

IN THIS CHAPTER

- » Exploring the history and emergence of global logistics
- » Introducing SOLE – The International Society of Logistics and its role in “global logistics”
- » Identifying the elements of the total logistics enterprise
- » Providing the framework for this overview of global logistics

Chapter 1

Getting Started in Global Logistics

“The line between order and disorder lies in logistics . . .”

This succinct observation about the importance of logistics was made over 2,500 years ago by Sun Tzu, the Chinese philosopher and general whose work on military strategy significantly influenced both Western and Eastern philosophy.

The requirements for large-scale manufacturing, purchasing, and distribution were mostly found in support of war campaigns, since an armed force without adequate supplies and transportation was doomed to fail. History’s great military leaders Hannibal, Alexander the Great, and the Duke of Wellington are considered to have been logistical geniuses. Alexander’s military campaign from Greece to India (334–324 BC) benefited considerably from his meticulous (and occasionally ruthless) attention to the provisioning of his army. And, in 218 BC, Hannibal’s march of elephants from Spain to Italy over the Alps loaded with his troops and supplies might easily be considered to be history’s first recorded supply chain!

Understanding the Evolution of Global Logistics

As populations grew and trade routes were established and expanded beyond country borders, manufacturing started to ramp up. The British and American industrial revolutions (1760–1870 AD) brought about the capability to produce in larger volumes to meet the growing demand. Often the local repositories of raw materials had become inadequate or totally depleted, which forced manufacturers to expand their sourcing beyond national boundaries.

World Wars I and II significantly increased the need for commercial logistics in order to meet the heavy demands of the fighting forces. Following both wars many of the factories that used to manufacture combat items shifted production not only to meet the growing demand for consumer items but also (and probably more importantly) to remain in business.

As global distribution infrastructures matured, manufacturers realized that profit could be generated from sales beyond one's own region and nation, and started marketing their products to a more global market. This marketing expansion was made possible both by the development of modern communication technologies and networks, and the deliberate political choice of many nations to open markets to international trade and finance.

The history of organized logistics support to international humanitarian and disaster relief operations is a fairly recent phenomenon. Until the 1970s humanitarian and disaster relief (H&DR) was the sole responsibility of the affected nation; any international support (if it occurred at all) was primarily financial. It has only been in the last 40 years that international manpower and logistics support to augment an affected country's capabilities has become more prevalent.

Finally, with the establishment of the World Trade Organization (WTO) in 1995 — which replaced the General Agreement on Tariffs and Trade (GATT) of 1948 — the many individual free-trade agreements that were negotiated between countries were governed under specific rules of international trade. It was through the negotiation and establishment of numerous multinational and regional trade treaties that the world's "global supply chain" emerged.

Introducing SOLE – The International Society of Logistics

SOLE – The International Society of Logistics was founded in 1966 (originally as the Society of Logistics Engineers) as an international nonprofit professional association. Since then, SOLE has served academia, business and industry, and logistics professionals around the world through its certification and designation programs, training, forums, publications, and thought leadership.

Since its inception, SOLE has been regarded as a highly valued organization that serves the entire spectrum of logistics, focusing on the entire logistics enterprise. The association is perhaps best known for its certification and credentialing programs that recognize the professional expertise and accomplishments of logisticians within commerce, industry, defense, government agencies, academia, and private institutions. In addition to its certification and designation programs, SOLE has long provided other critical avenues for professional support, education, and advancement for logistics practitioners.

SOLE's many accomplishments include the following:

- » Recognition as ethical, objective, and expert consultants to the highest levels of government and industry. As such, SOLE has helped US federal agencies like the National Aeronautics and Space Administration (NASA) and the Department of Defense (DoD) to plan, host, manage, and facilitate forums on topics ranging from human capital development, to emerging logistics technologies, to the impact of extreme space weather.
- » Selection by the US Department of Labor (DOL) as the default commentator as regards expert assessments of the logistics services industry as a whole.
- » The conferral of over 2,500 Certified Professional Logistician (CPL) and Certified Master Logistician (CML) credentials.
- » The conferral of over 25,000 Designated Logistician program credentials since 2005.
- » Development and delivery of unique educational programs in the United States and abroad, including logistics body-of-knowledge overview classes, local and regional professional development forums on an array of technical topics, and customized training programs and academic curricula for industry and higher education.
- » Establishment of the SOLE Press, which has published four volumes on logistics principles, integrated logistics support, and quantitative measurements of logistics.
- » Since its inception over 50 years ago, support of logisticians in over 50 countries around the world.

Getting Started: Some Basic Logistics Concepts

The term “logistics” has undergone numerous attempts to be defined and re-defined over the past 50 years. Today, there are literally thousands of companies around the world that have the word “logistics” in their name, in their logo, or in their description. For some, “logistics” is simply the movement of goods from one place to another. Others — when they use the term “logistics” — are actually only describing an element of the whole logistics enterprise, that aspect of the supply chain that includes the functions of procurement, storage, and distribution.

SOLE views logistics as an integrated, whole logistics enterprise that begins with the integration of logistics engineering and support considerations into a product’s design and use, and ends with the system or item’s disposition. Specifically, SOLE considers *logistics* to be “The art and science of management, engineering, and technical activities concerned with the requirements, design, and supplying and maintaining resources to support objectives, plans and operations.” It is a whole enterprise view, as depicted in Figure 1-1. This definition of logistics provides for an integration of the many elements of logistics that mirrors a product or service life cycle from start to finish (or, from “birth to death” — hence, the logistician’s use of the term “product life cycle”).

The world of logistics is, therefore, broad in scope but can generally be depicted by five functional domains, as shown in Figure 1-2.

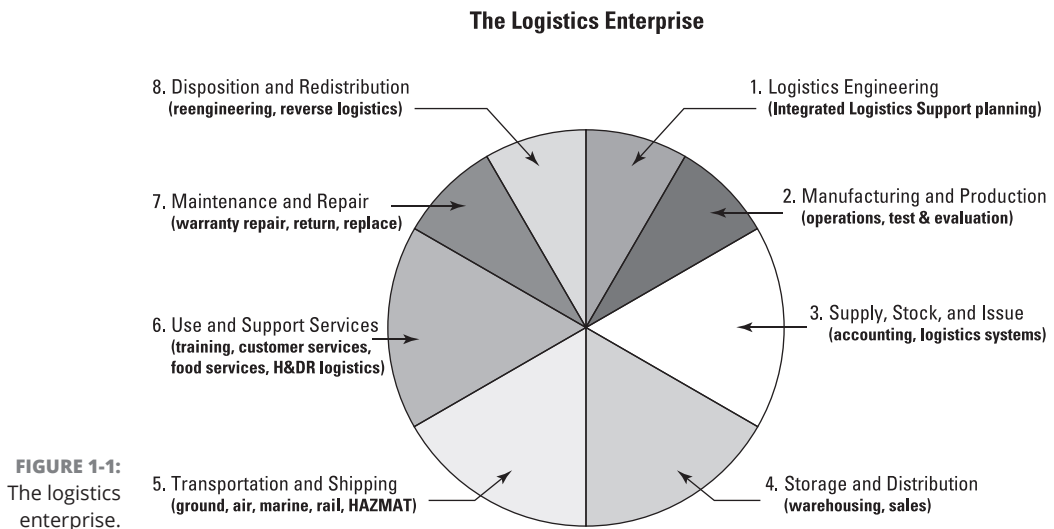


FIGURE 1-1:
The logistics enterprise.

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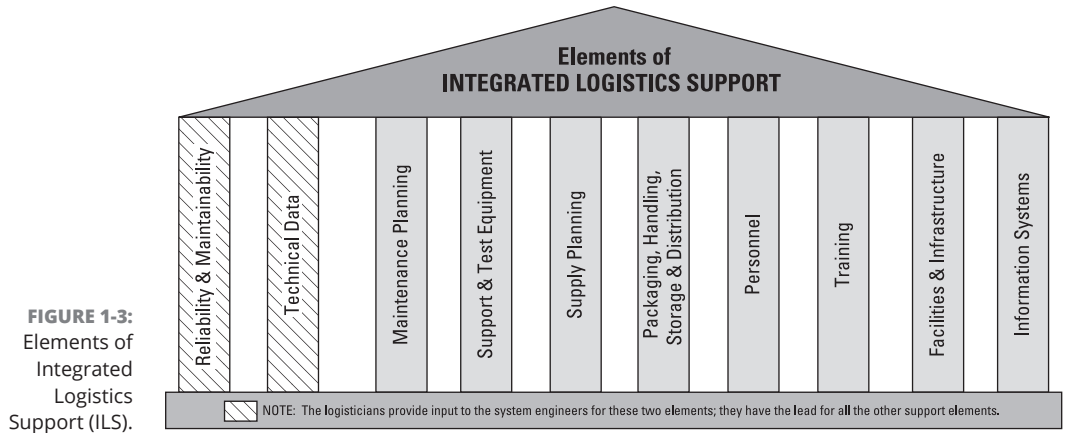
Logistics Functional Domains

Logistics Engineering	Supply Management	Maintenance Management	Distribution & Transportation	Logistics Services
Those activities that deal with product design and development. Includes planning, development, implementation and management of an affordable, comprehensive and effective product support strategy. ----- Elements may include: • Configuration management • Environmental engineering • Safety engineering • Spares requirements and Level of Repair Analysis • Warranty program development • Obsolescence management • Identification of special tools and test equipment • Quality management • Failure Modes and Effects (Criticality) Analysis • Maintainability Planning and Allocations • Life Cycle Modeling • Computation of Total Ownership Costs • Performance of Task and Skills Analysis • Technical data management	Those material management activities, from procurement through disposal, that ensure the integration of multiple sources and processes to meet both production and customer requirements. ----- Elements may include: • Identification and establishment of production inventory • Demand forecasting & analysis • Development of integrated supply concepts • Provisioning planning • Spares calculations • Establishment of end product stockage and safety levels • Source analysis and selection • Inventory procurement and accountability • Receipt and issue of inventory • Management of stock-outs • Quality control and inspection • Inventory security and control • Disposal or destruction of expired or damaged inventory • Re-accession or redistribution of customer returns • Supply data management	Those activities involved in the planning for and execution of maintenance—both scheduled and unscheduled, at multiple levels—of not only products but also production lines and distribution assets. ----- Elements may include: • Reliability Centered Maintenance Analysis • Computation of Mean-Time Between Failure • Identification of levels & types of maintenance & repair and components • Management of repairable items • Scheduling and conduct of preventive maintenance • Spare parts management • Maintenance technical documentation • Management of an operational float for repair and return, or critical items • Testing and performance evaluation of end items and components • Conduct of unscheduled repairs • Maintenance data management	Those packaging, cargo scheduling, dispatching, and material and personnel movement activities and support services in response to production and customer requirements. ----- Elements may include: • Identification and management of intermediate unit & end item packaging • Selection of transportation model(s) and route(s) • Scheduling & dispatch of cargo or personnel movements • Management, storage, shipment, and security of controlled, hazardous or regulated items • Receipt of shipments & submission of discrepancy or damage reports • Identification & management of fleet requirements & assets • Permit completion and customs declarations submissions • Management & execution of reverse logistics program • Transportation & shipment data management	The specified provision of personnel, equipment, or facilities (any or all) in support of logistics planning, management, and execution. ----- Elements may include: • Development & management of logistics operational, data or information security plans & metrics • Provision of 3PL/4PL/5PL contract logistics services • Medical logistics management • Food services management & dining facility operations • Development of logistics data information systems and networks • Development or conduct of logistics training • Provision of unique logistics services (for example, graves registration or laundry) • Provision of humanitarian and disaster relief logistics support (domestically or internationally)

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FIGURE 1-2:
The functional domains of logistics.

Logisticians rarely work alone. Rather, they are critical players in the whole logistics enterprise that manages an integrated process that is defined for each product or service at its inception. The *Integrated Logistics Support (ILS) Plan* (as depicted in Figure 1-3) is a plan that's developed by the logistics community, working closely with the product designers and systems engineers; and that provides a technical basis for integrating all support elements in order to maximize the product or system's availability while optimizing the costs of logistics support throughout the life cycle.



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Life cycle support is viewed as the composite of all considerations necessary to assure the effective and economical support of a system throughout its programmed life cycle. It is an integral part of all aspects of system planning, design and development, test and evaluation, production or construction, consumer use, and system retirement. Over time, integrated logistics support planning has evolved to include the following major elements:

- » **Reliability and maintainability:** The logistics engineering elements of reliability and maintainability impact all other product aspects because a life cycle support-centered design is one that minimizes the logistics footprint while maximizing reliability. Such a design ensures that maintainability is user friendly and effective, and addresses the long-term issues related to obsolescence management, technology refreshment, modifications and upgrades, and usage under all operating conditions.
- » **Technical data:** This includes product production designs and instructions, operating and maintenance instructions, inspection and calibration procedures, facilities information, drawings, and specifications that are necessary

for not only the performance of the product but also its associated maintenance functions.

- » **Maintenance planning:** This includes all planning and analysis associated with the establishment of requirements for the overall support of a system throughout its life cycle. Maintenance planning starts with the development of the maintenance concept and continues through the product's design and development, the procurement or acquisition of support items, and through the consumer use phase when an ongoing system/product support capability is required to sustain operations.
- » **Support and test equipment:** This category includes all tools, special condition monitoring equipment, diagnostic and checkout equipment, metrology and calibration equipment, and maintenance stands; and the identification of the servicing and handling equipment required to support all scheduled and unscheduled maintenance actions associated with the system or item.
- » **Supply planning:** Supply planning addresses all spares (for example: units, assemblies, and modules), repair parts, consumables, special supplies and inventories needed to support the end product, related software, test and support equipment, transportation and handling equipment, training equipment, and facilities. Supply planning also covers provisioning documentation, procurement functions, warehousing, distribution of material, and the personnel requirements associated with the acquisition and maintenance of spare and repair part inventories at all support locations.
- » **Packaging, handling, storage, and distribution:** This element of logistics results in the articulation of the requirements for any special provisions, containers, and supplies necessary to support packaging, preservation, storage, handling, and transportation of the product; associated test and support equipment; spares and repair parts; personnel, technical data, and mobile facilities.
- » **Personnel:** This category includes the identification of the personnel required for the installation, operation, evaluation, handling, and maintenance of the product and its associated test and support equipment.
- » **Training:** This category includes not only the initial product familiarization training for users and support personnel, but also refresher training when new users and support personnel are exposed to the product or system. Safety is a major element of all training.
- » **Facilities and infrastructure:** This refers to all buildings and real estate needed for product production, product distribution, and the performance of maintenance functions. Since infrastructure costs can be a significant factor in the production and maintenance of a new product, a cost analysis is normally included with this category.

» **Information systems:** This facet of support refers to all computer equipment and accessories, software, program databases, and any peripheral equipment or data systems used during the manufacturing, maintenance, sales, and distribution functions. The element also includes both condition monitoring systems and maintenance diagnostic aids.

Deconflicting Some Unique Language of Global Logistics

Sounds simple, right? Hopefully, as you go through the various parts of this book you will see that the whole logistics enterprise is a complicated one — one that will become exponentially more complicated when the enterprise goes global.



TIP

Because there are so many logistics-related terms to keep track of, we have provided a listing of terms that are used throughout the book. You can find it in the Glossary after Part 6.

Earlier we discuss how SOLE defines “logistics” as the higher-taxonomy level domain, under which operate the functions of logistics engineering, supply chain management, maintenance, and numerous other logistics services (such as food and mortuary services). With these basic logistics concepts outlined earlier, it becomes clear that SOLE has always considered logistics to be more than supply chain management. Accordingly, when we talk to the “whole logistics enterprise” we include *all* the functionalities and domains of logistics.

Having said that, we need to call special attention to one concept in particular — that of *sustainability*. When we use terms relating to sustainability with regard to global humanitarian and disaster relief (see Part 5), we are using the concepts set forth in the globally accepted definition that was articulated in the Bruntland Report of 1987. Specifically, “*Sustainable development* is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

However, those of you in the field of logistics — particularly those of you who may be working as part of a country’s military-industrial complex — may be using the term “sustainability” primarily either as an adjunct to or in place of the technical terms “reliability, maintainability, and supportability”; or the concept of product, system, or operational “survivability.” (For example, the US DoD uses the phrase “life cycle sustainment” in describing the end result of providing “life cycle support.”)

If that weren't confusing enough, in many companies and organizations the term "sustainment" is all about keeping the company itself financially healthy and operationally viable (that is, "staying alive")!

Identifying the Need for This Global Logistics Discussion

We have started this discussion based on the premise that you are part of a successful business or organization that is considering expanding your domestic logistics operations — whether manufacturing, product sales, or the provision of some form of logistics services — into a new, foreign market.

There are many good reasons to consider exporting your successful domestic business to a new foreign location. There may be a new market in which to sell or distribute your product. You may achieve manufacturing cost savings by locating closer to either new consumers or to your product's raw materials and components. Or, you may have determined that you can achieve savings in the cost of the labor required to meet the expanding demand for your product. However, in spite of all the economic advantages you may have perceived, be aware that the physical and cultural challenges of your new location may far outweigh any potential cost savings.

You are not alone. Hundreds of companies every year — small, medium, and large — look to expand their operations on a more global basis. And, generally, less than 30 percent of them are successful at their first attempt.

The reasons for being unsuccessful are many and varied, but most often relate to not having a *complete* grasp of the proposed foreign location's people, customs, culture, laws, and regulations. In this book we describe many of the pitfalls that may be encountered when venturing into a new foreign location. Our hope is that — with the knowledge of what lies ahead — you can make the right decision for you and your company.

It should be noted that while the global expansion of manufacturing, sales, and product distribution has been and continues to be a growth area — especially due to the rise of the Internet and electronic commerce — logistics support to global humanitarian and disaster relief operations is predicted to grow even faster.

Accordingly, the book has four major focuses: logistics related to manufacturing “overseas” (Part 2), logistics related to global marketing and distribution (Part 3), providing logistics services globally (Part 4), and the unique aspects of providing humanitarian and disaster relief logistics (Part 5). While you may only be interested in one particular aspect of global logistics, we recommend you glance through the other parts, as some of the nuances of that segment of the global logistics environment may also be relevant to your global plans.

Finally, in The Part of Tens (Part 6), we include chapters on ten companies that have been successful in their global expansion; ten companies that made significant missteps in their global expansion (although some of those companies adjusted their approach and are very successful today); and ten resource suggestions for you to consider when performing the due diligence necessary to make your final decision about “going global.”

Welcome to the world of global logistics!