INTRODUCTION

This chapter lays the foundations of the textbook and explains the origins and applications of logistics and supply chain management, as well as giving descriptions of key concepts. A framework for the textbook is developed and this illustrates where each chapter fits in the overall schema of the book, while the various perspectives adopted by the authors when writing this book are also described.

The chapter comprises six core sections:

- The evolution of logistics and supply chain management
- What is logistics?
- What is supply chain management?
- Distinguishing logistics and supply chain management
- Applications to manufacturing and services
- Book framework

LEARNING OBJECTIVES

- Explain the origins of both logistics and supply chain management.
- Define both terms and outline how logistics and supply chain management differ from each other.
- Highlight the importance of these areas in both manufacturing and services contexts.
- Identify how best practice logistics and supply chain management can yield both cost reduction and value addition.
- Show how supply chains have a major influence on society.
The commonly accepted abbreviation for supply chain management is SCM, so that abbreviation will be used in the remainder of this book.

The evolution of logistics and supply chain management (SCM)

Both logistics and SCM are fascinating and exciting areas that touch all of our lives. Just think of the many different products that are purchased and consumed each day – how do they reach the customer and at what cost? Although logistics and SCM are areas that have only come to widespread prominence in the last two decades or so, the reality is that they have roots which run much longer than that. Later in the chapter we will trace the word ‘logistics’ back to its original military application in ancient Roman and Byzantine times. One of the first references in the academic literature to the notion of taking a supply chain view (although that specific term was not used) is in what is widely regarded as a seminal paper by the MIT academic Jay Forrester published in the Harvard Business Review in 1958.1 In that paper, Forrester put forward a schematic of the production–distribution system (what we would call today a supply chain) and he simulated how inventory levels can fluctuate along that chain.

Not only are logistics and SCM key aspects of today’s business world, but they are also of importance in the not-for-profit and public sectors. In addition, while the origins of much logistics thinking and practice are in a manufacturing context, we are witnessing increased and highly successful application of logistics and SCM principles in a services context also (just think of the efficiencies which have been driven into many service-based activities such as banking and hospitals where the emphasis has shifted to serving more customers, better, faster, cheaper). We will return to this topic in Chapter 16, which will focus on services supply chains and also introduces the concept of servitisation.

The terms logistics and SCM, although often used interchangeably, are distinct and will be defined later in the chapter. First, however, it is appropriate to examine how some key developments over the past couple of decades have shaped the evolution of these important areas. In fact six separate and important developments, each of which evolved largely independently, can be identified and are now detailed.

Reduced transport intensity of freight

In the past, international trade was dominated by bulky raw materials. Times have, however, changed and in-process and finished products, not raw materials, now play a much greater role in world trade. Some simple examples illustrate this clearly. Compare the value of the various consumer electronics products transported around the world today with the bulky, low value products that were being transported 100 years ago. Agricultural produce, and indeed other comparatively high-volume/low-value freight, does still of course traverse the world but, in general, the size and value of the freight which is transported today is very different to that of times past. In the case of agriculture, many food producers, rather than transporting bulky foodstuffs, now tend to try and ‘add value’ to the product: for example rather than ship live chickens, the international poultry trade generally comprises processed,
ready-to-cook chicken. The same is true for many other trades, across a range of industries, whereby manufacturers try and increase the value-to-volume ratio of products being shipped. We will see in later chapters that there is also an increasing trend towards having the final value-adding stages in the production of various products as close as possible to the final customer; in fact, in some cases the customer actually completes these latter stages of production (facilitated, for example, by 3D printing).

Higher value freight is better able to ‘absorb’ transport costs than is lower value freight, with the ‘transport cost penalty’ imposed by having to move freight over greater distances often being somewhat offset by the fact that the freight is of higher value. Hence, we refer to a generally reducing transport cost sensitivity of freight.

Indeed for some products it is now not even necessary to ship physical product at all. Just think for example of the way much software is now transmitted around the world via the internet. This replacement of physical product by virtual product is referred to as material substitution.

**Falling product prices**

In many markets, increased competition and falling marketplace prices have forced numerous companies to reduce costs. Just think of the falling prices of various electronics products in recent years such as DVD players, or that the prices of many automobiles have stayed flat in real terms at best, despite the fact that product specifications, performance and quality have improved dramatically. This has forced companies to focus on other areas where savings can be made, and the storage and movement of inventory is a key area in this regard. Thus companies will seek to ensure that any products (especially those with flat or declining value) being transported are configured (in terms of product design, packaging etc.) so as to reduce as much as possible their transport cost sensitivity.

**Deregulation of transport**

The important role played by transport in logistics will be discussed later in the book. There are five principal modes of transport namely air, road, water, rail and pipeline (in addition the Internet can be regarded as a sixth transport mode). In recent decades transport markets in many countries have been deregulated by various governments. The essence of effective deregulation is that by removing unnecessary barriers to competition, markets become more contestable and (in theory at least) prices should come down and service should improve. We say ‘in theory’ because the reality in some deregulated
markets has been somewhat different (with private monopolies sometimes replacing public ones) but, in general and over the long run, deregulation has had a positive impact on many transport markets, leading to the provision of both more and cheaper services. This of course in turn makes it easier and more efficient to move freight around the world.

A good example is that of FedEx, a company which today has one of the world’s largest fleets of freighter aircraft. Constrained by burdensome government regulations in the United States in the 1970s, it was not until the late 1970s with the deregulation of the US air freight market (which relaxed the rules governing both who could participate in the market and how they would be allowed to operate) that the company was able to expand and grow.

**Productivity improvements**

Up to the mid-1950s most maritime freight was carried on bulk vessels. This began to change, however, when some ship owners started to carry freight containers. In 1956 an iconoclastic entrepreneur Malcom McLean put 58 aluminium truck bodies aboard an ageing tanker ship (called the Ideal-X) which set sail from Newark, NJ to Houston, TX in the United States. This marked the start of containerised transport as we know it today. Containers can be stacked on top of each other onboard the ship, thus allowing very efficient space utilisation and cargo handling. Furthermore, freight could now move from origin to destination across many modes and services with greater ease of handling. The introduction and growth of containerisation led to huge changes in ports which previously were dominated by large workforces responsible for manual handling of bulk cargo. Containerisation also reduced the costs of transporting freight by maritime transport and significantly improved its efficiency. Containerisation spread to other modes and various alliances were formed between combinations of transport companies.

There were of course many other improvements in transport, for example in propulsion technologies (faster transport) and the application of various information and communications technologies. Companies such as DHL, FedEx and UPS have pioneered the use of barcoding and online tracking and tracing of freight, developments which also increase the efficiencies of logistics systems. Another technology, radio frequency identification (RFID), is now emerging and should also drive more efficiencies into logistics systems. Technology is a very important component and enabler of logistics and SCM, and Chapter 11 and Chapter 12 in particular will look in detail at information flows and technology applications.

**Emphasis on inventory reduction**

The penultimate trend to consider has been a shift of management and financial attention into analysing where an organisation’s funds are tied up. Inventory management will be covered in detail in Chapter 9, but suffice to say for now that many organisations have become increasingly aware of the fact that often significant funds are tied up in unnecessary inventory. Furthermore it became obvious in the latter years of the twentieth century that often inventory was not well managed. During the decades which followed
World War II the responsibility for, and management of, inventory in many firms was very fragmented. The various functions in which inventory played a key role, for example transport, warehousing, purchasing and marketing, were usually considered by managers to be separate and distinct. However, firms began to realise that cost savings and significant efficiency gains could be harnessed from more integrated and focused management of inventory. As far back as 1962 the late Peter Drucker, one of the foremost management thinkers of the twentieth century, wrote a celebrated Fortune magazine article entitled ‘The Economy’s Dark Continent’. In this article he suggested that distribution represented the last frontier for significant cost reduction potential in the firm.

Increased market competition and customer requirements also led to the necessity to see improvements in the management of inventory as an essential competitive weapon. In the increasingly competitive, global marketplace firms began to realise that they could leverage marketplace advantage through superior logistics performance. Cost savings were identified through eliminating unnecessary inventory and just-in-time (JIT) deliveries became normal operating practice in many industries. Indeed many companies came to recognise the risks associated with holding too much stock which rendered them less flexible in their ability to respond to changing demand conditions.

Changes in company structure

A more recent trend concerns changes in how companies are structured and operate. In recent years many companies have become less vertically integrated (a concept that implies ownership or at least control of upstream suppliers and downstream customers) and more specialised. Outsourcing has become more common, with suppliers playing a more central role for many manufacturers (subsequent chapters in the book will consider in detail strategies and practices such as JIT, outsourcing, etc). Many companies have also come to realise that so-called functional or silo-based thinking (viewing the various departments within the firm as separate and non-overlapping entities) will only hinder the overall performance of the company and they have as a result endeavoured to ensure that the various functions and activities across the company are integrated more closely. In more recent years in particular, competition based on time, for example order to delivery time, has become a key success factor (KSF) in many markets.

All of the above six trends, while they emerged independently, have both placed an increased emphasis on the role of transport and inventory, and have led to improvements in the way freight is handled and moved around the world. They have led to what is often termed the supply chain revolution.

Before proceeding further it is important to highlight one small, but important, distinction. People often use the terms ‘freight’ and ‘cargo’ interchangeably, however, they are in fact distinct, at least in terms of their use within the logistics sector. In essence: \( \text{cargo} = \text{freight} + \text{mail} \). Mail, also known as post, is of course still a very important component of trade and commerce, despite the many technological advances which shape today’s world. It is an important and regular source of revenue for many transport companies, especially airlines. Sometimes people also use the term ‘goods’, usually to refer to freight.
WHAT IS LOGISTICS?

Now that the key developments which have shaped the evolution of logistics and SCM have been outlined, it is appropriate to attempt to describe and define these concepts. Some authors have pointed to the often confusing and overlapping ‘plethora of terminology’ that is used in logistics and SCM. While at one level defining logistics and SCM might seem an elementary task, it is in fact critically important to define, and differentiate, these terms correctly at this juncture as this will shape your understanding and interpretation of the contents of this book. First to logistics. The New Oxford Dictionary of English defines logistics as:

the detailed coordination of a complex operation involving many people, facilities, or supplies. Origin late 19th century in the sense ‘movement and supplying of troops and equipment’, from French logistique, from loger lodge

There are various views with regard to the linguistic origins of the word, with some pointing to the Greek adjective logistikos which means ‘skilled in calculating’ (and
which most likely gave us the mathematical term *logistic*. It has also been noted that in Roman and Byzantine times there was a military official called *Logista*. In more recent times we have seen, as in the above definition, the French words *logistique* and *loger*. Most agree that the word entered the English language in the 19th century, with its application generally seen in military terms and concerned with the organisation of moving, lodging and supplying troops and equipment.

These origins suggest then that logistics has something to do with applications of mathematics and is primarily a military concern. Indeed the field of military logistics has evolved quite considerably and is now quite sophisticated. Similarly there are many useful applications of mathematics to logistics. Today, however, logistics spans beyond the military and mathematical domains. It was in fact only in the latter decades of the 20th century that the term logistics entered into common non-military use. The US based Council of Supply Chain Management Professionals (www.cscmp.org) suggests the following definition of logistics and which we adopt in this book (note: we have added the underlining (of transportation and storage) to the original definition):

*Logistics* is the process of planning, implementing, and controlling procedures for the efficient and effective *transportation* and *storage* of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements.

Another way of understanding what is involved in logistics is to see it as including various (actually we can think of at least eight) ‘rights’: getting, in the right way, the right product, in the right quantity and right quality, in the right place at the right time, for the right customer at the right cost. Some of these ‘rights’ may be obvious, others perhaps less so. For example, the right customer: in many industrial locations today typically many different companies will be co-located on the one site. Even on the one production line there may be various subcontractors collaborating with the manufacturer and there will be clear demarcation lines with regard to who has ownership of what, where and when. Therefore getting the product to the right place may be only half the journey, the challenge would be to get it to the right customer at this right place. To consider briefly ‘the right way’: there is now a substantial and growing interest in environmental and related issues, and Chapter 14 deals in detail with sustainability. There is thus a necessity to get the product to the customer in the ‘right way’, meaning in such a way as to cause as little damage as possible to the environment.

Logistics was once described as ‘just trucks and sheds’; others see it as concerned with ‘just wheels and walls’. As the discussion above illustrates, and notwithstanding the fact

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Logistics involves getting
  . . . the right product
  . . . in the right way
  . . . in the right quantity and right quality
  . . . in the right place at the right time
  . . . for the right customer at the right cost
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that trucks and sheds (warehouses) are indeed important components of logistics systems, it is obvious that logistics encapsulates much more than this.

Ensuring optimum performance with regard to some of these ‘rights’ may be easy for many, but getting all correct together can be quite a challenge. For example in both retail distribution and in high-value manufacturing, it is now quite common to offer suppliers quite specific and narrow time windows within which to deliver freight. Not only will the suppliers be expected to execute deliveries within these strict time limits, but also they may be expected to deliver directly onto a specific retail outlet shelf or factory production cell.
hands of the ultimate consumer. He distinguishes SCM from vertical integration as SCM does not necessarily imply any ownership or control of supply chain partners. In this book we adopt Professor Christopher’s description of the supply chain.

It is our view that supply chains encompass a number of key flows:

- Physical flows of materials
- Flows of information that inform the supply chain
- Resources (especially finance, but also others such as people and equipment) which help the supply chain to operate effectively. Furthermore, not all resources in the supply chain are tangible, for example good quality intercompany relationships are often cited as a highly important ingredient of effective supply chains.

The following definition is thus posited of **SCM**:

Supply chain management (SCM) is the management, across and within a network of upstream and downstream organisations, of both relationships and flows of material, information and resources. The purposes of SCM are to create value, enhance efficiency, and satisfy customers.

This definition largely concurs with what can be regarded as a consensus definition of SCM. To develop such a definition, Stock and Boyer examined a total of 166 definitions of SCM that appeared in the literature, and using various analytical techniques developed
the following consensus definition of SCM. It is longer than our definition above, but worth noting as it is more detailed:

SCM is the management of a network of relationships within a firm and between interdependent organisations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer with the benefits of adding value, maximising profitability through efficiencies and achieving customer satisfaction. An important feature to note with regard to SCM is that it involves taking an ‘end-to-end’ perspective from the upstream to the downstream end of the supply chain. Depending upon the sector being looked at, terminology such as the following can be used to describe the end-to-end supply chain:

- Farm to fork
- Sketch to store
- Dust to rust

We have seen many other variations of this terminology – for example, in the mushroom industry they take a supply chain perspective of ‘spore to store’ while the term ‘tail to teeth’ is often used in the military. A final important point to note at this juncture is that increasingly it is the case that supply chains compete more so than individual firms and products (this concept was first mooted by Professor Christopher in the early 1990s). This represents something of a paradigm shift in terms of how people usually view the global business environment; this important issue is discussed further in particular in Chapter 4 which deals with supply chain strategy.

The term ‘echelon’ is sometimes also used to refer to different parts of the supply chain.

**DISTINGUISHING LOGISTICS AND SCM**

Now that logistics and SCM have been defined, the issue of how both terms differ needs to be considered. This is in fact a question which has led to much debate with people often coming up with their own distinctions. It has also been studied by a number of academics. Larson

Note the use of the word *network* in the definition of the supply chain above. While the supply chain is usually depicted as a linear chain (as in Figure 1.1), it is perhaps better to envisage it as a *multidimensional network of collaborating entities*. Furthermore, such networks can be more fully understood as systems; taking a systems view highlights the impact of the interaction that occurs between the various entities. In logistics and SCM these various entities are sometimes referred to as *links* (for example transport services) and *nodes* (for example warehouses). The various links and nodes can of course contemporaneously play different roles across multiple supply chains.
and Halldorsson for example surveyed international logistics/SCM experts and identified four different perspectives which are illustrated in Figure 1.2.

SCM in many respects evolved from logistics and the traditionalist view thus regards SCM as a subset of logistics, as if it were an add-on to logistics. In the re-labelling view it is contended that logistics has been re-labelled by the more recent term SCM. Indeed it is worth noting here that sometimes transport gets re-labelled as logistics, for example the authors have observed heavy goods vehicles (HGVs) where the word ‘logistics’ is painted over the word ‘transport’ on the side of the vehicle! Becoming a professional logistics company requires more than just a name change. In the unionist view logistics is seen as part of a wider entity, SCM. Finally the intersectionist view suggests that there is overlap between parts of both logistics and SCM, but also that each has parts that are separate and distinct.

In this book our approach is to adopt the unionist view, i.e. that logistics is part of the wider entity which is SCM. To reiterate what was stated earlier, the supply chain is a much wider, intercompany, boundary-spanning concept, than is the case with logistics. We believe that if you now look again at the definitions of logistics and SCM that are outlined above and the surrounding discussion in this chapter then this will be quite evident.

APPLICATIONS TO MANUFACTURING AND SERVICES

The previous sections have given an insight into the origins and forces shaping the evolution of logistics and SCM. Much of the early application of both logistics and supply chain thinking has been in a manufacturing context and this will be considered in more
detail in Chapter 4. It is now generally agreed that for those who take a supply chain view, two dimensions of value often arise, namely cost savings and service enhancements. This is evident in the Dell case at the end of Part I of the book where the PC maker uses robust logistics strategies and competes using its entire supply chain. Not only does Dell sell relatively cheap PCs, but it also competes on the basis of certain service attributes (for example the ability for customers to purchase their products online and the fast delivery of purchased products to customers).

More and more then manufacturers are using service criteria (for example after sales service and delivery add-ons) in order to compete. Such has been their success that now many service companies are waking up to the advantages that can be gained from adopting best-in-class logistics practices and taking an end-to-end supply chain view. This is evident across a diverse range of service sectors such as retail, financial services, healthcare and tourism.

In the healthcare sector, for example, expensive increases in medical technology and increasing life expectancy are leading to greater demands on healthcare services with hospitals striving to offer better services at less cost. The average length of stay of patients within hospitals is declining, partly due to technological advances in healthcare, but partly also because increasingly hospitals take a more holistic supply chain perspective on all aspects of patient care and also increasingly apply core logistics principles to their everyday activities. By eliminating unnecessary blockages and delays (for example by ensuring that required expertise in terms of medical skills and equipment is available when needed), patients get faster access to a range of services allowing them to get better sooner and leave hospital earlier, thus leading to improvements in whole system efficiency.

**IKEA (WWW.IKEA.COM)**

The Scandinavian home furnishings retailer IKEA is a good example of a company that uses best practice logistics and SCM in the manufacturing and services aspects of its business. Many products are manufactured for self-assembly by the customer. They are ‘flat packed’, making them easier to ship and store. Self-assembly is generally straightforward, with many products comprising components which easily assemble together. Even the instruction leaflets often have no words, only pictures, cutting down on the need for multiple language translations. Its network of worldwide stores are usually easily accessible and have similar layouts, making the shopping experience as easy and user friendly as possible for customers.

**TRIAGE**

The concept of triage, originally devised by the French military, is now widely applied in medical emergency situations. Triage involves rapid assessment of patient needs and thus allows those most in need of care to be attended to first. The concept has evolved
considerably and has moved beyond merely deciding between those who are critically ill and those who are not, into an activity which tries to match patients with the right care stream. This may involve various downstream activities from trauma care to bypassing hospital emergency departments completely and going straight to an appropriate community care facility. Importantly, more recent applications of triage involve not just assessment once the patient reaches the hospital, but also triage at other upstream points of contact (for example via telephone or when an ambulance first arrives at an accident scene). Medical triage is a good example of the application of logistics thinking in a services context and is especially relevant given the pressures on many modern healthcare systems.

THE NEED FOR SUPPLY CHAIN TRANSPARENCY

Many supply chains can be long, complex, involve many entities and cross international borders. Governments and other stakeholders are now becoming increasingly concerned that supply chains are not infiltrated by unethical and criminal practices, such as modern slavery, and as a result there is now renewed effort to ensure more transparency within supply chains.

BOOK FRAMEWORK

A number of perspectives were adopted by the authors when writing this book and these are reflected in its content and summarised below.

Global perspective

Logistics and SCM are truly global disciplines that underpin international trade and span international borders. Consequently, this book seeks to reflect the global nature of the subject matter and draws upon diverse examples from multiple geographies. It is not our intention to present a particular ‘Western’ perspective on the subject matter, but instead to present a global worldview of what is happening in logistics and SCM today.

The terms international and global are often used interchangeably in a logistics context, but this is not in fact accurate. International is defined by the Collins English Dictionary as ‘of, concerning, or involving two or more nations or nationalities’, while the same dictionary defines global as ‘covering, influencing, or relating to the whole world’. This book aims then to go beyond a focus on international logistics and to take a broader, whole world, global perspective on logistics and SCM issues.

Both practical and strategic perspectives

This book aims to comprise both a practical element, that is to help the reader to ‘do’ logistics (for example select carriers, determine how much inventory to carry, select appropriate performance metrics, etc.) and a strategic element (understand the role of logistics and SCM in the wider business context and how it fits with the various functional areas).
In Chapter 18 the desired ‘T-shaped’ profile of the effective logistics manager is discussed; suffice to note for now that logistics managers, as well as needing to know how to ‘do’ logistics, also require good interpersonal skills and in addition need to be able to work effectively with various functions such as marketing and finance. As well as this they need to be good strategic thinkers. In this book, the aim is to present a balanced insight across all of these areas. We contend that while it is important to understand how global supply chain strategies are developed, it is also equally important to know how to, for example, calculate the cost of inventory in a warehouse or what Incoterm to list on an invoice. For a student at any level to have knowledge of supply chain strategy is vacuous without concomitant knowledge of how to ‘do’ logistics.

**Logistics is a part of SCM**

As discussed above, the book adopts the unionist view of logistics, that is, that logistics is part of the wider entity which is SCM.

**Focus on material, information and resource flows**

The three flows across supply chains detailed above (material, information and resource) are each considered. None is regarded as more important than the other, rather the book recognises the interdependency of each.

**Neutral and non-political perspective adopted**

Despite the economic successes pointed to in Chapter 2, the world is not a perfect place, with too many conflicts, injustices and poverty pervading many regions. In this book we have adopted a neutral and non-political perspective; any reference to individuals, situations or countries is only done to illustrate logistics/SCM issues. Our hope is that best practice logistics and SCM, which this book hopes to advance, can help all regions to prosper.

The book is divided into three parts and these are now detailed.

**Part One – Logistics and supply chain context**

This first section sets the context for the book. The growth of logistics and SCM correlates directly with both increasing globalisation and international trade and this is the focus of Chapter 2. Pertinent issues such as trends in foreign direct investment (FDI) flows and how regional logistics performance can be measured are also developed in Chapter 2. In Chapter 3 the focus is on relationships in the supply chain. Outsourcing, offshoring and related practices are considered and the goal of supply chain integration is discussed. Chapter 1 has already given an historical perspective vis-à-vis the origins of logistics and SCM and in Chapter 4 we will see how in recent decades various strategies (e.g. leanness, agility) and trends have emerged and shaped the discipline, especially moving it from a producer-push paradigm to one of
consumer–pull. The aim of Part One of the book will be to bring the reader to a position whereby they accept the now generally held maxim that it is increasingly supply chains that compete and not individual products and/or companies. The reader will be sufficiently informed to progress to Part Two, which focuses on logistics and supply chain operations.

**Part Two – Logistics and supply chain operations**

The second section of the book focuses on logistics and supply chain operations, how to ‘do’ logistics. The eight chapters in Part Two focus on different aspects of ‘doing’ logistics. Chapter 5 deals with transportation, a key enabler of logistics systems. Security is a topic of global importance and Chapter 6 outlines how logistics systems and supply chains are being secured. Chapter 7 details a sector of activity that is key to how supply chains function, namely the logistics service providers (LSPs) sector. Chapter 8 deals with procurement, the activity that generates the materials that flow along supply chains. Chapters 9 and 10 outline how to manage inventory, manage warehouses and handle materials. Chapter 11 details the role of technology in the supply chain. Chapter 12 considers the other two important flows in supply chains (in addition to materials flows) namely information and finance flows; performance management and documentation requirements are also discussed in this chapter.

**Part Three – Supply chain design**

Having learned how ‘to do’ logistics, the focus of the third and final section of the book will move towards more strategic issues. In recent years a major focus in SCM concerns business continuity management and ensuring supply chains can cope with both uncertainty and the equally strong challenges which arise as a result of growing marketplace competition. This is the focus of Chapter 13 which deals with supply chain vulnerability, risk, robustness and resilience. Chapter 14 covers the increasingly important issue of sustainability in the context of logistics and SCM, while Chapter 15 deals with materials moving back upstream in the supply chain, the area of reverse logistics. Many of the insights gained from physical logistics and SCM are beginning to be applied in a services context, and this is the focus of Chapter 16, which considers services supply chains and the concept of servitisation. Chapter 17 gives an insight into some of the management science approaches and tools that are used in the design, analysis and improvement of logistics systems and supply chains. The concluding chapter in the book (Chapter 18) brings together the key issues covered throughout the book and considers logistics system and emerging supply chain designs for the future.

Part One of the book aims to take you to the point whereby you understand that increasingly it is now supply chains that compete. The end point of the book will be to take you to the position whereby you understand that not only is it true that supply chains compete, but that, more and more, these supply chains are not simple, linear chains, but are instead complex, global, multidimensional, multipartner, networks.
This chapter sought to explain the origins of logistics and SCM and to define and differentiate both terms. The importance of these areas to both manufacturing and services has been highlighted and the chapter showed how best practice logistics and SCM can yield cost reductions and value addition. A framework for the book was outlined and the particular perspectives embraced in the book were elucidated. Now that the origins and meaning of both logistics and SCM have been described, other developments which have been closely associated with the growth of logistics and SCM can be discussed. Chapter 2 looks at both increasing globalisation and international trade. Growth in these two areas correlates closely with the growth in logistics and SCM, and indeed there is a significant level of interdependence between all of these areas.

**QUESTIONS**

- Are logistics and SCM only of interest to manufacturers?
- Explain the key developments behind the evolution of logistics and SCM.
- How do logistics and SCM differ?
- How can best practice logistics and SCM lead to both cost reduction and service enhancement?
- What are the benefits of deregulation of transport markets? Why does such deregulation sometimes not work out quite as planned?

**APPLICATIONS OF LOGISTICS AND SCM IN A SERVICES CONTEXT**

In this chapter we outlined key principles and concepts of logistics and SCM and how both can be applied in manufacturing and services contexts. Many application examples will be developed in the following chapters of this book (while both manufacturing and services examples are used throughout the book, Chapter 16 in particular focuses on services supply chains). At this juncture, however, it is worth pausing to consider the application of logistics and SCM in a services context, as many students regard the subjects as only of relevance in a manufacturing context. Think of examples of sectors and organisations where logistics and SCM principles and concepts can be, or are already, applied. Earlier in this chapter we illustrated the application of logistics and SCM principles and concepts to the medical context (the ‘Triage’ caselet). Are there other services contexts where similar application is evident?
NOTES


7. The Canadian military (www.forces.gc.ca), for example, define logistics as: ‘Logistics is the provision of resources to support the strategy and tactics of combat forces’.


