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—Robert J. Trent, Ph.D., Supply Chain Management Program Director, Lehigh University

# SUPPLY CHAIN AND LOGISTICS MANAGEMENT MADE EASY



**Methods and Applications for Planning,  
Operations, Integration, Control and  
Improvement, and Network Design**

**PAUL A. MYERSON**

Professor of Practice in Supply Chain Management, Lehigh University

## Praise for *Supply Chain and Logistics Management Made Easy*

“Paul Myerson’s new book is a refreshing and a welcomed addition to the field, offering the reader a clear and easy-to-understand presentation of the key concepts and methods used in the field of supply chain management. His work is not only easy to understand but also comprehensive in coverage.

“I highly recommend it to university professors who want to incorporate it in their undergraduate and graduate courses in supply chain management. I have become a real fan of *Supply Chain and Logistics Management Made Easy*. Certainly, nothing in life is easy, but Paul Myerson’s new book has made the field more attractive and popular.”

—**Richard A. Lancioni**, Professor of Marketing and Supply Chain Management,  
Fox School of Business & Management, Temple University

“Is it possible to take a discipline that involves millions of moving things, people, and processes and make it easy? Paul has taken the complex subject of supply chain and delivered a thorough and easy-to-understand review of all its elements. For the business student, the book provides a comprehensive view of the supply chain and serves as an effective introduction to the discipline and as an effective teaching tool. For the supply chain expert, this book is an excellent tool for reflection on all things supply chain. Each section brings back thoughts of the challenges the accomplished supply chain leader has faced. The book is an excellent resource for anyone in business who is looking to work in or currently works in supply chain management.”

—**Gary MacNew**, Regional Vice President, Supply Chain Optimizers

“This is an excellent read for both students and professionals who are interested in gaining a better understanding of what supply chain and logistics is all about. It is an easy-to-understand handbook for anyone who has a need to better understand supply chain management or is responsible for helping their organization gain an advantage from their supply chain. Myerson’s book should be on every manager’s bookshelf for ready reference.”

—**Robert J. Trent, Ph.D.**, Supply Chain Management Program Director,  
Lehigh University

“Paul does a great job compacting supply chain management and logistics into one text. I wish I would have had this book when I was a logistics student 30+ years ago, but it’s a great text and reference for me now, too. The SCM discipline is very wide and diverse now. This book captures all the elements. A complete professional reference. An easy read that teaches.”

—**Andy Gillespie**, Director, Global Logistics, Ansell

“Practical, accessible, up-to-date, and covering today’s best practices, *Supply Chain and Logistics Management Made Easy* is the ideal introduction to modern supply chain management for every manager, professional, and student.”

—**Oliver Yao**, Associate Professor, Lehigh University

# **PART III**

## Supply Chain Operations

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## Procurement in the Supply Chain

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**A**cquiring materials is the next logical step after the planning process is complete because it is the net result of the planning process just described, whether for raw materials and components for manufacturing or finished goods for wholesalers, distributors, or retailers.

Because purchased materials, components, and services make up a great deal of the supply chain spend for most organizations, resulting in the leverage effect discussed in the first chapter, it is a very visible and important component of supply chain management.

Due to the visibility and general rise in awareness of the importance of supply chain management (SCM) in general, there are many career opportunities in procurement, from the assistant buyer up to director level in many goods and service organizations. The institute for supply management ([www.ism.ws](http://www.ism.ws)) offers the CPSM (Certified Professional in Supply Management), which is helpful both in terms of education and career advancement.

Purchasing is a basic function in most organizations and for the purposes of this book is defined as the transactional function of buying products and services. In a business setting, this commonly involves the placement and processing of a purchase order.

This definition for purchasing is to avoid confusion with two other frequently used concepts and terms of procurement (also known as *sourcing* or *supply management*) and strategic sourcing. We will define them as follows:

- **Procurement:** The process of managing a broad range of processes associated with a firm's need to acquire goods and services in a legal and ethical manner that are required to manufacture a product (direct) or to operate the organization (indirect), the foundation of which is provided by the purchasing function.
- **Strategic sourcing:** The strategic sourcing process takes the procurement process further by focusing more on supply chain impacts of procurement and purchasing decisions, and works cross-functionally within the business firm to help achieve the organization's overall business goals. This includes analysis of the company's annual

(or more often) *spend* with suppliers and supply markets and helping to develop a sourcing strategy that both supports the overall business strategy while minimizing cost and risk.

In this chapter, we concentrate primarily on the procurement or supply management process.

## Make or Buy

The first decision in this process, at least strategically, is the question of *make or buy*, which is the choice between internal production and external sources.

A simple breakeven analysis can be used to quickly determine the cost implications of a make or buy decision in the following example.

If a firm can purchase equipment for in-house use for \$500,000 and produce requested parts for \$20 each (assume that there is no excess capacity on their current equipment), *or* they can have a supplier produce and ship the part for \$30 each, what is the correct decision: make (assume with new equipment) or buy (that is, outsource production)?

To arrive at the correct decision, a simple breakeven point could easily be calculated as follows:

$$\$500,000 + \$20Q = \$30Q$$

$$\$500,000 = \$30Q - \$20Q$$

$$\$500,000 = \$10Q$$

$$50,000 = Q$$

As the breakeven point is 50,000 units, the answer is that it is better for the firm to buy the part from a supplier if demand is less than 50,000 units, and purchase the necessary equipment to make the part if demand is greater than 50,000 units.

## Outsourcing

Many companies choose to outsource activities, resources, and entire business processes for a variety of reasons that include not being viewed as a core competency, high taxes, high energy costs, excessive government regulation, and high production or labor costs. Outsourcing can also sometimes involve transferring employees and assets from one firm to another. Logistics (especially distribution and transportation) is always a good candidate for outsourcing, as are manufacturing and assembly.

The many benefits of outsourcing include the following:

- **Focus on core activities:** Outsourcing noncore activities helps to put the focus back on the core functions of the business, such as sales and marketing.

- **Cost savings:** The lower cost of operation and labor makes it attractive to outsource.
- **Reduce capital expenditures:** Outsourcing frees an organization from investments in technology, infrastructure, and people that make up the bulk of a back-end process's capital expenditure.
- **Increased flexibility:** Outsourcing can improve an organization's reaction to fluctuations in customer demand and changes in technology.

There are also many disadvantages or risks to outsourcing, such as the following:

- **Security risk:** There is always the risk of losing sensitive data and the loss of confidentiality.
- **Loss of management control of business functions:** You may no longer be able to control operations and deliverables of activities that you outsource.
- **Quality problems:** The outsourcing provider may not have proper processes or may be inexperienced in working in an outsourcing relationship.
- **Loss of focus:** The outsourcing provider may work with many other customers, and therefore may not give sufficient time and attention to your company. This might result in delays and inaccuracies in the work output.
- **Hidden costs and legal problems:** This can occur if the outsourcing terms and conditions are not clearly defined.
- **Financial risks:** Bankruptcy and financial loss cannot be controlled if the outsource partner is or becomes financially unstable.
- **Incompatible culture:** Culture of the outsourcing provider and the location where you outsource to may eventually lead to poor communication and lower productivity.

The individual company will have to ultimately make the decision after determining the probability of both the risks and rewards of outsourcing.

## *Other Supply Chain Strategies*

There are a number of other strategies available to the supply chain manager. They can include the following strategies.

### **In-Sourcing**

There is also an opposite, more recent trend in outsourcing and offshoring (the relocation by a company of a business process from one country to another), where companies are starting to perform tasks that were previously outsourced themselves and develop facilities back in their home Western locations, as the results of outsourcing were not exactly as expected (for example, poor quality or low productivity). This is known as *in-sourcing*.

## Vertical Integration

A concept similar to in-sourcing but used to develop the ability to produce goods or service previously purchased is known as *vertical integration*. The integration can be forward, toward the customer, or backward, toward suppliers, and can be a strategy to improve cost, quality, and inventory, but requires capital, managerial skills, and adequate demand. It can be risky in industries with rapid changes in technology.

## Near Sourcing

There is also a recent trend for U.S. companies called *near sourcing*, primarily as a result of spike in energy costs (that is, transportation) making it more economical to produce closer to home, such as in the Caribbean or Mexico.

## Few or Many Suppliers

Companies can choose to go with many suppliers or few suppliers for some materials or products as a supply chain strategy:

- **Many suppliers:** This strategy is used for commodity products in many cases where price is the driving decision factor and suppliers compete with one another.
- **Few suppliers:** In this strategy, the buyer establishes a longer-term relationship with fewer suppliers. The goal is to create value through economies of scale and learning curve improvements. Suppliers are more willing to participate in just-in-time (JIT) programs (a strategy to reduce in-process inventory and associated carrying costs, as discussed later in the Lean chapter of the book) and contribute design and technological expertise. This cost of changing suppliers in this strategy is great because you tend to have all your eggs in one basket and may have invested heavily in this relationship as a result.

## Joint Ventures

Joint ventures are formal collaborations between two companies that reduce risk, enhance skills, or reduce costs (or a combination of all three). An example that ended in 2011 was a 50/50 joint venture between Johnson & Johnson and Merck that handled the over-the-counter (OTC) product lines Pepcid, Mylanta, and Mylicon.

## Virtual Companies

Virtual companies rely on a variety of supplier relationships to provide services when needed. They usually have very efficient performance, low capital investment, flexibility, and speed. An example of this is Vizio, a company that became the largest-selling brand of LCD television in the United States in 2010, with only 196 employees. They used contract