



ASSIGNMENT

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COURSE TITLE

DISTRIBUTION AND LOGISTICS

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## Introduction

The key components of logistics have been an important feature of industrial and economic life for countless years, but it is only in the relatively recent past that logistics has been recognized as a major function in its own right.

The main reason for this has probably been the nature of logistics itself. It is a function made up of many sub-functions and many sub-systems, each of which has been, and may still be, treated as a distinct management operation.

Both the academic and the business world now accept that there is a need to adopt a more holistic view of these different operations in order to take into account how they interrelate and interact with one another.

The appreciation of the scope and importance of logistics and the supply chain has led to a more scientific approach being adopted towards the subject.

This approach has been aimed at the overall concept of the logistics function as a whole and also at the individual sub-systems.

Much of this approach has addressed the need for, and means of, planning logistics and the supply chain, but has also considered some of the major operational issues.

This first chapter of the book provides an introduction to some of the very basic aspects of distribution, logistics and the supply chain.

Initially there is a review of the scope and definition of distribution, logistics and the supply chain. Next is a discussion of the key elements that are fundamental to the logistic function.

A description of the historical growth of distribution and logistics is followed by an assessment of its importance throughout the world. Finally, a typical distribution and logistics structure is described and discussed.

Scope and definition Parallel to the growth in the importance of distribution, logistics and the supply chain has been the growth in the number of associated names and different definitions that are used.

Some of the different names that have been applied to distribution and logistics include:

- physical distribution;
- logistics;
- business logistics;
- materials management;

- procurement and supply;
- product flow;
- marketing logistics;
- supply chain management;
- demand chain management; and there are several more.

There is, realistically, no 'true' name or 'true' definition that should be pedantically applied, because products differ, companies differ and systems differ.

Logistics is a diverse and dynamic function that has to be flexible and has to change according to the various constraints and demands imposed upon it and with respect to the environment in which it works.

These many terms are used, often interchangeably, in literature and in the business world. One quite widely accepted definition that uses some of these terms also helps to describe one of the key relationships.

This as follows: Logistics = Materials management + Distribution An extension to this idea helps to illustrate that the supply chain covers an even broader scope of the business area.

This includes the supply of raw materials and components as well as the delivery of products to the final customer.

Thus: Supply Chain = Suppliers + Logistics + Customers Logistics and the supply chain are concerned with physical and information flows and storage from raw material through to the final distribution of the finished product.

Thus, supply and materials management represent the storage and flows into and through the production process, while distribution represents the storage and flows from the final production point through to the customer or end user.

Major emphasis is now placed on the importance of information as well as physical flows and storage, and an additional and very relevant factor is that of reverse logistics – the flow of used products and returnable packaging back through the system

#### Historical perspective

The elements of logistics and the supply chain have, of course, always been fundamental to the manufacturing, storage and movement of goods and products.

It is only relatively recently, however, that they have come to be recognized as vital functions within the business and economic environment.

The role of logistics has changed in that it now plays a major part in the success of many different operations and organizations. In essence, the underlying concepts and rationale for logistics are not new.

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They have evolved through several stages of development, but still use the basic ideas such as trade-off analysis, value chains and systems theory together with their associated techniques.

There have been several distinct stages in the development of distribution and logistics.

1950s and early 1960s in this period, distribution systems were unplanned and unformulated.

Manufacturers manufactured, retailers retailed, and in some way or other the goods reached the shops. Distribution was broadly represented by the haulage industry and manufacturers' own-account fleets.

There was little positive control and no real liaison between the various distribution-related functions.

1960s and early 1970s in the 1960s and 1970s the concept of physical distribution was developed with the gradual realization that the 'dark continent' was indeed a valid area for managerial involvement.

This consisted of the recognition that there was a series of interrelated physical activities such as transport, storage, materials handling and packaging that could be linked together and managed more effectively.

In particular, there was recognition of a relationship between the various functions, which enabled a systems approach and total cost perspective to be used.

Under the auspices of a physical distribution manager, a number of distribution trade-off s could be planned and managed to provide both improved service and reduced cost.

Initially the benefits were recognized by manufacturers who developed distribution operations to reflect the flow of their product through the supply chain.

1970s This was an important decade in the development of the distribution concept.

One major change was the recognition by some companies of the need to include distribution in the functional management structure of an organization.

The decade also saw a change in the structure and control of the distribution chain.

There was a decline in the power of the manufacturers and suppliers, and a marked increase in that of the major retailers.

The larger retail chains developed their own distribution structures, based initially on the concept of regional or local distribution depots to supply their stores. 1980s Fairly rapid cost increases and the clearer definition of the true costs of distribution contributed to a significant increase in professionalism within distribution.

With this professionalism came a move towards longer-term planning and attempts to identify and pursue cost-saving measures.

These measures included centralized distribution, severe reductions in stock-holding and the use of the computer to provide improved information and control.

The growth of the third-party distribution service industry was also of major significance, with these companies' spearheading developments in information and equipment technology.

The concept of and need for integrated logistics systems were recognized by forward-looking companies that participated in distribution activities. Late 1980s and early 1990s in the late 1980s and early 1990s, and linked very much to advances in information technology, organizations began to broaden their perspectives in terms of the functions that could be integrated.

In short, this covered the combining of materials management (the inbound side) with physical distribution (the outbound side).

The term 'logistics' was used to describe this concept (see Figure 1.1). Once again this led to additional opportunities to improve customer service and reduce the associated costs.

One major emphasis made during this period was that informational aspects were as important as physical aspects in securing an effective logistics strategy.

1990s in the 1990s the process was developed even further to encompass not only the key functions within an organization's own boundaries but also those functions outside that also contribute to the provision of a product to a final customer.

This is known as supply chain management 2000 to 2010 Business organizations faced many challenges as they endeavored to maintain or improve their position against their competitors, bring new products to market and increase the profitability of their operations.

This led to the development of many new ideas for improvement, specifically recognized in the redefinition of business goals and the re-engineering of entire systems.

Logistics and the supply chain finally became recognized as an area that was key to overall business success. Indeed, for many organizations, changes in logistics have provided the catalyst for major enhancements to their business.

Leading organizations recognized that there was a positive 'value added' role that logistics could offer, rather than the traditional view that the various functions within logistics were merely a cost burden that had to be minimized regardless of any other implications.

Thus, the role and importance of logistics continued to be recognized as a key enabler for business improvement.

2010 and beyond the key future issues to be faced in distribution, logistics and supply chain management are reviewed and discussed in Chapter 5.

Importance of logistics and distribution It is useful, at this point, to consider logistics in the context of business and the economy as a whole.

Logistics is an important activity making extensive use of the human and material resources that affect a national economy. Several investigations have been undertaken to try to estimate the extent of the impact of logistics on the economy. Importance in the economy One such study indicated that about 30 per cent of the working population in the UK are associated with work that is related to logistics. Another study undertaken by Armstrong and Associates (2007) found that, for the main European and North American economies, logistics represents between about 8 per cent and 11 per cent of the gross domestic product of each country.

For developing countries this range is higher at around 12 per cent to 21 per cent – with India at about 17 per cent and China at 21 per cent.

This is summarized in Figure 1.3. These numbers represent some very substantial costs, and serve to illustrate how important it is to understand the nature of logistics costs and to identify means of keeping these costs to a minimum.

Countries with the lowest costs are those where there has been a longer recognition of the importance of logistics.

It is to be expected that the logistics costs of developing countries will decrease over the next few years.

About 25 years ago, if the same statistics had been available, these percentage elements would undoubtedly have been a lot higher in all of these countries.

In the UK, records go back for 25 years, and logistics costs were then around the 18 to 20 per cent mark.

Importance of key components the breakdown of the costs of the different elements within logistics has also been addressed in various surveys.

One survey of US logistics costs undertaken by Establish/Herbert Davis (2008) indicated that transport was the most important element at 50 per cent, followed by inventory carrying cost (20 per cent), storage/warehousing (also at 20 per cent) customer service/order entry (7 per cent) and administration (3 per cent).

This survey also produced a pan-European cost breakdown.

This placed transport at about 40 per cent, warehousing at about 32 per cent, inventory carrying cost at about 18 per cent, customer service/order entry at about 5 per cent and administration at about 5 per cent of overall costs.

In both studies the transport cost element of distribution was the major constituent part, particularly due to high fuel costs. US transport costs are especially affected by this due to long distances travelled

Importance by industry sector It must be emphasized, however, that the figures in the previous section are average ones.

The relative make-up of these costs can vary quite significantly between different companies and, particularly, between different industries.

Listed in Table 1.1 are some examples of logistics costs from different companies.

These are taken from an industry cost audit carried out in the UK by Dialog Consultants Ltd.

There are some quite major differences amongst the results from the various companies. One of the main reasons for these cost differences is that logistics structures can and do differ quite dramatically between one company and another, and one industry and another. Channels can be short (i.e., very direct) or long (i.e., have many intermediate stocking points).

Also, channels may be operated by manufacturers, retailers or, as is now becoming increasingly common, specialist third-party distribution companies.

In the examples shown in Table 1.1, the relative importance of logistics is, of course, measured in relationship to the overall value of the particular products in question.

Cement is a low-cost product (as well as being a very bulky one!), so the relative costs of its logistics are very high. Spirits (whisky, gin, etc.) are very high-value products, so the relative logistics costs appear very low.

These and other associated aspects are discussed in subsequent chapters. A series of studies undertaken by Data monitor (2008) indicate that the global logistics market (including all in-house and outsourced logistics operations) is dominated by retail logistics services (63.9 per cent).

This applies globally and is reflected in all key markets (see Table 1.2).

The retail sector has been at the forefront of some of the most advanced and innovative developments in logistics and supply chain thinking.

### Logistics and supply chain structure

The discussion in the previous sections of this chapter has illustrated the major components to be found within a logistics or supply chain system.

The fundamental characteristics of a physical distribution structure could be considered as the flow of material or product, interspersed at various points by periods when the material or product is stationary.

This flow is usually some form of transportation of the product.

The stationary periods are usually for storage or to allow some change to the product to take place – manufacture, assembly, packing, break-bulk, etc. A simple physical flow is illustrated in Figure 1.4.

The different types of transport (primary, local delivery, etc.) and stationary functions (production, finished goods inventory, etc.) are shown.

There is also, of course, a cost incurred to enable the distribution operation to take place.

The importance of this distribution or logistical cost to the final cost of the product has already been highlighted.

As has been noted, it can vary according to the sophistication of the distribution system used and the intrinsic value of the product itself.

One idea that has been put forward in recent years is that these different elements of logistics are providing an 'added value' to a product as it is made available to the final user – rather than just imposing an additional cost.

This is a more positive view of logistics and is a useful way of assessing the real contribution and importance of logistics and distribution services.

Figure 1.4 also provides an example of this cost or added value for a typical low-cost product.

The added value element varies considerably from one product to another.



## Summary

In this initial chapter, a number of subjects have been introduced. These will be expanded in subsequent chapters of the book.

The rather confusing number of associated names and different definitions was indicated, and a few of the very many definitions were considered.

No 'true' or definitive definition was offered, because logistics and the supply chain can and do differ dramatically from one industry, company or product to another.

The recent history of distribution, logistics and the supply chain were outlined, and a series of statistics served to illustrate how important logistics and the supply chain are to the economy in general and to individual companies.

The breakdown between the constituent parts of distribution and logistics was given. The basic structure of the supply chain was described, and the concepts of material and information flow and the added value of logistics were introduced.

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