LOGISTICS AND SUPPLY CHAIN MANAGEMENT. CREATING VALUE NETWORKS IN MEXICO AND LATIN AMERICA

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Si no puedes ver el video, haz clic aquí.

Concept Map
eBook Introduction

The purpose of this eBook is to introduce the reader to the field of Logistics and Supply Chain Management. To achieve such objective, the e-book presents five sections, which are also divided into chapters. All of these sections and chapters present not only the fundamentals of Logistics and Supply Chain Management, but also specific characteristics and challenges faced by organizations with operations in Latin American countries.

The eBook is structured as follows. Part I presents an introduction to Logistics and Supply Chain Management, while Part II is devoted to one of the main decisions regarding supply chain configuration: Location Strategies. In the same manner, Transport Strategies are discussed in Part III, while Part IV presents inventory strategies to be considered in logistics and supply chain operations. Finally, Part V is devoted to the study of new trends and challenges in this sector, with particular analyses on operations in Latin American countries.
Chapter 1. Introduction to Logistics and Supply Chain Management (SCM)
Introduction

Logistics is a unique area, since it never stops. Logistics is happening around the globe, twenty-four hours of every day, seven days a week during fifty-two weeks a year. Few areas of business operations involve the complexity or span the geography typical of logistics. Logistics is concerned with getting products and services to the place where they are needed, when they are desired and under the right conditions.

1.1 Introduction to Logistics and Supply Chain Management (SCM)

As stated by Bowersox and Closs (1996), most consumers in highly developed industrial nations take a high level of logistical competency for granted. When they go to the store, they expect products to be available and fresh. It is difficult to visualize accomplishing any marketing or manufacturing without logistical support. In other words, logistics is a core competency area for
Logistics involves the integration of information, transportation, inventory, warehousing, material handling, and packaging. All of these areas of work provide a variety of stimulating jobs. These jobs combine to make overall logistics management a challenging and rewarding career.

Operating successfully in any business environment today requires companies to become much more involved in how their suppliers and customers do business. As global markets expand and competition increases, making products and services that customers want to buy means that businesses must pay closer attention to where materials come from, how their suppliers’ products and services are designed and assembled, how finished products are transported and stored, and what their direct customers and end-product users are really asking for.

Several factors require today’s firms to work together more effectively than ever before. Communication and information exchange through computer networks using enterprise resource planning (ERP) systems and the internet has made global teamwork not only possible but also mandatory for firms that may want to compete in most markets. Communication technologies continue to change rapidly, making global partnerships and teamwork much easier than ever before. Competition is expanding rapidly in all industries and in all markets around the world, bringing new materials, products, people, and resources together, making it more difficult for the local, individually owned, to keep customers. New markets are opening up as governments change and as customers around the world learn from new products from television, the Internet, radio and contact with tourists. It is an exciting time for companies seeking to develop new products, find new customers, and compete more successfully. New jobs and opportunities are opening up in fields such a purchasing, operations, logistics, and supply chain management as firms build a better competitive infrastructure.

Review activity at the end of this chapter

1.2 Logistics and Supply Chain Management Defined

Logistics is a relatively new field of integrated management study in comparison with the traditional fields of finance, marketing, and production.

An accurate definition of logistics is presented by the Council of Supply Chain Management Professionals (CSCMP), a professional organization of logistics managers, educators, and practitioners with the purposes of continuing education and fostering the interchange of ideas. You will find such definition on the right-hand side of this text.

This definition conveys the idea that product flows are to be managed from the point where they
exist as raw materials to the point where they are finally discarded. Logistics is also concerned with the flow of services as well as physical goods, an area of growing opportunity for improvement. It also suggests that logistics is a process, meaning that it includes all the activities that have an impact on making goods and services available to customers when and where they wish to acquire them. However, the definition implies that logistics is part of the supply chain process, not the entire process. So, what is the supply chain process or, more popularity, supply chain management (SCM)? Such definition is also located on the right-hand side of this text.

SCM is a term that has emerged in recent years, which captures the essence of integrated logistics and even goes beyond it. SCM emphasizes the logistics interactions that take place among the functions of marketing, logistics, and production within a firm and those interactions that take place between the legally separate firms within the product-flow channel. Opportunities for cost or customer service improvement are achieved through coordination and collaboration among the channel members, where some essential supply chain activities may not be under the direct control of the logistician. Nowadays, organizations are showing success in sharing information with its suppliers, which in turn agree to maintain and manage inventories on the organization’s shelves. Channel inventories and product stock outs are lower. Manufacturing forms operating under just-in-time production scheduling build relationships with suppliers for the benefit of both companies by reducing inventories.

The supply chain management model shown below, states the scope for the definition of SCM previously discussed. SCM is about the coordination of product flow across functions and across companies, in order to achieve competitive advantage and profitability for the individual companies in the supply chain, as well as for the supply chain members collectively.

While SCM may allow organizations to realize the advantages of vertical integration, certain conditions must take place for successful supply chain management to occur. Perhaps the single most important prerequisite is a change in the corporate cultures of all participating members in the supply chain to make them conducive to supply chain management. More traditional organizational cultures that emphasize short-term, company-focused performance in many ways, conflict with the objectives of SCM.
SCM focuses on positioning organizations in such a way that all participants in the supply chain benefit. Thus, effective SCM relies on high levels of trust, cooperation, collaboration, and honest, accurate communications.

Purchasing, operations, logistics, and transportation managers must not only be equipped with the necessary expertise in the critical supply chain functions but must also appreciate and understand how these functions interact and affect the entire supply chain.

Boundaries of supply chains are also dynamic. It has been often said that supply chain boundaries extend from “the firm suppliers’ suppliers to its customers’ customers”. Today, most firms’ SCM efforts do not extend beyond those boundaries. In fact, in many cases, firms find it very difficult to extend coordination efforts beyond a few firms’ (maybe first-tier suppliers and first-tier customers). However, with time and successful initial results, many firms are extending the boundaries of their supply chains to include second-tier suppliers and customers (these are the suppliers’ suppliers and customers’ customers), as well as non-domestic suppliers and customers.

Review activity at the end of this chapter

1.3 Current Trends in SCM

The practice of SCM is a contemporary phenomenon, as many organizations are just now realizing the benefits and challenges that accompany an integrated supply chain. SCM is an incredibly complex and time-consuming activity, which involves cultural change among most or all of the participants. In the same vein, investment and training in new software and communication systems is needed, as well as a building of trust between supply chain members. A change of realignment of the competitive strategies employed among the participating firms is also crucial to achieve successful results. As competitive situations, products, technology, and customers change, the priorities for the supply chain also must change, requiring supply chains to be ever more flexible to respond quickly to these changes. As stated by Wisner, Tan and Leong (2008), as we look at the most recent practices and trends in SCM, a number of issues present themselves as areas that need to be addressed, including the expansion of the supply chain, increasing supply chain responsiveness, creating green supply chain, and reducing total supply chain costs.

Expanding the supply chain

Nowadays, firms are increasing their partnerships with foreign firms and building foreign production facilities. Such strategies will allow them to accommodate their market expansion plans and increase their responsiveness to global economic conditions and demands.

The supply chain dynamic today is changing, and companies are now working with firms located all over the globe to coordinate purchasing, manufacturing, and logistics activities. While this global expansion of the supply chain is taking place, firms are also trying to expand their influence and
control of the supply chain to include second and third-tier suppliers and customers. Thus, supply chain expansion is occurring on two fronts:

1. Increasing the breadth of the supply chain to include foreign manufacturing, office, retail services, along with foreign suppliers and customers and;

2. Increasing the depth of the supply chain to include second and third-tier suppliers and customers.

Increasing supply chain responsiveness

Agile manufacturing, JIT, lean production, mass customization, efficient consumer response, and quick response are all terms referring to concepts that are intended to make the firm more flexible and responsive to customer requirements and changes. Particularly with the tremendous levels of competition in almost all avenues of business, firms (and their key supply partners) are looking today at ways to become more responsive to customers.

To achieve greater levels of responsiveness, supply chains must identify the end customers’ needs, look at what the competition is doing and position the supply chain’s products and services to successfully compete, and then consider the impact of those requirements on each of the supply chain participants. Once these requirements have been adequately identified among the firms in the supply chain, additional improvement in responsiveness comes from designing more effective information and communication systems, and faster product and service delivery systems as products and information are passed through the supply chain.

Supply chain members must also continuously monitor changes occurring in the marketplace and then use this information to reposition the entire supply chain to stay competitive.

The greening of supply chains

Producing, packaging, moving, storing, repackaging, delivering, and then returning or recycling products can pose a significant threat to the environment in terms of discarded packaging materials, scrapped toxic products, carbon monoxide emissions, noise, traffic congestion, and other forms of industrial pollution. As the practice of supply chain management matures, governments along with firms and their supply chain partners are working harder to reduce these environmental problems.

Relationships between companies in an integrated supply chain are much more conductive to taking a more proactive approach to reducing the negative environmental consequences of producing, moving and storing products as they wend their ways through supply chains. Over time, consumer sentiment toward environmentally friendly processes and the prevention of global warming has increased, making this topic one of concern for companies managing their supply chains.
Added to this increasing concern and awareness among the general public for environmentally friendly business processes is the growing cost of natural resources such as wood products, oil, and natural gas. Strategies to successfully compete under these conditions include using recyclable materials in products; using returnable and reusable containers and pallets; using recyclable and reusable packaging and materials; managing returns along the supply chain efficiently; designing effective transportation, warehousing, and break-bulk/repackaging strategies; and using environmental management systems from initial producer to final consumer in the supply chain.

The benefits of these activities will include lower system-wide costs, fewer duplicate activities, marketing advantages, less waste, and ultimately, better customer satisfaction.

**Reducing supply chain costs**

Cost reduction can be achieved throughout the supply chain by reducing waste (as previously described), by reducing purchasing and product distribution costs, and by reducing excess inventories and non-value adding activities among the supply chain participants. As supply chains become more mature, they tend to improve their performance in terms of these cost reduction activities through the use of continuous improvement efforts, better supply chain communication and inventory visibility, and a further integration of processes.

As time passes, supply chain costs continue to decrease due to trial and error, increased knowledge of the supply chain processes, use of technology to improve information flow and communication, benchmarking other supply chains to adopt what they are doing well, and continued performance measurement and other process improvement efforts. The purchasing function among supply chain participants will continue to be viewed as a major strategic contributor to cost reduction, which can be achieved through better supply chain evaluation techniques, value engineering, and analysis in product design and production, standardization and reduction of parts and materials, as well as through make-or-buy decisions.

Finally, the transportation and logistics functions will also play major roles in cost reduction along the supply chain through better design of the distribution networks and more efficient use of third-party logistics service providers.

*Review activity at the end of this chapter*

### 1.4 Logistics and supply chain planning

The purpose of logistics planning is to answer the questions of what, when and how. As stated by Ballou (2004), logistics may take place at three levels: strategic, tactical and operational. The main difference among them is the time horizon for planning.
Examples for **strategic planning** can be identified in decisions such as facility location, configuration of the distribution network, etc., where the time horizon is more than one year. Specific cases of such decisions can be identified for firms whose distribution centers have been located in areas like the northern part of Mexico City (industrial areas located in Naucalpan, Atizapan, etc.) or the central part of Mexico (in cities like Queretaro, San Luis Potosi, etc.). Distribution networks have also been configured in this country for organizations like Estafeta, which include collecting and distribution nodes in several towns and cities inside this region.

In the same vein, examples for decisions taken at the **tactical planning** level include safety stock, seasonal space choices, seasonal equipment planning, etc. Cases for such decisions in the Latin American context can be identified for: 1) variable stock levels at firms that produce coffee in countries like Colombia, Costa Rica or Mexico, where inventory levels are modified throughout the year, in order to be able to respond in a more effective manner to specific changes on its demand; 2) airline firms like Copa, Taca, Volaris or Interjet, which may want to set up seasonal airplane leasing to satisfy demand for a limited amount of time; and 3) seasonal space choices for retailers like Mega Comercial in Mexico, Arabela in Chile, 47-street in Argentina), among others.

Finally, examples for decisions taken at the **operational level** include decisions such as routing, dispatching, order picking and restocking, etc. Examples in the Latin American context can be identified in organizations such as Estafeta in Mexico or Yanbal in Ecuador, which set up delivering routes on a daily basis based on their demands. In particular, Estafeta may include not only deliveries but pick-ups as well.

Each planning level requires a different perspective. As several authors state, strategic planning works with data that are often incomplete and imprecise. For example, location decision for a new facility is usually performed under particular assumptions for the demand of the markets where it will operate, since the firm may not have historic information for such region. Data may be averaged, and plans are usually considered good enough if reasonable close to optimum. On the other hand, operational planning usually works with very accurate information, since previous data may be obtained by the firm for such decisions, as a consequence of its own operation in previous terms.

Logistics planning tackles four major problem areas: customer service levels, facility location, inventory decisions, and transportation decisions, as shown in **figure 1.1**. Except for a setting desired customer level, logistics planning may be referred to as a triangle of logistics decision making. These problem areas are interrelated and should be planned as a unit, although it is common to plan them separately. Each has an important impact on system design.
Customer service goals

Services create more intangible offerings that a tangible product may include. While manufacturing goods is important, providing services is just as, if not more, important. This is precisely where logistics and supply chain management emerges as a key strategic factor. Many firms use services, as a way to differentiate their products, and this is not the exception in regions like Latin America.

Regarding logistics operations, customer service is a critical issue, since low levels of service allow centralized inventories at few locations and the use of less expensive forms of transportation. To illustrate this, consider sale points for car components, where the customer may have to wait for a particular item to arrive, since it is too expensive to have all components available at each store. In consequence, service level is not significantly high, since a waiting time for the transportation of
the item from the central warehouse to the selling point is expected.

In contrast to such situation, high service levels generally require high inventory levels. From such particular situation, it can be inferred that a higher service level requires higher logistics costs. Therefore, one of the main concerns in logistics strategic planning arises in setting the proper service level desired.

*Figure 1.2* outlines particular decision making to improve service level under the umbrella of logistics and supply chain management.

Figure 1.2
The selection of the location, number and size of facilities in a particular logistics networks, influence in a significant manner the service level –and operating costs- provided by a firm. Such decision requires the consideration of several factors, such as the movement of all products associated to such facilities, vendor and supplier locations, customer demand, etc.

Facility location for retailers such as Walmart, Costco, Superama or Mega Comercial in Mexico, represent an example of such decision. The size for such facilities is also a critical decision, since the availability of products offered will be determined by it.
As stated before, an adequate management of inventory levels represents another critical issue regarding customer service. The inventory allocation process to stocking points inside a supply chain is a complex but crucial activity regarding service levels, since it determines the availability of products demanded by customers.

Decisions related to inventory levels at selling points in the pharmaceutical industry represent a good example in this vein. Particular products in this sector are expensive, and in consequence, its availability will vary in function of such cost. The service level provided will be influenced by such availability.
Review activity at the end of this chapter

Chapter 1. Conclusion

Throughout this Chapter, we have discussed the meaning and the importance of logistics and SCM in the daily operations of companies not only in Latin America, but also worldwide. Because of new global markets and global competitors, a firm must be able to compete not only in a regional basis, but also in the entire world.

Global partners are now a feasible way to reduce costs related to raw materials, services, processes and transportation. By stating alliances throughout the supply chain, a firm can be more competitive and aim to fulfill new and changing customer’s needs.

Chapter 1. Activities

» Activity 1.1
Chapter 1. Resources

Additional activities
Practice more through the following activities:

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Recommended links

» Asian Council of Logistic Management
» Asociación de Profesionales en Compras, Abastecimiento y Logística, A. C.
» Center for Transportation and Logistics –Massachusetts Institute of Technology (MIT)
» Council of Supply Chain Management professionals
» Council of Supply Chain Management Professionals Round Table Mexico
» Supply Chain Council
» Supply Chain & Logistics Association Canada

Chapter 2. Logistics and Consumer Value