



UNIT-2

Logistics in Supply Chain Management

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Describe the activities involved in Logistics.
- ✓ Outline the aims of Logistics and recognise their importance in businesses.
- ✓ Discuss current trends in Logistics.

Unit 2

Logistics in Supply Chain Management

Activities Involved In Logistics

Logistics primarily concerns the mobility of materials and their storage via a supply chain. It includes the following component activities of the supply chain:

- **Procurement or Purchasing**

After the initiation of procurement orders, the organization and flow of materials starts. The procurement order imposes responsibilities on workers to find the best possible suppliers, negotiate all terms and conditions, manage delivery orders, organize insurance and payment and do everything that is essential, in order to ensure smooth flow of materials within an organization.

- **Inward Transport or Traffic**

The materials that are procured need to be transported to the organization. Hence, the type of transport to choose is another important decision. It is the duty of the procurement staff to find the best transportation type (road, rail, air and so on), make sure that it fulfils all safety and legal requirements and deliver within deadlines at a reasonable cost.

- **Receiving**

It assures that timely delivery of material, receipt acknowledgement on time, unloading of delivery vehicles and inspection of material.

- **Warehousing or Stores**

It keeps materials in storage and continues monitoring them until needed. There are certain kinds of materials that need special care like drugs, frozen food, chemicals etc. It also takes into consideration whether materials are available on time when needed and also makes sure that materials are kept in good condition and are being treated and packaged properly.

- **Stock Control**

Stock control creates regulations for inventory. It also monitors stored materials, overall costs, stock levels, order timing, customer service, order sizes and so on.

- **Order Picking**

This locates the needed materials and moves them away from stores. Materials ordered by customers are located, evaluated and then moved to a departure area for loading into vehicles.

- **Materials Handling**

It looks after the movement of materials while they are being used in operations within an organization. It takes care of movement of materials during operations as they move from one step to another, and also up to some extent, from stores as well. The objective is to make this movement as efficient as possible by using short routes, suitable equipment utilization, avoiding potential damage and using special packaging for protection.

- **Outward Transport**

It carries materials from the departure point to the customers.

- **Physical Distribution Management**

A term that is used for the delivery of final goods to customers and includes outward transportation. It bears important linkage with marketing department and keeps an eye on downstream activities.

- **Recycling, Returns, and Waste Disposal**

The function of logistics is so extensive that it doesn't even end after delivery to customers. There are many problems that can potentially happen in the future. These may include faults and damages associated with materials. Activities that are concerned with return materials back to vendors are called reverse logistics or reverse distribution.

- **Location**

Logistics activities are not confined to single locations. For example, finished goods stock can be stored at the end of the production process. It is necessary for the logistics operator to select locations with careful analysis.

- **Communication**

Along with flow of materials, the smooth flow of communication is also essential. The entire supply chain operates on strong communication and passing information regarding customer demands, products, need of material movement, stock levels, problems, timings, costs and so on.

According to many logistics managers, to maintain the coordination and communication for effective movement of goods is very challenging. Many researchers and authors have described the supply chain

as the processing of information, not just the movement of materials.

Sometimes, other activities like sales forecasting, customer service management, production scheduling, third-party operations, overseas liaison and so on can also be included in logistics. The boundaries should be clear between functions, but there is a need to recognise that they all work together to result in the efficient flow of materials.

Organising Logistics

Logistics in organisations appear in different forms. The arrangement of activities varies from organization to organization, but there is without doubt no single 'best' approach. The scale of logistics activities also depends upon the scale of the organization. A small organization might have just one person to look after the things, while in large organization, hundreds of workers might be required within the department. Sometimes, organizations that lack physical and financial resources for in-house logistics departments outsource this function to external third parties.

Aims of Logistics

Logistics looks after the entire supply chain. This function is also termed as supply chain management. Researchers have long debated the scope of logistics and supply chain management. Usually, logistics is supposed to have a narrower scope, having being restricted to a single organization, than supply chain management that is associated with multiple related organizations. However, this paper will refer the both as same. This assumption has also been taken by the Institute of Logistics and Transport which has given the following official definitions:

LOGISTICS

It is the time based allocation of resources or the long term management of the entire supply chain. The SUPPLY-CHAIN represents a chain of activities and events that aim to serve customers' material needs.

Logistics managers basically perform two major functions. First, they need to carry out the procedure for movement of materials into, within and outside the organization. Second, they are required to make these procedures and movement of materials as efficient as possible.

The term "efficient" is bit vague. People usually associate this term with low costs, minimum input and wastage, quick delivery, higher productivity and fewer mistakes. However, restricting efficiency just to these terms would not be justified as the real objectives of the organization are wider in scope than assumed by many managers.

The success of any business solely depends upon customer satisfaction. If it does not please customers, it is doubtful it will remain viable long term, let alone continue making a profit, earn a return on assets,

increase shareholder value or attain any other means of success.

Unfortunately, customers see any business or product in a whole package, consisting of easy of buying, quality, price, features, styles, delivery, defects and the sales staff themselves. Most of these factors greatly depend upon effective functioning of logistics departments. So, good customer service and care is not possible without logistics, as it arranges and looks after the movement of materials in the best possible way in, order to satisfy the customers to the highest level.

Thus, the overall objective of logistics is to attain high customer contentment. It must offer consistently high quality service with lowest possible costs for the end customers.

Importance of Logistics

Essential and Expensive

Logistics is the backbone for any organization as without it, no movement of materials occurs, no production is achieved, no product is delivered and thus it leads to zero customer satisfaction.

Logistics related costs vary from material to material type, however by using the latest logistics technologies, costs can be reduced to minimums.

Effects on Financial Performance

Logistics is an expensive function; it has a big impact on the financial performance of the organization.

This impact can be illustrated by discussing various financial terms, starting with return on asset.

The return on assets is the pre-tax profit that an organisation earns, divided by the value of the assets utilized.

The formula is:

Return on assets = profits earned

Assets employed

This figure gives an accurate view of how well the organization has been using its resources. The higher this figure, the better the performance. The assets can be both current assets (cash, stocks and receivables etc) and fixed assets (building, equipment's etc).

Effective movement of material leads to lower stock levels. Though it means less current assets, it can be argued that it also lessens the number of fixed assets required and increases profit.

- **Current Assets**

Effective functioning leads to lower stock levels and thus lesser current assets. By saving cash

invested in stock, organizations can use it for more lucrative production opportunities and reduce dependence on borrowing.

- **Fixed Assets**

Fixed assets can be buildings, equipment, land and property etc. Logistics does not only employ all these resources, but also the transport fleets, warehouses, material handling machines and other related facilities come under the control of logistics. These are also fixed assets.

- **Sales**

If a product is really innovative and appealing, logistics can make it even more successful by making it readily available and thus can lead to higher sales and higher market share.

- **Profit Margin**

Effective functioning of logistics leads to lower costs, which helps increase profit.

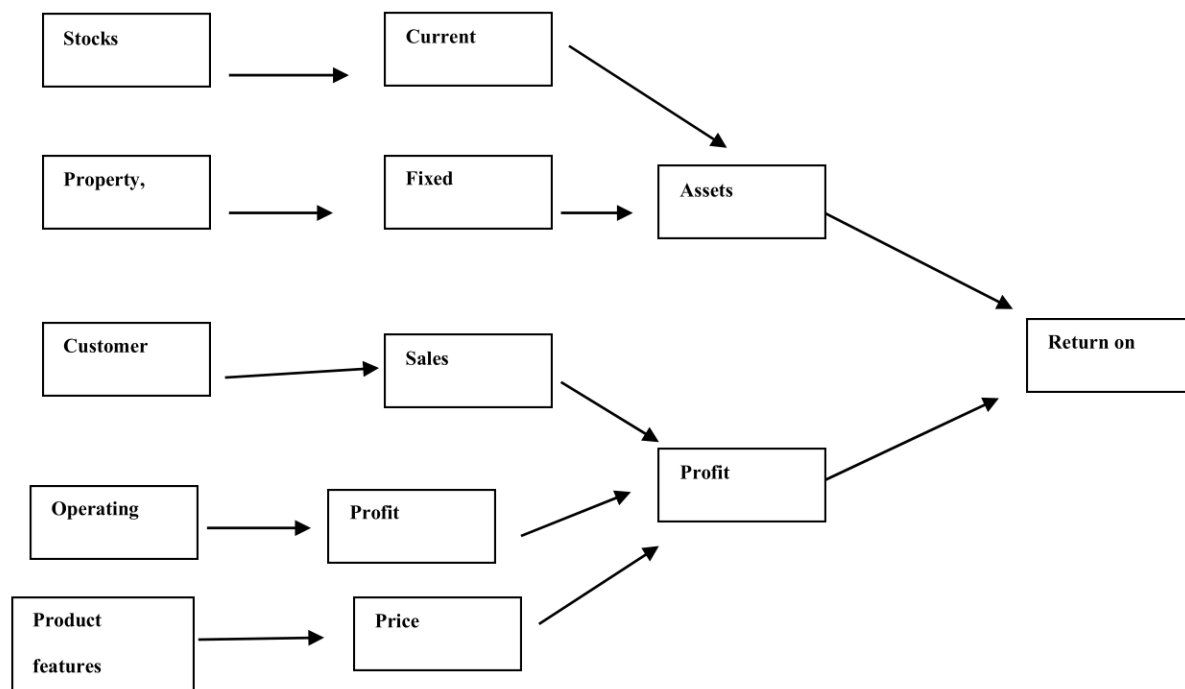


Figure 2.1 Influence of logistics on

- **Price.**

Logistics can actually affect the pricing of products by ensuring that it is readily available in the market, providing speedy deliveries and shorter lead times. Thus it helps to make the organization's most appealing products attain a premium price.

It should be noted that the first two indicators were related to lower current assets, while the other three were related to higher profit. These indicators together raise ROA and have positive impacts on share price, borrowing and ROI.

Current Trends in Logistics

Improving Communications

With the passage of time, logistics has changed and adopted new trends. The major change observed nowadays is the use of latest technology on an increasing basis. New technology is becoming directly involved in the movement of materials; e.g. electronic guidance systems and package identification. However, the impact and recent trend in communication is the most interesting trend to be discussed.

In the past, organizations had to rely on a manual system and paper for generating material descriptions, price requests, orders, invoices, conformations, agreements and so on. It used to take lots of time and was rarely error-free. In the last few decades, advanced technologies have shifted the entire system from manual to electronic management. Development started initially with fax machines, used to send electronic copies of orders to remote locations in just a few seconds. However, it required the entire procedure to be completed i.e. printing of paper, feeding into fax machine and sending information over telephone lines.

In 1990s, the concept of Electronic Data Interchange (EDI) removed the need for intermediaries to exchange data. Early users of the technology were supermarkets, which connected their stock control systems straight to suppliers' order processing systems. When stock was needed, the order could be generated and sent to suppliers automatically. Then the use of EPOS (Electronic Point of Sale) greatly helped in reducing paperwork, lowering transaction costs, enabling faster interaction, more collaboration, a lower number of errors and more strategic business relations.

Another technology is called EFT (Electronic Fund Transfer) which automatically debits the client's bank account credits the vendor's on the acknowledgement of materials' delivery.

Improving Customer Service

Every organization wants to keep its logistics costs to the minimum level. Lower costs ensure competitiveness and the satisfaction of customers, as most want to buy products at lower prices. Lower costs enable a business to sell its products over broader geographic areas. For example, Japanese manufacturers usually keep transportation cost low so as to achieve market competency and advantage in pricing, compared to local producers in other regions.

By effectively, speedily and safely moving products over long distances, there is no need to have any traditional storeroom or warehouse nearby to customers.

Other Significant Trends

Some of the most significant trends in logistics include the following:

- **Globalisation:**

With advanced technologies and improved transport systems, physical distances are getting reduced and the world has become a global village. Businesses are now global in terms of the entire outlook of logistics, ranging from buying activities to delivery of finished products across the borders. Now, there is a global market as well. It is increasing competition in the world's economies, meaning that organizations have to face competition not just locally, but globally as well.

Effective logistics have made access to global markets easy for the business by providing factors that encourage global trade. This has provided many advantages to businesses. You may have noticed that many organizations are achieving better economies of scale by expanding their production facilities in areas where the cost is lower. This is the reason why German businesses open production facilities in Poland, American businesses establish themselves in Mexico and Japanese businesses tend to operate in China.

- **Reduced Number of Suppliers:**

In the past, there was a trend of keeping lot of suppliers in contact and establishing working relationships, so as to make the most of the best available. While this has resulted in increased competition in the past, the latest trend followed today is having selective vendors on board in smaller numbers and keeping strategic relationships with only the best.

- **Concentration of Ownership:**

Larger companies, making the most of economies of scale, dominate a lot of supply chains. Though there are many transport companies and shops, the biggest companies are expanding at the expense of smaller ones. This is resulting in increased concentration of ownership as observed in the logistics sectors of various economies.

- **Outsourcing:**

Many organizations take advantage of specialized firms for logistics tasks, so that they can pay closer attention to their core activities and increase their efficiency. According to McKinnon, 'outsourcing was one of the dominant business trends of the 1980s and 1990s' and surveys suggest that around 30 per cent of logistics expenditure is outsourced in the EU.

- **Postponement:**

Conventionally, manufacturers shift finished commodities out of production and store them in the

delivery system until they are required. When there are a lot of different types of a basic product, this can present high stocks of products which are alike.

Postponement shifts nearly-finished goods into the distribution system and holds-up final alterations or customisation until the last possible moment. You can visualize this with 'package-to-order', where a corporation keeps a manufactured product in stock, but simply puts it in a box written in the suitable language when it is about to transport an order.

Producers of electrical equipment, such as Hewlett-Packard, Phillips and Dell used to build into their commodities the transformers and plugs required for different markets. Then they had to maintain separate stocks of products intended for every country. Now, they simply build the transformer and cables as distinct, external units. They only maintain stocks of the fundamental, standard products and modify them for diverse markets by adding the appropriate transformers and plugs at the last moment.

The result is much lower stocks.

- **Cross-Docking:**

Conventional warehouses shift materials into storage, maintain them until required and then move them out in accordance with demand. Cross-docking directs the supply and delivery, so that merchandise arrives at the receiving bay and is transferred directly to a loading area, where they are loaded onto delivery vehicles.

- **Direct Delivery:**

More customers than ever before are buying online or discovering other ways of trading previously in the supply chain, like mail order or buying straight from producers. This has the advantages of dropping lead times, reducing costs to clients, letting manufacturers talk directly to their end customers, allowing clients access to a wider choice of products and so on. It also requires logistics providers to shift small deliveries rapidly to final customers. This is positive for the growth of couriers and parcel delivery services like FedEx, DHL and UPS.

- **Other Stock Reduction Methods:**

Keeping stock is costly, so organisations frequently look for initiative to help reduce stock in the supply chain. There are numerous ways of doing this. One method uses just-in-time based operations to synchronize activities and lessen stock levels. Another way is through **vendor managed inventory**, where providers administer both their own stocks and those held further down the supply chain. Enhanced co-ordination lessens overall costs and can help achieve economies of scale.

- **Increasing Environmental Concerns:**

There is rising concern about water pollution, air pollution, energy consumption, urban expansion and waste dumping. Logistics does not hold a good reputation for environmental safety – demonstrated by the emissions from heavy Lorries, employment of green field locations for warehouses, calls for new road building, utilization of wide-ranging packaging, ships unlawfully flushing their energy tanks, oil spillages from tanker accidents and soon.

On the optimistic side, logistics is shifting to ‘greener’ practices. Businesses use more energy efficient means of transport, control drain emissions, recycle packaging, switch to environmentally friendly options of transport, boost recycling through reverse logistics, add security features to ships, and expand brown-field sites and so on. They continually remind the industry that careful administration can bring both ecological protection and lower costs. A fair evaluation may be that logistics is making headway on environmental issues, but it will be some time before any significant changes are made.

- **More Collaboration along the Supply Chain:**

Organizations carrying out the function of logistics are aware of the fact that they also have to satisfy final consumers, if they want to achieve success. Hence, it would be better for them to cooperate, rather than compete with one another in order to deliver customer satisfaction in the end. Competitors are not just within the same supply chain but are also present in other supply chains. Christopher has very rightly said,

“Supply chains compete, not companies”.

Further Reading:

- ✓ *Logistics & Supply Chain Management 5th Edition, (2016), By Martin Christopher*
- ✓ *Logistics and Supply Chain Management: A Complete Guide – 2021 Edition, By The Art of Science – Logistics and Supply Chain Management Publishing*

