Logistics and Supply Chain Management
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About the Author

Martin Christopher is Professor of Marketing and Logistics at Cranfield School of Management, one of Europe’s leading business schools, which is itself a part of Cranfield University. His work in the field of logistics and supply chain management has gained international recognition. He has published widely, and Marketing Logistics features among recent books. Martin Christopher is also co-editor of the International Journal of Logistics Management and is a regular contributor to conferences and workshops around the world.

At Cranfield, Martin Christopher directs the Centre for Logistics and Supply Chain Management, the largest activity of its type in Europe. The work of the centre covers all aspects of logistics and supply chain management and offers both full-time and part-time Masters degree courses as well as extensive management development programmes. Research plays a key role in the work of the centre and contributes to its international standing.

Martin Christopher is an Emeritus Fellow of the Chartered Institute of Logistics and Transport on whose Council he sits. In 1988 he was awarded the Sir Robert Lawrence Gold Medal for his contribution to logistics education.
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Preface

It is only relatively recently that logistics and supply chain management have emerged as key business concerns. When the first edition of this book appeared in 1992 there were only a few other texts addressing these subjects, today there are many.

However, even though awareness of the importance of logistics and the supply chain is now much greater, there are still many companies where these ideas have yet to be fully implemented. The good news though is that, generally, logistics and supply chain management have moved much higher up the agenda in organizations in every industry and sector.

Another significant development since the first edition has been the growing recognition that supply chains are, in reality, networks. These networks are complex webs of independent – but interdependent – organizations. As a result of increased out-sourcing of tasks that were once performed in-house, the complexity of these webs has grown and, hence, with it the need for active co-ordination of the network. For this reason alone the importance of supply chain management is heightened considerably.

This new edition of *Logistics and Supply Chain Management* builds on the ideas and concepts of the earlier versions but as new thinking emerges and best practice gets even better, the need for revision and updating becomes inevitable. For example, in this third edition there is an even greater emphasis on responsiveness, reflecting the increased volatility of demand in many markets. Another addition is a new chapter on supply chain risk, recognizing that as networks become more complex so does their vulnerability to disruption increase.

In preparing this book I have drawn greatly on the idea and thoughts of others. I have been fortunate to work in the stimulating environment of the Centre for Logistics and Supply Chain Management at Cranfield University and have benefited greatly from interaction with colleagues, post-graduate students and practising managers.

Outside Cranfield I have gained much through a number of fruitful collaborations, particularly with Alan Braithwaite, Chairman of LCP
Worldwide, Professor John Gattorna of the Sydney Business School, Australia, Professor Douglas Lambert of Ohio State University, USA, and Professor Denis Towill of Cardiff University, UK.

Finally, I would like to thank Dr Helen Peck who has researched and written most of the case studies in the book and Tracy Stickells who has skilfully masterminded the production of the manuscript – their efforts are greatly appreciated.

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Logistics, the supply chain and competitive strategy

Supply chain management is a wider concept than logistics 4
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This chapter:

Introduces the concept of logistics with a brief review of its origins in military strategy and its subsequent adoption within industry.

●

Highlights the principles of competitive strategy and the pursuit of differentiation through the development of productivity and value advantage.

●

Explains the concept of the value chain and the integrative role of logistics within the organization.

●

Describes the emerging discipline of supply chain management, defining it and explaining how and why it takes the principles of logistics forward.

●

Discusses the impact upon logistics and supply chain management of the significant changes in the wider competitive environment.
Logistics and supply chain management are not new ideas. From the building of the pyramids to the relief of hunger in Africa, the principles underpinning the effective flow of materials and information to meet the requirements of customers have altered little.

Throughout the history of mankind wars have been won and lost through logistics strengths and capabilities – or the lack of them. It has been argued that the defeat of the British in the American War of Independence can largely be attributed to logistics failure. The British Army in America depended almost entirely upon Britain for supplies. At the height of the war there were 12,000 troops overseas and for the most part they had not only to be equipped, but fed from Britain. For the first six years of the war the administration of these vital supplies was totally inadequate, affecting the course of operations and the morale of the troops. An organization capable of supplying the army was not developed until 1781 and by then it was too late.¹

In the Second World War logistics also played a major role. The Allied Forces’ invasion of Europe was a highly skilled exercise in logistics, as was the defeat of Rommel in the desert. Rommel himself once said that ‘... before the fighting proper, the battle is won or lost by quartermasters’.

However, whilst the Generals and Field Marshals from the earliest times have understood the critical role of logistics, strangely it is only in the recent past that business organizations have come to recognize the vital impact that logistics management can have in the achievement of competitive advantage. Partly this lack of recognition springs from the relatively low level of understanding of the benefits of integrated logistics. As early as 1915, Arch Shaw pointed out that:

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1 It is only in the recent past that business organizations have come to recognize the vital impact that logistics management can have in the achievement of competitive advantage.
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The relations between the activities of demand creation and physical supply ... illustrate the existence of the two principles of interdependence and balance. Failure to co-ordinate any one of these activities with its group-fellows and also with those in the other group, or undue emphasis or outlay put upon any one of these activities, is certain to upset the equilibrium of forces which means efficient distribution.

... The physical distribution of the goods is a problem distinct from the creation of demand ... Not a few worthy failures in distribution campaigns have been due to such a lack of co-ordination between demand creation and physical supply ...

Instead of being a subsequent problem, this question of supply must be met and answered before the work of distribution begins.2

It is paradoxical that it has taken almost 100 years for these basic principles of logistics management to be widely accepted.

What is logistics management in the sense that it is understood today? There are many ways of defining logistics but the underlying concept might be defined as:

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfilment of orders.

This basic definition will be extended and developed as the book progresses, but it makes an adequate starting point.

**Supply chain management is a wider concept than logistics**

Logistics is essentially a planning orientation and framework that seeks to create a single plan for the flow of product and information through a business. Supply chain management builds upon this framework and seeks to achieve linkage and co-ordination between the processes of other entities in the pipeline, i.e. suppliers and customers, and the organization itself. Thus, for example, one goal of supply chain management might be to reduce or eliminate the buffers of inventory that exist between organizations in a chain through the sharing of information on demand and current stock levels. This is the concept of ‘Co-Managed Inventory’ (CMI) that will be discussed in more detail later in the book.
It will be apparent that supply chain management involves a significant change from the traditional arm’s-length, even adversarial, relationships that so often typified buyer/supplier relationships in the past. The focus of supply chain management is on co-operation and trust and the recognition that, properly managed, the ‘whole can be greater than the sum of its parts’.

The definition of supply chain management that is adopted in this book is:

*The management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole.*

Thus the focus of supply chain management is upon the management of *relationships* in order to achieve a more profitable outcome for all parties in the chain. This brings with it some significant challenges since there may be occasions when the narrow self interest of one party has to be subsumed for the benefit of the chain as a whole.

Whilst the phrase ‘supply chain management’ is now widely used, it could be argued that it should really be termed ‘demand chain management’ to reflect the fact that the chain should be driven by the market, not by suppliers. Equally the word ‘chain’ should be replaced by ‘network’ since there will normally be multiple suppliers and, indeed, suppliers to suppliers as well as multiple customers and customers’ customers to be included in the total system.

Figure 1.1 illustrates this idea of the firm being at the centre of a network of suppliers and customers.

![Fig. 1.1 The supply chain network](image-url)
Extending this idea it has been suggested that a supply chain could more accurately be defined as:

A network of connected and interdependent organisations mutually and co-operatively working together to control, manage and improve the flow of materials and information from suppliers to end users.

*Source: J Aitken*

**Competitive advantage**

A central theme of this book is that effective logistics and supply chain management can provide a major source of competitive advantage – in other words a position of enduring superiority over competitors in terms of customer preference may be achieved through better management of logistics and the supply chain.

The foundations for success in the marketplace are numerous, but a simple model is based around the triangular linkage of the company, its customers and its competitors – the ‘Three Cs’. Figure 1.2 illustrates the three-way relationship.

![Diagram of Competitive advantage and the ‘Three Cs’](image)

**Fig. 1.2 Competitive advantage and the ‘Three Cs’**


The source of competitive advantage is found firstly in the ability of the organization to differentiate itself, in the eyes of the customer, from its competition and secondly by operating at a lower cost and hence at greater profit.