean manufacturing, and allowing the employees provide inputs in the process. There are five key elements of Kaizen—teamwork, personal discipline, improved morale, quality circles and suggestions for improvement.

Check Your Progress 2

Note: 1) Use the space given below for your answers.

2) Check your answers with those given at the end of the Unit.

1) List important areas of application of supply management tools.

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2) What are the challenges of supply chain management?

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3.7 CONCLUSION

SCM is an improvement over the traditional logistics management which helps in the timely delivery of the products to customers. It also plays a crucial role in increasing business profits, by reducing the overall costs, which improves its competitiveness. The SCM system brings together all the key activities such as purchasing, production, storage, transportation and distribution, under a single system, in order to produce and distribute the merchandise in desired quality and quantity, at right time and place, so that the overall cost is reduced and service levels are improved.

Logistics and SCM are fast-growing business areas. The global companies have heavily invested in SCM to gain competitive advantages. Computer technology has advanced at such a phenomenal rate that it is currently far ahead of the ability of the supply and logistics field to adequately utilise the new technologies. The communication capabilities have fundamentally changed the way we think about information sharing and dissemination. However, supply chain and logistics planning are still primarily based on the distributed models that came as the

result of personal computers. There is great scope for new generation of supply chain and logistics planning technology based on centralised planning and collaboration.

3.8 GLOSSARY

Business Process Reengineering (BPR): The fundamental rethinking and radical redesign of business processes to achieve dramatic organisational improvements.

Kaizen: It is a Japanese business philosophy of continuous improvement of working practices personal efficiency etc. The word kaizen means change for better. It involves all employees from the chief executive to the assembly line workers.

Quality Circles: It is a group of workers who do the same or similar work, meet regularly to identify, analyse and solve work-related problems. It results in better communication, personal growth and development, improved motivation, enhanced decision-making skills, management awareness of employee job-related concerns.

Reverse Logistics: It includes all operations related to the reuse of products and materials.

Total Quality Management (TQM): A management approach in which managers constantly communicate with organisational stakeholders to emphasis the importance of continuous quality.

3.9 REFERENCES

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3.10 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) Your answer should include the following points:

- Logistics and supply chain management are two into related concepts that are not separable. They are intertwined and even though both have their own functions, they should always be considered together. Supply chain management revolves around logistics. Successful management of supply chain increases the value of the organisation. Logistics management involves many activities including transportation, inventory and warehousing. It needs efficient management to make better the logistics activities where planning, coordination and control occupy critical role. Logistics management also includes functions such as handling and packaging material, forecasting etc. The logistics system plays a role in the success of the supply chain.

2) Your answer should include the following points:

- Planning
- Information
- Source
- Production
- Delivery
- Return of goods

Check Your Progress Exercise 2

1) Your answer should include the following points:

- Shipping status
- Order processing
- Supplier management
- Managing bids and spending

2) Your answer should include the following points:

- Coordination of various activities in product manufacturing.
- Data management including analysis for effective supply chain functioning.
- Procurement, focusing on identifying and purchasing the raw materials needed for products.
- Transportation with focus on getting products from the factory to the consumer.