



# UNIT-1

## Introduction to Logistics Management

### Learning Outcomes

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

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

## Unit 1

### Introduction to Logistics Management

#### What is Logistics?

Logistics refers to the management of the flow of information, goods and resources between the supplier and the receiver. The success and efficiency of any supply chain will always be determined by the quality and consistency of the logistics therein.

The concept itself was first explored in the 1950s, at which time businesses began working with larger and more complex supply chains to minimise costs and maximise performance. From the procurement of raw materials to the transportation of finished products, supply chains have become increasingly globalised over recent years. Tasked with the analysis and optimisation of supply chain operations, a new breed of experts known as 'logisticians' was born.

Logistics focuses primarily on ensuring that the right products and materials are available at the right time, in the right place, in the required quantities and at an affordable price for the receiver/customer. If one or more of these variables is compromised, the logistics framework suffers – along with the performance of the entire supply chain. Logistics can refer to the physical flow and transportations of goods and materials, or the coordination of efforts and resources to achieve a predetermined result.

#### Why do we Need Logistics?

For a logistics strategy to work, a range of interconnected responsibilities must be brought together cohesively. Human resource management, product packaging, material handling, warehousing, inventory management, transportation, information/communication management and general quality management. The ultimate goal is to ensure requirements regarding timeliness and cost-efficiency are met from start to finish.

In a working example, a logistics manager may be tasked with ensuring that a manufacturing plant is provided with a steady stream of raw materials to produce a certain product. If the materials are not received in sufficient quantities or have quality discrepancies, the entire manufacturing operation may grind to a halt. A simple and not uncommon logistical oversight, but one that can bring about devastating consequences.

Almost every organisation is powered by a supply chain of some kind. As a result, logistics managers play a key role in determining the performance, efficiency and long-term stability of most businesses worldwide.

This illustrates why the world needs logistics and capable logistics management.

## Activities Involved In Logistics

Logistics is all about mobility of materials and their storage via supply chain. It includes the following activities if you inspect the supply chain.

- **Procurement or Purchasing.**

After the initiation of procurement orders, the flow material in organization starts. The procurement order imposes responsibilities on the staff to find best possible suppliers, negotiate with them the terms and conditions, manage delivery orders, make insurance and payment and do everything that is essential for having smooth flow of material within an organization.

- **Inward Transport Or Traffic**

The materials that are procured need to be transported to the organization. Hence, the choice of the type of transport 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 deadline with 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 into storage and keeps monitoring them till needed. There are kinds of materials that need special care like drugs, frozen food, and chemicals etc. It also takes into consideration that whether materials are available on time when needed and it also makes sure that materials are kept in good condition and are being treated and packaged properly.

- **Stock Control**

It creates regulations for inventory. It also monitors the stored material, the overall cost, stock level, order timing, customer service, order sizes, and so on.

- **Order Picking**

This finds 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 material 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 damages, and special packaging done for protection.

- **Outward Transport**

It carries materials from the departures to the customers.

- **Physical Distribution Management**

It is a term that is used for the delivery of final goods to customers. It also 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 vast that it even never ends after delivery to customers. There are many problems that can potentially happen in 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 logistic to select locations with careful analysis.

- **Communication**

Along with flow of materials, the smooth flow of communication is also essential. The entire supply chain runs through 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, maintain the coordination and communication for effective movement of goods is very challenging. Many researchers and authors have described supply chain as the processing of information not just 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 an 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' way. The scale of logistics activities also depends upon scale of organization. A small organization might have just one person to look after the things while in large scale organization, over hundreds of workers might be there under the department. Sometimes, organizations that lack physical and financial resources for in house logistics department outsource this function to outside third parties.

## Aims of Logistics

Logistics looks after the entire supply chain. This function is also termed as supply chain management. Researchers have been debating upon the scope of logistics and supply chain management, since long. Usually logistics is supposed to have narrower scope having being restricted to a single organization than supplies chain management that is supposed to be associated to more than one related organizations. However, this paper will refer the both as same. This assumption has also been taken by Institute of Logistics and Transport that 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 materials 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 keep these procedure and movement of materials as efficient as possible.

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

The success of any business solely depends upon its customer satisfaction. If it does not please customers, it is doubtful to stay alive in the long term, left alone making profit, have more return on assets, more shareholder value, or attain any other means of success.

Unfortunately, customers see any business or a product in a whole package consisting of easy of buying, quality, price, features, styles, delivery, defects, and sales staff. Most of these factors greatly depend

upon effective functioning of logistics department. So, a 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 best.

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

## Importance of Logistics

### Essential and Expensive

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

The logistics related costs vary from material to material type, however by using latest logistics technologies; cost can be reduced to minimum.

### Effects on Financial Performance

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

The impact can be illustrated by discussing various financial terms, starting from the Return on Asset.

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

The formula is:

$$\text{Return on assets} = \frac{\text{profits earned}}{\text{Assets employed}}$$

This figure actually gives an accurate view that how well the organization has been using its resources. The higher this figure, the better is the performance, whereas, the assets can be both current assets (cash, stocks, and receivable etc) and fixed assets (building, equipments etc).

Effective movement of material leads to lower stock level. Though it means less current assets, it can be debated that it also lessen the number of fixed assets and increasing profit.

- **Current Assets.**

Effective functioning leads to lower stock level and thus lesser current assets. By saving the cash invested in stocks, organization can use it for more lucrative production opportunities and reduce its dependence on borrowing.

- **Fixed Assets.**

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

- **Sales.**

If a product is really innovative and appealing, then, logistics can make it even more successful by making it readily available in the market 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.

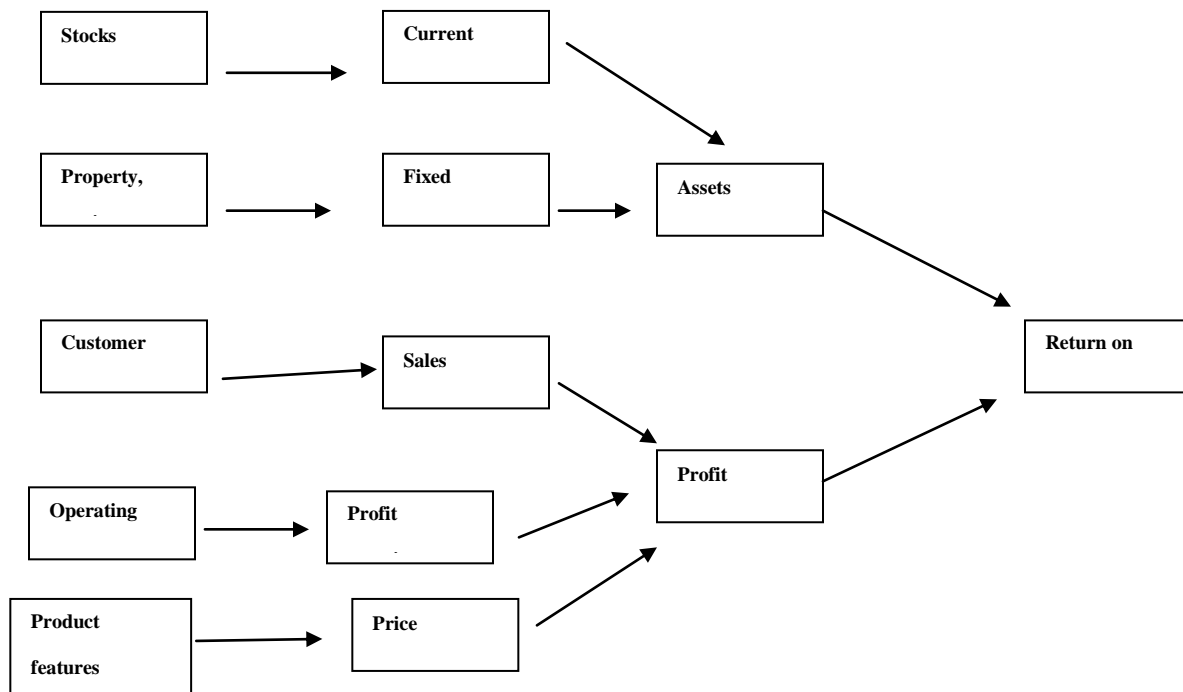


Figure 2.1 Influence of logistics on ROA

- **Price.**

Logistics can actually justify the pricing of products by ensuring that it is readily available in the market, speedy delivery and shorter lead time. Thus it helps to make organization’s appealing products to get premium price.

It should be noted 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. The technology is directly getting involved in movement of materials, for example, electronic guidance system and packages 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 works for generating material description, price request, orders, invoices, conformations, agreements, and so on. It used to take lots of time and was still not error free. In last few decades, latest and advanced technologies have shifted the entire system from manual to electronic mode. Development started initially with fax machines that used to send electronic copies of orders to remote locations in just few seconds, however, it requires the entire procedure to be completed i.e. printing of paper, feeding into fax machine and the sending over telephone lines.

In 1990s, the concept of Electronic Data Interchange (EDI) removed the need of intermediaries to exchange data. Early consumers were supermarket who attached their stock control system straight to suppliers' order processing system. In case of stock needed the order could be generated and sent to suppliers automatically. Then the use of EPOS (Electronic Point of Sale) greatly helped in reducing paper work, lowering transactions' cost faster interaction, more collaboration, less number of errors and 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 cost to the minimum level. Lower cost ensures competitiveness and satisfaction of customers as most of them want to buy products at lower prices. Lower cost enables business to sell its products over broader geographic areas, for example, Japanese manufacturers usually keep lower transportation cost so as to achieve market competency and advantage in pricing as 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 system, physical distances are getting reduced and the world has become a global village. Businesses are now global in nature in terms of 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 the competition in world's economies as well. Now 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 the factors that encourage global trade. This has provided many advantages to businesses. You must have noticed that many organizations are availing economies of scale by expanding their production facilities in the areas where the cost is low. This is the reason why German businesses open their production facilities in Poland, American businesses establish themselves in Mexico and Japanese tend to operate in China.

- **Reduced Number of Suppliers:**

In the past, there was a trend of keeping lot of suppliers in contact and working relationship so as to make the most of the best. This has resulted in increased competition in the past. However, the latest trend that is being followed today is having selective vendors on board and keeping strategic relationship with the best.

- **Concentration of Ownership:**

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

- **Outsourcing:**

Many organizations seem to take the advantage of specialized firms for logistics tasks, so that they can pay 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 hoard them in the delivery system until they are required. When there are a lot of differences on 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 till the last possible moment. You can visualize this with 'package-to-order', where a corporation keeps a manufactured goods 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 used to construct 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 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 region and is transferred directly to a loading area, where they are loaded onto delivery vehicles.

- **Direct Delivery:**

More clientele are buying via Web 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, having manufacturers talking directly to their end customers, allowing clients access to a wider choice of products, and so on. It also implies that logistics has to shift small deliveries rapidly to final customers. This is optimistic 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 tricks for reducing the 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 award 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 standing for environmental safety – demonstrated by the releases from weighty 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 so on.

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 environment friendly options of transport, boost recycling through reverse logistics, add security features to ships, expand brown-field sites, and so on. They ever more make out that careful administration can bring both ecological protection and lesser costs. A fair evaluation may be that logistics is making development on environmental issues, but it would need some time.

- **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 have success. Hence, they should better cooperate than compete with one another in order to deliver customer satisfaction, in the end. Competitors are not just within the same supply chain but they are also present in other supply chains. Christopher has very well said,

**“Supply chains compete, not companies”.**

### Further Reading:

- ✓ *Bowersox, (2008), Supply chain logistics management*
- ✓ *John Coyle, C. Langley, Brian Gibson, Robert Novack, Edward Bardi, (2009), Supply Chain Management: a Logistics Perspective*
- ✓ *Martin Christopher, (1998), Logistics and Supply Chain Management ePub eBook*