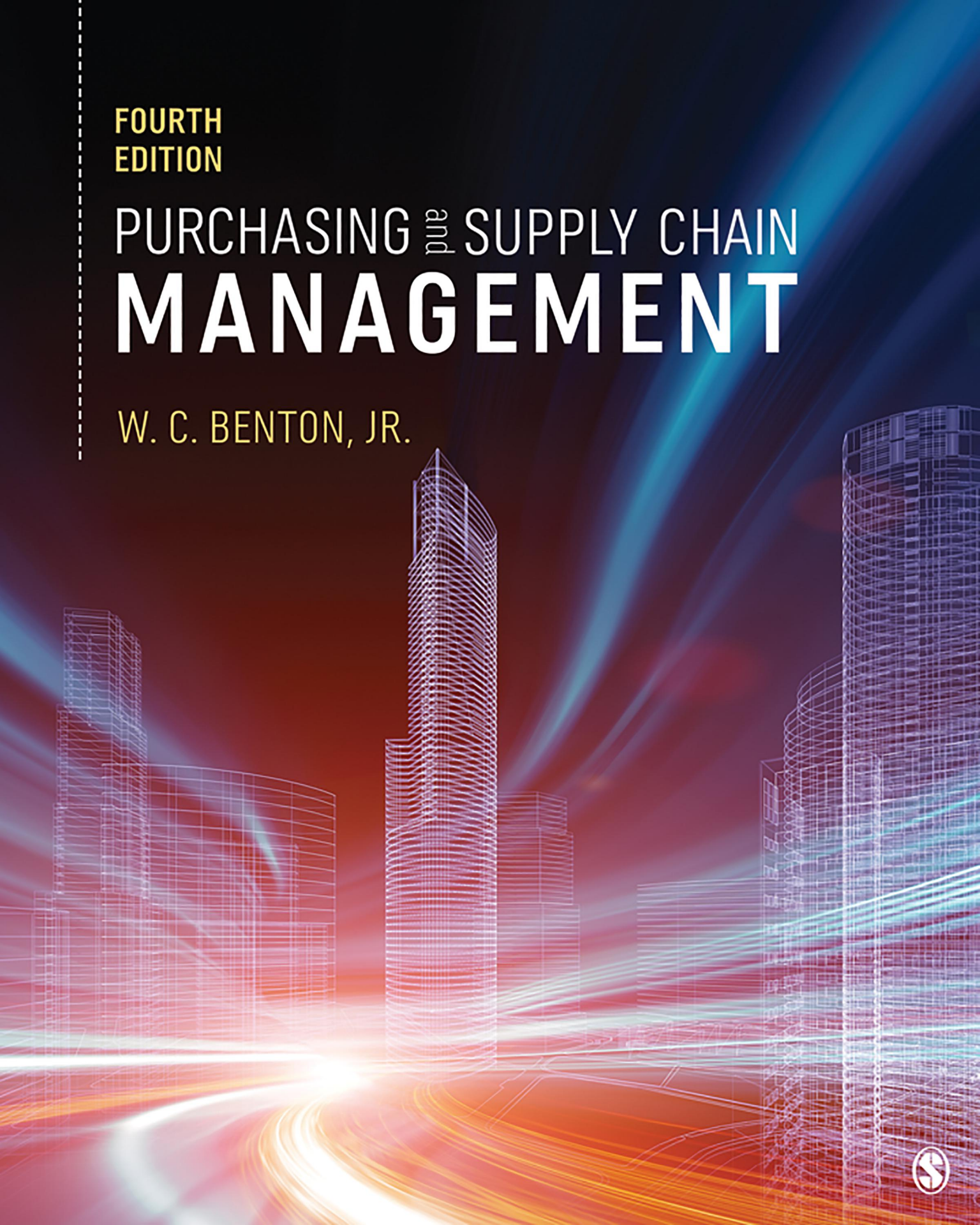
FOURTH EDITION

PURCHASING and SUPPLY CHAIN MANAGEMENT

W. C. BENTON, JR.



Purchasing and Supply Chain Management

Fourth Edition

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Purchasing and Supply Chain Management

Fourth Edition

W. C. Benton, Jr.
The Max M. Fisher College of Business
The Ohio State University

SAGE

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Preface

As the role of purchasing and supply chain management continues to evolve, a new set of objectives is coming into focus, namely, the need to elevate procurement's role to more of a trusted member of the executive team.

The material in this book is intended as an introduction to the field of purchasing and supply chain management. It is suitable for both undergraduate and graduate students. The field of purchasing has turned over many times during the past 40 years. The traditional purchasing function has evolved from a narrowly defined transactional activity into a professional supply chain management function driven by people and technology. The role of supply chain management is concerned with is cost containment, profitability, and relationship building. The supply chain has become a determining factor that defines a company's business model. Most of today's supply chains are more globally focused, technologically infused, interactive, and collaborative. The discipline of supply management is the core component of an effective supply chain. This book is based on more than 30 years of practice, teaching, research, and consulting experience. This book is different from other purchasing textbooks in that it focuses on an *analysis-driven purchasing practice*. The learning objectives in this book can be implemented immediately.

Interest in purchasing and supply chain management both in industry and in academia is growing at an increasing rate. Purchasing is recognized as having an overwhelming impact on the bottom line of the organization. It has a direct impact on the two forces that drive the bottom line: sales and costs. Several factors have driven the *purchasing revival*. First, many companies are becoming more profitable by increasing throughput, lowering inventories, and minimizing operational expenses. Second, supply chain information is becoming the primary driver throughout the supply chain management system. Third are the recent trends in outsourcing, and, finally, buying organizations are using interorganizational *power* to manage their supply chain. The purchasing/supply chain skill levels for the next decade must include (1) an understanding of the value drivers: technology, velocity, and globalization; (2) becoming more strategically involved in decisions; and (3) becoming proficient in business analytics.

The information in this book provides state-of-the-art concepts, analysis, and supply management solutions. The topical matter includes purchasing decisions and business strategy, the legal aspects of purchasing, materials management, inventory management, just-in-time (lean) purchasing, purchasing procedures, e-purchasing, systems contracting, supplier selection and evaluation, strategic outsourcing, global sourcing, purchasing supply partnership, supply chain power, total quality management (TQM) and purchasing, price determination, bargaining and negotiations, purchasing transportation services, equipment acquisition and disposal, health care purchasing, and purchasing professional services. Most purchasing, logistics, and supply management students will be directly employed in purchasing or related supply chain management areas. The book focuses on the interrelationships of purchasing with the rest of the functional and system areas of the organization, with particular emphasis on the interface with accounting, finance, marketing, logistics, supply chain management, and operations management. However, each chapter is designed to be self-contained, so the reader can easily refer to the topic of interest. There are 29 real-world cases and exercises

based on practical organizational situations. Each case has been tested by industrial implementation and through in-class usage. The cases are intended to reinforce the lessons learned from the chapters.

The treatment of purchasing and supply chain management in this book is extensive and complete. The contents in the book can be covered in a one-semester course. The textbook is intended to be used for undergraduate- and graduate-level courses in purchasing management, supply management, procurement management, contract management, logistics, and supply chain management. The book is also an excellent resource for executive education and training seminars. Depending on the pedagogy, the book also could be used in operations management, marketing/fashion, and industrial engineering courses. The book is an excellent resource for the Certified Purchasing Manager (C.P.M.) program sponsored by the Institute of Supply Management (ISM) and the certification program sponsored by the Association for Operations Management (APICS).

CHANGES TO THIS EDITION

Business is a complex field. A company can spend from 60% to 80% of its revenue buying goods and services. Purchasing and supply chain management professionals oversee the business's buying activities. The fourth edition of *Purchasing and Supply Chain Management* focuses on the next generation of purchasing and supply professionals. Today, supply professionals must possess a comprehensive skill set. They must have excellent technology and negotiation skills in order to add value to their organization. Supply professionals must also be analytical problem solvers. In today's global arena, purchasing and supply professionals must be able to interact with potential sources of materials and services throughout the world.

This edition is a comprehensive, easy-to-follow authoritative guide to state-of-the-art purchasing and supply methods, perfect for both students and supply professionals. Some of the highlights include the following new and expanded topical coverage:

- New coverage of supplier and opportunistic supplier behavior
- New coverage on selecting, managing, and monitoring complex global outsourcing services
- New coverage on the relationship between the hospitals and group purchasing organizations
- Expanded coverage of health care purchasing and supply chain management
- New coverage on purchasing strategy and the development of strategic purchasing plans for competitive advantage
- Expanded coverage of e-procurement technology
- New coverage on professional service sector procurement
- Expanded coverage of price/cost analysis, negotiations, and the competitive bidding trap
- Expanded coverage of markup versus margin
- New coverage on professionalism, ethics, and the law

- Expanded coverage of supply chain relationship management
- New coverage on project pricing
- Twenty new real-world case studies
- A comprehensive set of new exercises and problems

The fourth edition is both timely and topical and intended to help the new generation of students and supply professionals to become more effective supply management professionals.

An Overview of the Text Highlighting Changes in This Edition

Part I. Introduction to Purchasing and Supply Chain Management

Chapter 1 establishes that now is the best time for the next generation of managers to pursue a career in purchasing and supply management. Supply management professionals must possess a diverse skill set. First, the successful supply manager must have excellent technology, people, and negotiations skills in order to add value to his or her organization. Supply professionals must also be analytical problem solvers. In today's global business arena, supply management professionals must be able to interact with potential sources of materials and services throughout the world.

In this edition we show how supply management professionals must learn how to adapt to new sources of supply chain uncertainty. The European Union (EU) is just one example of global uncertainty now affecting U.S. firms. There is a high level of direct investment and trade between the EU and the world's two largest economies (i.e., the United States and China). Many American firms have subsidiaries and business partners located in the United Kingdom, and these companies served as portals into the European Single Market (within which there is free movement of goods, capital, services, and labor). In 2016, the United Kingdom voted to leave the EU, an event known as "Brexit" or British exit. Brexit was finalized on January 31, 2020.

To manage supply chain risk, we must first determine specifically where the risk exists in the supply chain. Any companies with footprints in the United Kingdom must evaluate and adapt their supply management function based on the realities of Brexit. More generally, any company with a global footprint must evaluate and adapt its supply management function based on the global uncertainties to which it is exposed. An effective supply chain organization with critical and strategic suppliers and customers in a vulnerable or changing part of the world must devise plans for qualifying alternative strategic supply chain relationships. Keeping a watchful eye on inventory levels and conducting site visits is broadly recommended.

In **Chapter 2** we show how purchasing can play a significant role in making a firm competitive. Purchased inputs constitute a large portion of the company's resources. In most industrial firms, material constitutes 60% to 80% of the total revenue dollars. Purchased inputs offer a potential source for helping a company develop leverage against its competitors. Purchasing actions designed to reinforce the firm's competitive priorities can give the firm advantages over its competitors. In essence, firms must design their purchasing actions to emphasize the competitive strategy. In this new edition, an enhanced framework for linking purchasing decisions with the firm's competitive strategy is presented. Specifically, we show how an effective purchasing framework includes four important decision areas: (1) supply management, (2) buying, (3) supplier development, and the (4) degree of supply

chain integration. The primary tactical tools used for implementation of the strategic framework are the total cost of ownership (TCO) and SWOT analysis.

The legal aspects have been expanded in **Chapter 3**. The purchasing professional in an organization must be able to understand the legal aspects of the purchasing function. In a free democracy, the law can only codify and enforce the most egregious violations as defined by society. The elimination of fraud and exploitation does not regulate aggressive negotiations and other business practices. However, purchasing professionals must strive to conduct honest negotiations. The relationship between ethics and the law is complex. Many violators of ethical conduct maintain that their actions are perfectly legal under the law. The societal norms must also be considered. Perhaps the most significant change of the legal aspects of purchasing is the impact of contracts and transactions in the information age.

Part II. Materials Management

Chapter 4 focuses on materials management in support of the transformation of raw materials and component parts into throughput (sales). The functions included in the materials management concept include (1) materials planning and control, (2) production scheduling, (3) receiving, (4) stores, (5) traffic, (6) disposal of scrap, (7) quality control, and (8) inventory control. In the fourth edition we show how the concept throughput time (TPT) applies to the efficiency. Specifically, the longer an order for material stays in the plant, the larger the work-in-process inventory will be, the larger the storage area required, and the more likely the material will be damaged, lost, or stolen. Work-in-process inventory has little market value except to the salvage yard. The firm is not in the business of making and inventorying work in process. The adage is, "Move it out; ship it; bill the customer."

Inventory management is presented in **Chapter 5**. Inventory is the lifeblood of any business. Most firms store thousands of different items. There are many inexpensive supply or operating type items. The type of business a firm is in will usually determine how much of the firm's assets are invested in inventories. Hospitals carry beds and surgical instruments, as well as food, pharmaceuticals, and other miscellaneous items. On the other hand, manufacturing firms carry office supplies, raw materials, component parts, finished products, and many other industry-related items. In this chapter we also discuss the nature of demand. The nature of demand is perhaps the most important attribute. The nature of demand can be either independent or dependent. *Independent* demand is unrelated to the demand for other items. In other words, demand for an independent item must be forecasted independently. *Dependent* demand is directly derived from demand for another inventoried item demand. In manufacturing firms, raw materials, component parts, and subassemblies depend on the final item's demand. Thus, demand for a dependent item should not be forecasted independently. In this edition we have increased the example problems. There are also 25 new exercises at the end of the chapter.

Just-in-time (JIT) or lean purchasing is introduced in **Chapter 6**. The current shift toward the so-called "lean thinking" manufacturing environment is one of the major motivations for JIT purchasing. JIT has changed the role of purchasing from merely placing orders to investigating the supplier's technical and process capabilities. Perhaps the most important realization is the fact that suppliers should become an extremely important consideration for the purchasing function, wherein they should be viewed as partners and not adversaries. The function of purchasing is to provide a firm with component parts and raw materials. Purchasing also must ensure that high-quality products are provided on time, at a reasonable price. Specifically, the implementation of JIT purchasing assists the purchasing function in

its major objectives of improving quality of incoming materials and supplier delivery performance, along with reducing lead times and cost of materials.

Part III. Fundamentals of Purchasing and Supply Chain Management

Chapter 7 has been updated significantly in the fourth edition. Today, the acquisition of supplies from the company storerooms in most cases is a relatively simple process. The requisitioner creates a requisition in the appropriate software, commonly an ERP system such as SAP. The system automatically checks whether the requisitioner has the authority to make a purchase of that value and/or under that budget line and sends requests for additional approval if necessary. If the materials are available in stock, the requisition can be filled quickly and with little further processing. Many companies have adopted catalogs (also called e-catalogs) of approved products for users to browse; this is partly done to encourage requisitioners to request items that are readily available by making it easier to request a standard item than it is to request something not normally kept in stock. Anything that requires human handling can lead to productivity losses. Many high-technology manufacturing firms purchase fully assembled component systems electronically. The new information age forces both large and small firms to consider the competitive advantages of online reverse auctions and RFID technology. Businesses that use reverse auctions have made testimonials of savings of more than $800 million from online bidding.

Supplier selection is addressed in **Chapter 8.** The supplier selection problem is much easier to describe than carry out. One purpose of this chapter in the fourth edition is to shed light on selecting only the most compatible supplier for firms in specific industries. The buying firm may be highly skilled at (1) specifying product attributes, (2) forecasting expected requirements, and (3) ensuring the right quality at a reasonable price. However, unless the buying firm selects the right supplier, the prepurchase planning is meaningless. The selection of the correct supplier is perhaps the most important purchasing activity. The buying firm must spend extensive time analyzing and carefully selecting the correct supplier. Once the correct supplier is chosen, succeeding orders will by definition meet quality, delivery, and price expectations. Of course, there should be periodic supplier evaluations to ensure continuous supplier performance achievement. In the next two chapters we address the supplier sourcing process.

Strategic outsourcing is addressed in **Chapter 9**. Outsourcing is the complete transfer of a business process that has been traditionally operated and managed internally to an independently owned external service provider. A complete transfer means that the people, facilities, equipment, technology, and other assets are no longer maintained once the business process is outsourced. Strategic outsourcing has rapidly become a building block for globalization. The conventional motivation for outsourcing is commonly driven by the savings in direct labor.

In the coming decade, more and more firms will be expanding their operations into international markets. The subject of **Chapter 10** is global sourcing. Global sourcing is the trend of the future. Supply management is becoming very important to the survival of both American and offshore firms. In certain industries, using foreign suppliers can reduce costs, thus making a company more competitive. As firms' competition heats up, firms will become more global minded. To be a global firm, management must be able to critically evaluate foreign markets. In the current business environment, firms are beginning to develop global procurement strategies. The electronic, chemical, and metal industries are leading the global procurement charge. In this chapter a detailed total cost analysis is presented to show the

hidden costs associated with global sourcing. The buying firm must also know how to negotiate in foreign countries. There are two germane forms of opportunism associated with both domestic and global outsourcing: shirking and poaching. *Shirking* represents the extent to which the service provider is inclined to deliberately underperform or withhold resources should the customer be unable to detect such action. Shirking is often associated with the problem of moral hazard and is frequently cited as a typical form of passive yet intentional opportunism. *Poaching* is the extent to which the service provider is inclined to use information gained through its relationship with the customer for its own, perhaps unauthorized, benefit should the customer be unable to detect such action.

Chapter 11 is "Supply Partnerships and Supply Chain Power." In the fourth edition partnering concepts are applied to supply chain relationships. Recognizing partnerships between buyer and supplier as a fundamental driver for the supply chain success, firms have begun to emulate these supplier alliances. Supply alliances, however, extend well beyond this notion to an even more relational level of exchange in which partners create an intensive, interdependent relationship from which both can mutually benefit. Supply partnerships emphasize direct, long-term association, encouraging mutual planning and problem-solving efforts. However, the influences of power affect critical interfirm relationship elements as well as firm performance and satisfaction.

Chapter 12 is "Total Quality Management (TQM) and Purchasing." Total quality management (TQM) expands beyond the traditional view of quality. Purchasing is a critical process that total quality management should focus on. Without high-quality raw materials or component parts from suppliers, a quality management program will not be successful. Therefore, any firm that wishes to achieve a high level of total quality management must carefully examine its purchasing process. TQM expands the traditional view of quality—looking only at the quality of the final product or services—to looking at the quality of *every aspect* of the process that produces the product or service. TQM systems are intended to prevent poor quality from occurring. Effective TQM requires the integration of production planning, marketing, engineering, distribution, and field service.

Part IV. Price/Cost Analysis and Negotiation Strategies

Chapter 13 focuses on price determination, which is one of the most important decisions that successful organizations make. The purchasing professional must become an expert on the product or services for which they are responsible. Given the complexity of the buying decision, the purchasing professional must be prepared to analyze each significant buying situation based on the conceptual and economic impact of various buying decisions. The foundations for price determination are rooted in the economics and psychology disciplines. It is conceivable that a powerful buyer could force a supplier to eliminate its overhead from the ultimate price. Price determination is becoming the most important competitive weapon necessary to ensure survival in today's competitive environment. Companies are spending an increasingly larger percentage of their revenue dollars for the acquisition of goods and services. Finally, in today's competitive construction market, markup and margin are sometimes used interchangeably. However, gross margin and markup are not the same. A clear understanding of markup versus gross margin is an important concept when estimating and bidding jobs in the construction industry.

Chapter 14 examines the important human interactions called bargaining and negotiation in a business setting. Bargaining occurs between individuals, groups, organizations,

and countries. In this chapter we consider bargaining between two parties, each possessing resources the other side desires. When two parties are involved in distributed bargaining, the parties are in basic conflict and competition because of a clash of goals: the more one party gets, the less the other gets. Integrative bargaining is a situation where some areas of mutual concern and complementary interest exist. The situation is a varying-sum schedule such that by working together both parties can increase the total profits available to be divided between them. The distributive bargaining situation has been fully explored by psychologists. Economists, on the other hand, have spent most of their efforts in examining bargaining on integrative bargaining situations. An experiment in distributive bargaining is also included to better illustrate both effects of economic and psychological aspects on the outcome of bargaining situations. The experiment examines the effect of contingency compensation on both buyers and sellers. It also allows speculation about the differences in the power system of buyers and sellers and how they affect the outcome of bargaining situations.

Part V. Special Purchasing Applications

Chapter 15 is updated and expanded in the fourth edition. Transportation is often the most costly and time-consuming component of purchasing management. Its planning is also critical in meeting manufacturing and customer delivery scheduling requirements. Transportation involves facilitating the movements of raw materials and component parts from suppliers through the firm's manufacturing process to the ultimate customers. The management of the purchasing/transportation interface is complex and requires the buying organization to gain knowledge of basic transportation decision-making activities. The initial decision requires the buying firm to select the appropriate shipment mode. Each of the modes has specific operating and cost characteristics, and the buying professional must weigh them in selecting the most appropriate transportation mode.

In **Chapter 16** a step-by-step capital acquisition process is given. The acquisition of capital equipment is a major decision in most firms. The capital acquisition decision has a significant effect on numerous aspects of the firm's financial health. The tax-planning process is also a significant component of this decision. Most high-value capital equipment purchases are usually processed at the vice president level and above. However, the purchasing professional serves a critical role in the acquisition process. The steps in the acquisition process are based on (1) requisition, (2) company objectives, (3) new product ideas, (4) cash flow analysis, (4) an economic evaluation, (5) a financial plan analysis, and (6) expenditure control. Next, an extensive lease-versus-buy decision is discussed and illustrated. When does it make more sense to buy capital equipment? When does it make more sense to lease? A detailed tutorial on the lease-versus-buy decision is given in the chapter supplement.

Chapter 17 is a special feature of the textbook. Hospitals are complex organizations providing a multitude of services to patients, physicians, and staff. These services include dietary, housekeeping, physical plant engineering, pharmacy, laboratory, inpatient treatment (nursing units), surgery, radiology, administration, and others. There are critical differences between the health care supply chain and industrial supply chain, such as the automotive supply chain. One difference is the manner in which revenue is generated. The cost of health care is expected to increase exponentially. Many businesses and health care organizations will be driven from the market because of uncontrollable nonsalary costs and declining profits. This radical shift is the result of increased price competition and the regulatory environment. The focus of this chapter in the fourth edition is on the relationship between group purchasing

organization OEMs and hospitals. As hospitals outsource part of their procurement process on a large scale to GPOs, they will save money by not having to employ the necessary support staff to test, research, negotiate, and purchase items on their own. However, a smaller purchasing staff and consequently less purchasing expertise increase the hospitals' dependence on a GPO. The chapter concludes with the impact of COVID-19 disruption on the global health care supply chain.

Chapter 18 focuses on sourcing professional services. Over the past 60 years, the service sector has taken on an increasingly important role in the world economy. Jobs in the service sector have increased from just less than 50% of the total jobs in the U.S. economy to nearly 80% of the total jobs in the U.S. economy. In the past 20 years, much of this growth has occurred in professional and business services, private education and health care, and leisure and hospitality industries. Many organizations in the service sector, especially those offering transportation, financial, and communication services, have encountered changes in their regulatory environment and technological structure. These changes have opened up new global markets but at the same time forced service industries to determine ways in which to remain competitive, or they would cease to exist. If pursuing a career in purchasing professional services, students should focus on acquiring relevant technical expertise and a good reputation to get the best work from their future suppliers.

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My greatest appreciation goes to the hundreds of students who have shared classrooms with me from whom I have learned more than I have ever taught. If you have any comments or suggestions you would like to share with me, I welcome them.

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W. C. Benton, Jr.
Semper Fidelis

About the Author

W. C. Benton, Jr. is the Edwin D. Dodd Professor of Management and Distinguished Research Professor of Operations and Supply Chain Management in the Max M. Fisher College of Business at the Ohio State University. Professor Benton teaches courses in supply chain management to undergraduates, MBAs, and doctoral candidates. Dr. Benton received his doctorate in both operations and systems management and quantitative business analysis from Indiana University, Bloomington, Indiana.

Ranked number one out of 753 operations management researchers in terms of quality and quantity, Dr. Benton's vast research and writing accomplishments include more than 180 articles in the areas of health care performance issues, economics of cardiovascular surgery, purchasing management, inventory control, supply chain management, quality assurance, and materials management that have appeared in *The Encyclopedia of Operations Research*, *The New England Journal of Medicine*, *Annals of Thoracic Surgery*, *American College of Physician Executives*, *Decision Sciences*, *Journal of Operations Management*, *Naval Research Logistics*, *IEE Transactions*, *European Journal of Operational Research*, *Quality Progress*, *Naval Research Logistics*, *The Journal of Business Logistics*, *The Journal of Purchasing and Supply Chain Management*, *Production and Operations Management*, *Interfaces*, *Journal of Supply Chain Management*, *Production and Operations Management*, and *Healthcare Management Science*. Dr. Benton has published five textbooks and has authored "Bargaining, Negotiations, and Personal Selling" for the *Handbook of Economic Psychology*. He currently serves as a senior editor in two departments for the *Production and Operations Management Journal* and serves on the editorial review board for the *Journal of Operations Management*. He also serves as an associate editor for the *Decision Sciences Journal*, *Journal of Supply Chain Management*, *Journal of Business Logistics*, *Business of Service Industries Journal*, and *International Journal of Productivity and Quality Management*; he is a special issue editor for the *European Journal of Operational Research*. For the Engineer and Manufacturing and Service Enterprise Systems Divisions at the National Science Foundation, he is a research panel member.

Professor Benton's expert contribution to the business and governmental arena includes consultancy for Grant Hospital, Ashland, IBM, RCA, Frigidaire, the Ohio Department of Transportation, the Florida Department of Transportation, the Indiana Department of Transportation, the South Carolina Department of Transportation, the Alabama Department of Transportation, the Kentucky Department of Transportation, the Federal Highway Administration, Battelle Institute, the United States Air Force, Gelzer Automated Assembly Systems, Bitronics, the Ohio Bureau of Disability Determination, BioOhio, the Carter Group Canada, and others.

He serves on the board of directors for the Healthcare Accreditation Colloquium, the Sleep Medicine Foundation, Academic Council for Healthcare Research, the House of Hope, and the Supply Chain Management Research Group. He is a member of the Decision Sciences Institute, the Institute of Management Sciences, the Institute of Supply Management, the Production and Inventory Control Society, the Operations Management Association, American Society for Quality Control, Society of Logistics Engineers, the Mathematical Association of America, and others.

Dr. Benton served with the 3rd Marine Aircraft Wing, MCAS, El Toro, California, and the 3rd Marine Amphibious Force West Pacific.

PART I

Introduction to Purchasing and Supply Chain Management

1 Purchasing and Supply Chain Management

LEARNING OBJECTIVES

Upon completion of this chapter, the reader should be able to:

1.1 Identify the role of the purchasing manager, buyer, and purchasing agent in an organization.

1.2 Describe the evolution of the purchasing and supply management function as organizations become more globalized.

1.3 Explain the relationship between the purchasing function and inventory, ordering, and transportation costs.

1.4 Explain the purchasing function's contribution to profitability.

1.5 Identify the relationship between the purchasing function and other functional areas.

1.6 Identify the advantages and disadvantages of various purchasing organizational designs.

1.7 Describe the reporting structures common in the purchasing profession.

1.8 Identify careers in purchasing and supply management.

Asia Spruell, a junior at Abilene Christian University (ACU), is having a terrific college experience. She is an officer in her sorority and is a member of the marching band. But she still has no idea what she wants to do in 2 years. She figured she would go to graduate school so she could continue working with the band and sorority. Basically, she wanted to remain at ACU for at least 6 more years. However, recently her parents made it clear they would only support her (financially) for the next 2 years.

This fall Asia enrolled in a course titled Purchasing and Supply Chain Management. It wasn't long before a light came on—this is it! "If I have to work for a living it should be in a profession with both challenges and potential for great satisfaction . . . supply chain management. It's a perfect way to enhance my relationship management skills, and it's stimulating enough to provide the fulfillment I need!"

After this aha moment, Asia met with her councilor to change her major from accounting to purchasing and supply chain management.

She plans to take the other courses in the PSM curricular. She also joined the Purchasing and Supply Chain Association (PSMA) and applied for a purchasing internship.

Asia's parents are visiting for Parents Weekend. Although she is certain she will pursue a career in purchasing and supply chain management, she would like her parents' approval. Both of her parents are accountants, and they expected Asia to follow in their footsteps. If you were Asia, what arguments would you present in favor of your decision?

.....

INTRODUCTION

After millennia of unchallenged success, business and governments around the world entered a new era of unprecedented openness. Three powerful forces underlie this trend: economics, technology, and zeitgeist (the mood of the time period). Global economies have become tightly integrated, enabling faster economic growth; the World Trade Organization lists 295 regional trade agreements presently in force. Yet, a decade ago, the entire world experienced a deep recession, causing some to raise new questions on the value of these supranational ties. The Internet has revolutionized the speed and power of data analysis and dissemination. Yet the unique scale of data collection has also led to new concerns about privacy and data ownership.

In general, the business world has become increasingly interconnected. Financial crises in one region of the world now have profound effects on the economies of other continents.

Supply management professionals must learn to adapt to new sources of supply chain uncertainty. The European Union (EU) is just one example of global uncertainty that is now affecting U.S. firms. There is a high level of direct investment and trade between the EU and the world's two largest economies (i.e., the United States and China). Many American firms have subsidiaries and business partners located in the United Kingdom, and these companies served as portals into the European Single Market (within which there is free movement of goods, capital, services, and labor). In 2016, the United Kingdom voted to leave the EU, an event known as "Brexit" or British exit. How Brexit will unfold, and which firms will be affected, remains uncertain today. Journalists and commentators speculate that the United Kingdom's currency will fall dramatically, that firms will relocate from London to Frankfurt or Paris, and that tensions in Ireland might boil over again as they did in the past.

To manage supply chain risk, we must first determine specifically where the risk exists in the supply chain. Any companies with footprints in the United Kingdom must evaluate and adapt their supply management function based on the realities of Brexit. More generally, any company with a global footprint must evaluate and adapt its supply management function based on the global uncertainties to which it is exposed. An effective supply chain organization with critical and strategic suppliers and customers in a vulnerable or changing part of the world must devise plans for qualifying alternative strategic supply chain relationships. Keeping a watchful eye on inventory levels and conducting site visits is broadly recommended.

In certain industries, Asian manufacturers dominate the U.S. consumer market. Nations in Central and South America and Southeast Asia continue to attract U.S. manufacturers seeking low wages for laborious tasks. In the midst of this changing world, the United States

is a giant consumer base with an enormous command of technology, but one steadily losing the infrastructure needed to create jobs.

In addition to significant events that have impacted the world's business environment, individual firms have had to change radically in response to burgeoning technologies. Historically, the management of materials and component parts was the most neglected element in the production process. Only when the cost of materials and subassemblies increased did management attempt to investigate alternative methods to the planning and control of the acquisition and transformation functions in the organization. Instead, most firms emphasized minimizing the cost of capital and labor. The focus on labor was logical because the industrial revolution had generated many labor-intensive manufacturers. Producing large standardized batches represented the norm for some manufacturers. Some firms have embraced new technologies and invested in technology-driven manufacturing systems. Although these new systems are up and running, too frequently they are being operated just like the old models, thus defeating the very purpose the system was designed to achieve. The reality is that technology is rapidly displacing labor. During the next decade, the supply management function is likely to contribute to profits more than any other function in the company.

All of these—changing economic and political environments, emerging technology versus labor, and the changing nature of purchasing as a discipline—must influence the role of purchasing and supply management. To become a competitive strategic weapon, purchasing and supply management must abandon fragmented approaches. The same company that invests in a technology-based manufacturing system (hard technology) at the same time must invest in result-oriented training programs (soft technology). The purchasing function must become an integral part of transforming raw materials and component parts into finished goods by using materials, systems, information, and people. Innovative sourcing requires companywide strategies with strong executive engagement that is internally driven and customer focused.

Purchasing managers An individual buying goods and services for use by their business organization.

Buyers The buying staff negotiates and processes purchase orders, providing assistance to end users. Their mission is to support the departments in obtaining the best products for the best price. Their role in the procurement processes can include troubleshooting vendor, invoice, and payment problems where appropriate.

Purchasing agents An individual who implements the purchasing process by forwarding the orders to suppliers and monitoring the documentation for their business organization.

PURCHASING MANAGERS, BUYERS, AND PURCHASING AGENTS

LO 1.1 Identify the role of the purchasing manager, buyer, and purchasing agent in an organization.

Purchasing managers, buyers, and purchasing agents seek to obtain the highest-quality merchandise at the lowest possible purchase cost for their employers. In general, **purchasing managers** buy goods and services for use by their business organization. On the other hand, **buyers** typically buy items for resale. **Purchasing agents** implement the purchasing process by forwarding the orders to suppliers and monitoring the documentation for their business organization. In general, purchasing managers, purchasing agents, and buyers determine which commodities or services are best for the specific requirement, choose the suppliers of the product or service, negotiate the lowest price, and award contracts that ensure the correct amount of the product or service is received at the appropriate time. To accomplish these tasks successfully, purchasing managers, buyers, and purchasing agents identify foreign and domestic suppliers. Purchasing managers, buyers, and agents must become experts on the services, materials, and products they purchase.

Purchasing managers, buyers, and purchasing agents evaluate suppliers based on price, quality, service support, availability, reliability, and selection. To assist them in their search

for the right suppliers, they review catalogs, industry and company publications, directories, and trade journals. Much of this information is now available on the Internet. They research the reputation and history of the suppliers and may advertise anticipated purchase actions to solicit bids. At meetings, trade shows, conferences, and suppliers' plants and distribution centers, they examine products and services, assess a supplier's production and distribution capabilities, and discuss other technical and business considerations that influence the purchasing decision. Once all of the necessary information on suppliers is gathered, orders are placed and contracts are awarded to those suppliers who meet the purchaser's needs.

THE EVOLUTION OF THE PURCHASING AND SUPPLY MANAGEMENT FUNCTION

LO 1.2 Describe the evolution of the purchasing and supply management function as organizations become more globalized.

To become a competitive organization in today's global economy, the purchasing and supply management function must become world class. The supply management function is the key to unlocking the value within the organization. Organizations must optimize sourcing assets. As can be seen in Figure 1.1, there are three stages in the optimization of an organization's sourcing assets. Stage 1 involves leveraging through volume discounts. It can easily lead to significant reductions in the total purchasing costs. Stage 2 involves focusing on the value proposition throughout the supply chain among customers and suppliers. Finally, Stage 3 is necessary for sustaining the successes in the previous two stages. Practice and high-quality feedback allow the purchasing professional the ability to make adjustments to Stages 1 and 2. The organizations that produce excellence are those that continuously improve. In general the purchasing and supply management function has evolved from a pure cost management function to a competitive advantage (see Figure 1.2).

FIGURE 1.1
Most Business Organizations Can Unlock Significant Value

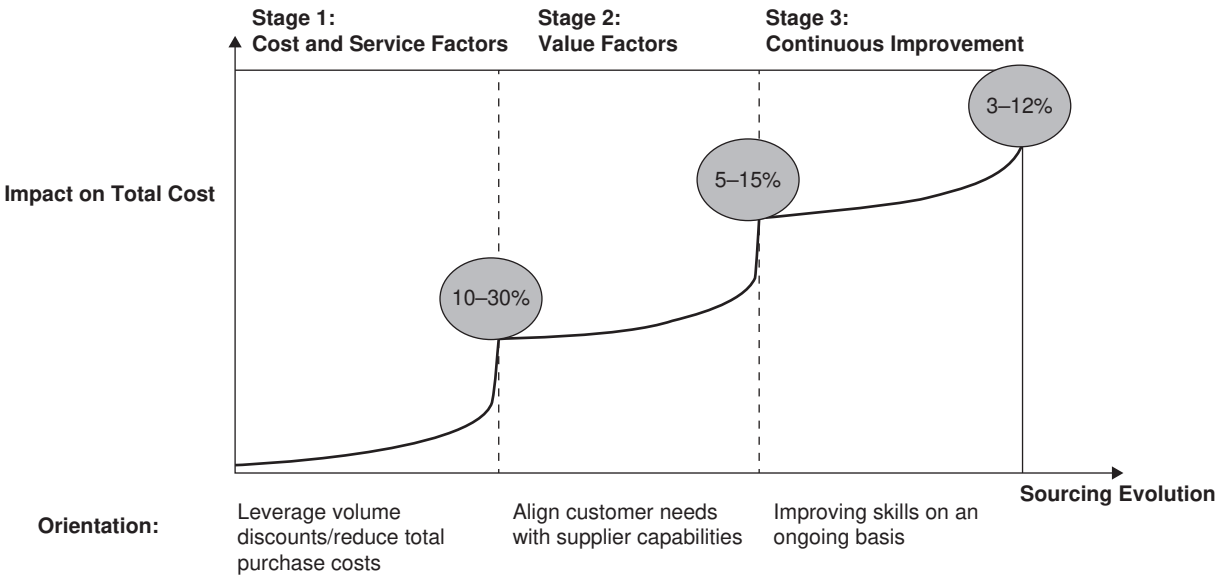


FIGURE 1.2
The Evolution of the Sourcing Function

Traditional Orientation	Current Thinking
1. Focus on prices	1. Focus on value
2. Total cost of ownership	2. Total contribution to ownership
3. Process-driver sourcing approach	3. Strategic intent–driver sourcing approach
4. Compatibility objectives	4. Differentiation objectives
5. Involvement in specification definition phase	5. Involvement in strategic decisions
6. Procurement skills	6. Business skills
7. Sourcing as adversarial zero-sum transaction	7. Sourcing aligned and intrinsically linked with business stakeholder

THE SUPPLY MANAGEMENT PROCESS

LO 1.3 Explain the relationship between the purchasing function and inventory, ordering, and transportation costs.

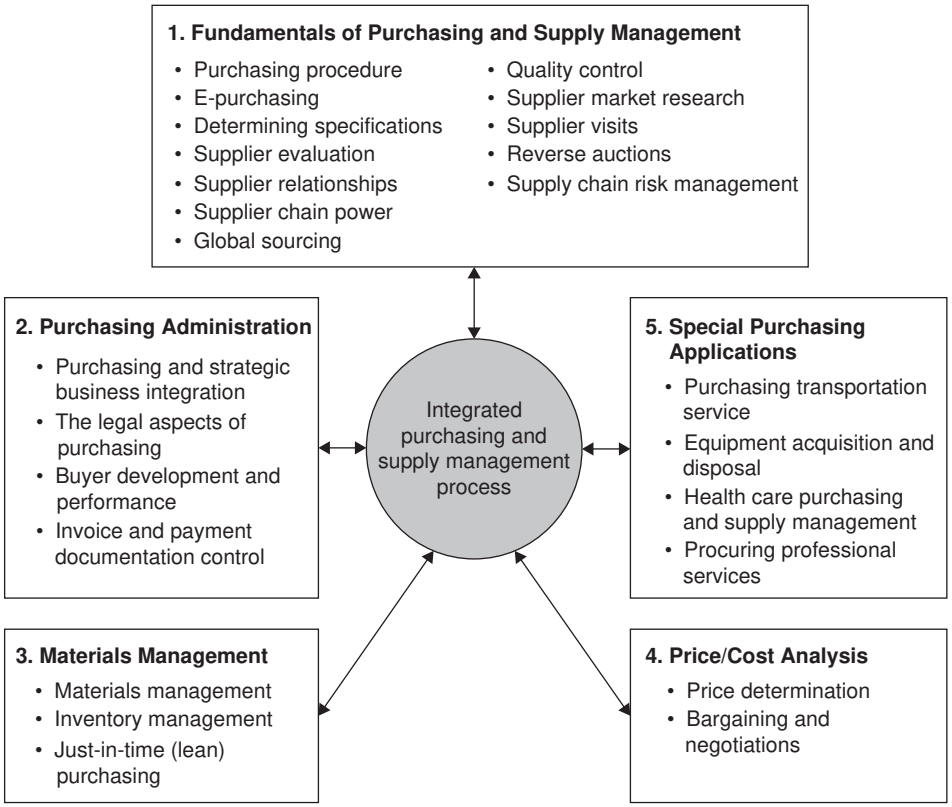
The primary focus of this text is integrated purchasing and supply management. As shown in Figure 1.3, this involves the coordination of fives aspects of the process:

1. Purchasing Administration (see chapters in Part I)
2. Materials Management (see chapters in Part II)
3. Fundamentals of Purchasing and Supply Management (see chapters in Part III)
4. Price/Cost Analysis (see chapters in Part IV)
5. Special Purchasing Applications (see chapters in Part V)

In the past 25 years, the supply management function has grown from a tactical function of purchasing/procurement into a key strategic role within organizations. Supply management now

- contributes to the bottom line.
- serves as an information source.
- increases efficiency and productivity.
- enhances the continuous improvement process.
- improves competitive position and customer satisfaction.
- impacts the organization's image and social policy.
- develops the organization's future leaders.

FIGURE 1.3
Integrated Purchasing and Supply Management Process



Supply management involves a strategic approach to planning and acquiring organizational needs through effective management of suppliers. It exists to explore business opportunities and implement supply strategies that deliver the most value possible to the organization, its suppliers, and its customers. Strategic supply management is the organization's primary source for collecting market intelligence and developing cost-reduction programs. Given the strategic nature of the supply function, the top supply management professional is usually a member of the organization's senior management team. In this leadership role, supply management professionals must be knowledgeable and understand all areas of the business in order to develop strategies consistent with the organization's goals and successful business procedures.

Supply management A strategic approach to planning and acquiring organizational needs through effectively managing suppliers.

With the increasing technology and demand for global operations, supply management is often involved in finding sources for products and/or services from international suppliers. An understanding of global business concepts is increasingly important for those in the profession.

In most firms, functional managers within each area make independent decisions using similar techniques. The approach introduced in this chapter proposes that the supply management decision should be integrated. **Integrative materials management** consists of the planning, acquisition, and conversion of raw materials and component parts into finished

Integrative materials management The planning, acquisition, and conversion of raw materials and component parts into finished goods.

goods. In this scenario, each functional manager reports to the same superior. What's more, the managers should work for the overall purpose of delivering high-quality products to the customer on time. An important objective of this approach is to provide high-quality customer service while minimizing the cost of producing the service.

Integrative supply management is not related to the size of the firm. Realistically, the purchasing subfunctions must first be integrated before the supply function will be synergistic with other business functions.

The purpose of supply management is to support the transformation of raw materials and component parts into shipped or inventory goods. The function of inventory in general is to decouple the entire transformation process. During the transformation process, materials are combined with labor, information, technology, and capital.

The supply planning system is central to the acquisition of part and component needs in an assemble-to-order environment. The material requirements planning (MRP) function is the most important input into a manufacturing planning and control system. Although many productive companies have embraced just-in-time (JIT) philosophies, they continue to use MRP concepts to enhance the effectiveness of the manufacturing mission. Perhaps the most significant change in the past decade has been in the purchasing function. During the time period 1960–1980, most American manufacturing firms fabricated 60% to 80% of the product's value (see Figure 1.4). On the other hand, in the past decade, a large number of manufacturing firms purchased from 60% to 80% of the product's value (see Figure 1.5). Since this impressive shift in percentages, the complexity of the manufacturing system has been greatly reduced. As can be seen in Figure 1.5, the complexity in the fabrication operation has been shifted upstream to the supplier. Under the traditional model, the firm transformed significantly more raw materials and labor into the end product. Today, since industrial firms are purchasing more and more subassemblies (component parts), the manufacturing focus is shifted downstream to the assembly operation. This significant shift has elevated the importance and profile of purchasing professionals.

A vice president of purchasing for a Fortune 500 company suggested that the *discount* acceptance decision cannot be made independently from the open order rescheduling decision. He went on to suggest that inventory record accuracy and open order rescheduling were key inputs into determining whether to accept or reject a specific discount schedule.

The expected economic benefit from the creation and continuous improvement of an integrated purchasing and supply management process is supply chain profit maximization (see Figure 1.5).

FIGURE 1.4
Manufacturing Process (1960s–1980s)

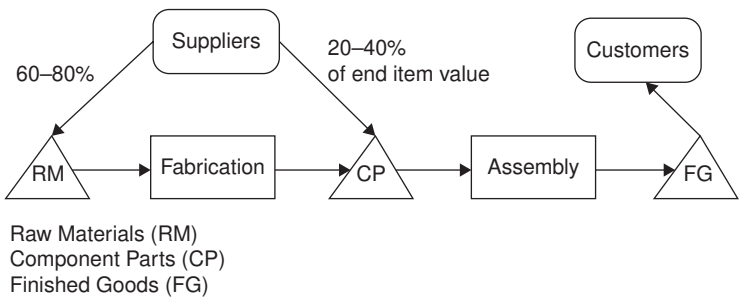
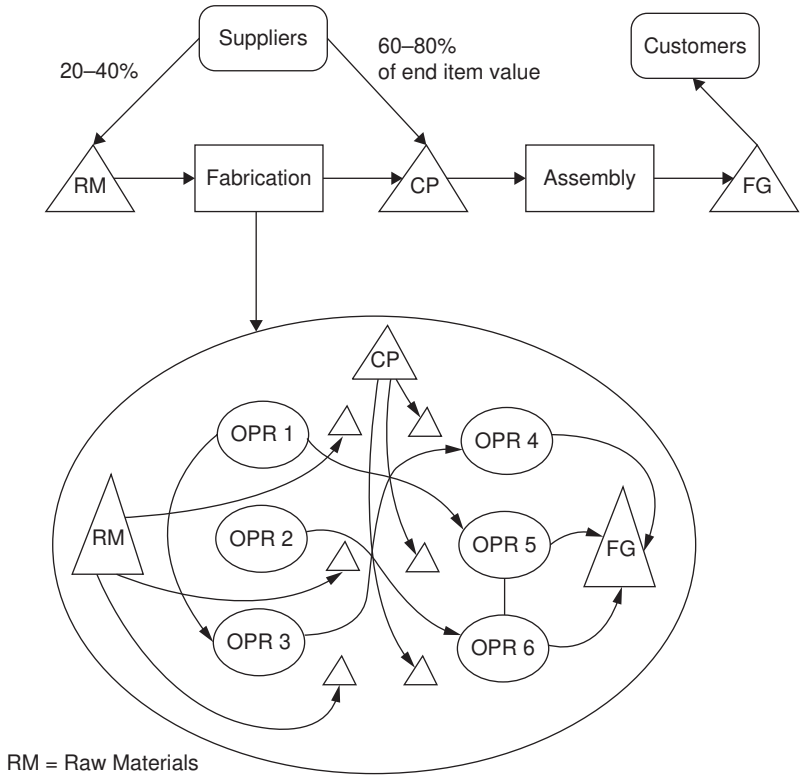


FIGURE 1.5
Manufacturing Process (1980s–Now)



The global economy has evolved from exclusively manufacturing to services. Thus, it is important to show how the lessons learned from manufacturing supply management can be applied to service systems purchasing. The differences between service supply management systems and the traditional supply management systems must be acknowledged. In service supply management systems, human capital forms a significant source of the value proposition. In addition, it is more challenging to measure value in service supply management. Chapter 18 focuses on service supply management.

PURCHASING DOLLAR RESPONSIBILITY

LO 1.4 Explain the purchasing function's contribution to profitability.

The cost of acquiring, storing, and moving materials is an increasingly large fraction of the **cost of goods sold**. To gain a different perspective about the importance of materials-related expenditures, consider the dollar responsibility of one General Motors materials management group:

Cost of goods sold Cost of materials in addition to the cost of labor input to create a product.

1. Parts and materials — 10 times direct labor dollars
2. Supply management expenditures — $100 billion

3. Transportation bill $3 billion
4. Purchasing buys 97% of all component parts

The mission of the General Motors supply management group is to manage purchasing, planning, scheduling, and the transportation of material required for specific products in a manner that will provide a *significant competitive advantage* to the division in the production of quality trucks and cars. Integrative purchasing and supply management make possible the production of vehicles in terms of cost and quality that are competitive in the world.

Thus, we see that the dollar responsibility of supply management is very large in both relative and absolute terms. More importantly, supply management contributes to the competitive stance and long-run survival of the firm.

The following are ratios of materials-related costs that are typically cited in fabrication–assembly industries, for example, consumer durable goods.

Cost of purchase = 80% of sales

Cost of marketing (sales) = 10% of sales

Cost of transportation = 10% of sales

These ratios are increasing for various reasons: material shortages, increased use of synthetic materials, inflation, and thoroughly complex high-value products.

Material Shortages

As natural resources are consumed, costlier methods of exploration, extraction, and processing are necessary. Shortages also result from political events. Former colonies of Western nations, once a low-cost and ready source of supply, have gained their independence. As autonomous nations, these new nations manage their resources to achieve economic, social, and nationalistic objectives.

In the early 1960s, nearly all the chrome in Rhodesia (Zimbabwe) was owned by U.S. firms. Rhodesia was described as a very comfortable, placid little British colony. The United States had almost no domestic sources of chromium, a material essential for manufacturing a wide range of products used in everyday life and military defense. Yet during the struggle for Rhodesian independence, the U.S. government placed an embargo on imports of chromium from Rhodesia. Prior to the second Gulf war and after the first Gulf war, there was a similar embargo on oil from Iraq.

Shortages can occur by depletion and by governments. In 1986, the U.S. government wrestled with the question of economic sanctions against the government of South Africa for its apartheid policy.

Synthetic Materials

In our quest for lighter-weight products with sophisticated capabilities, we have turned more and more to man-made materials. These compounds, fabrics, and crystalline structures are the materials from which the marvels of high-tech products are made. For example, automobiles will soon boast rust-free outer skins made of laminates of ferrous and nonferrous materials. They will be powered by an engine built around a ceramic engine block. The design and production costs of such esoteric materials are reflected in their higher cost structure. There are, of course, offsets to higher purchase prices. The operating costs of the products are expected to be lower and their capabilities greater.

Inflation

The materials buyer continues to experience periodic increases as material prices are adjusted upward in response to the rising costs of energy and labor. Managing materials during inflationary periods, or in developing countries with triple-digit inflation, results in decisions that would make little sense in stable environments.

Complex, High-Value Products

Management in the auto industry frequently hears the complaint, "They don't make them like they used to." The industry's response is, "If we did, you wouldn't buy them." Consumers demand ever more reliable and capable products. Our cars now have microprocessors to monitor the vehicle's operation and tell us everything we would want to know about the state of the car. There are seat and steering wheel heaters. There's an instrument that tells us how many miles we can travel with the gasoline inventory on board. Another device talks to us telling us to shut doors, buckle up, and so on. Recently, vehicles with a communications link that communicates with an Earth-orbiting satellite tell the driver exactly where they are. Maps are displayed on a computer monitor with a cursor showing instantaneously the location of the car. Not all products are so esoteric, but generally today's products (and those of tomorrow) will use more complex materials and components in more configurations with higher degrees of customization. For all these reasons, you should expect no reversal in the trends of increased dollar responsibility and the strategic importance of supply management. Where else is the potential for cost reduction and competitive advantage so great?

PHOTO 1.1 Our cars have gotten more complex, requiring more high-quality components and materials to allow increased customization.

Example 1.1

POTENTIAL FOR PROFIT

All supply management activities have potential for cost reduction and, hence, increased profit. The purchase of raw materials is used to illustrate what is called the "profit leverage" argument. We might just as easily have used the distribution or production activities. Suppose a firm has an income statement such as that illustrated in Figure 1.6.

FIGURE 1.6
Income Statement

Sales (000s)	$1,000
Direct materials	$500
Direct labor	$200
Gross profit	$300
Selling and administrative expenses	$250
Net profit	$50

(*Continued*)

(Continued)

At this level of activity, direct materials are (500/1,000) 100, or 50% of sales. Direct labor is 20%. Suppose the purchasing manager is able to reduce the cost of materials by 2%. Perhaps the manager bargains more skillfully or substitutes standard materials for custom-made materials. Or perhaps a value analysis program resulted in the purchase of functionally equivalent but less costly materials. Many opportunities exist to reduce the cost of purchases. If the firm's sales remained the same, the effect on profit, given the 2% reduction of material cost, would look like that in Figure 1.7. For each $1 reduction of material cost, there is a $1 increase in profit. The ratio is 1:1.

FIGURE 1.7
Income Statement Example 2

Sales (000s)	$1,000
Direct materials	$490 (49% of sales)
Direct labor	$200
Gross profit	$310
Selling and administrative expenses	$250
Net profit	$60

What increase in sales would be necessary to increase profit by $10,000 if material costs were not reduced?

Let χ be the required sales; then 0.5x is the cost of materials and 0.2x is labor cost.

Sales = variable cost + fixed cost +/- profit

x 0.5x + 0.2x + 250 + (10 +50)

x $1,033,333

Sales must be increased by $33,333 to achieve the same $10,000 increase in profit. The ratio is 3.3:1. Depending on the market, and the firm's competitive position, a sales increase of 3.3% may be possible only by exerting considerable effort. This is not to say that cost reductions in purchasing are achieved at no cost, but before trying to increase market share, we need to get our operating cost well in hand. Profit efficiency, not market share, should be our first concern.

INTEGRATED SUPPLY MANAGEMENT (ISM)

LO 1.5 Identify the relationship between the purchasing function and other functional areas.

Whatever the appeal and promise of integrated supply management, achieving integration is a challenge. In firms with conventionally organized subfunctions, supply managers are primarily concerned with satisfying their own subfunctional objective. Purchasing managers minimize purchasing costs; marketing managers minimize distribution costs; and so on. These objectives are local, not systemwide. The decisions of a production-inventory control (PIC) manager may maximize use of production equipment yet poorly serve the requirements of the marketing manager.

The decision of the purchasing manager affects not only the purchasing function but other materials functions. It is the objective of ISM to manage the related considerations. Purchasing should consider the nonpurchasing consequences of its decisions.

Example 1.2

DECISION-MAKING ON PURCHASING

Suppose a purchasing manager must decide the order quantity for a material with an annual requirement of 200,000 units. The material is consumed by manufacturing at a constant rate. The unit cost of the material is $1. For transportation purposes, 50,000 units are considered a truckload (TL). Shipments fewer than 50,000 units are charged at a less-than-truckload (LTL) rate that is higher per unit. Asked to state their objectives, the subfunctional managers might respond by saying the following:

Purchasing manager: "Minimize annual ordering cost."

PIC manager: "Minimize work-in-process inventory."

Traffic manager: "Minimize transportation cost."

If the purchasing manager weighs only the purchasing objective, annual ordering cost is minimized when the annual requirement is ordered once a year. Order cost is the cost to place one order. It is incurred each time an order is placed or part of an order is scheduled for delivery. Placing a single order for 200,000 units minimizes annual order cost but results in an average inventory of $100,000. We assume no safety stock, and receipt of the material is at the beginning of the year.

Average inventory = (beginning inventory + ending inventory)/2

= (200,000)/2

= 100,000 units @ $1 per unit, the average inventory value held is $100,000.

The significance of average inventory is that inventory cost is a function of average inventory. Inventory is an asset. Working capital is tied up in material rather than an alternative asset. Opportunity costs as well as costs of storing, insuring, and handling are incurred when inventory exists.

If the purchasing manager considered PIC's objective (minimize WIP inventory), the order quantities would be 4,000 units, with an order going to the supplier once a week. Assume there are 50 weeks in a year. Because manufacturing requires a uniform flow of material, its weekly requirement is 200,000/50, or 4,000 units per week. The reduction in average inventory when order quantity changes from 200,000 to 4,000 units is offset by the 50-fold increase in annual ordering cost.

To satisfy the traffic manager, the order quantity should be at least 50,000 units. With that quantity, the TL transportation rate applies and transportation costs are minimized. At 50,000 units, the average annual inventory is $25,000, and 200,000/50,000, or 4 orders per year are placed.

Each manager can make a strong case for the order quantity selected. If the purchasing manager ignores the PIC and traffic manager, manufacturing will have to live with a year's supply of material in its stockroom. The purchasing manager should try to quantify the inventory and order costs and ask about other costs that might be relevant.

Suppose the cost of carrying one unit of material in inventory is $1/year, and the order cost is $100/order. Assume the transportation rates are $20/CWT LTL and $10/CWT TL. CWT means "hundred weight," that is, 100 pounds. The weight of the material is 1 pound. In tabular form, the annual costs of the order quantities of 200,000, 4,000, and 50,000 are shown in Figure 1.8.

At least in terms of the costs quantified, and assuming realistic estimates of inventory cost/unit/year, and cost to place an order, the order quantity of 50,000 units minimizes annual costs. A word of caution: There are often

FIGURE 1.8
Integration Tradeoff Example

	Purchasing Cost	Order Quantity	Average Inventory	Orders/Year
Purchasing	$100	200,000	$100,000	1
PIC	$5,000	4,000	$2,000	50
Distribution	$400	50,000	$25,000	4

(*Continued*)

(Continued)

costs that have not been identified. For that reason we should not label the sum of the three costs as "total annual cost." Later we'll learn that the criterion for decision-making in supply management is "total cost of ownership."

Now, what effects if any does the decision in the preceding example have outside the supply management function? Let's sample the reactions of other functional managers to the decision to order 50,000 units of the material in question.

> Manufacturing manager: "Sounds good to me. I always feel good when I've got wall-to-wall inventory, but I don't want to be charged with inventory in the raw material storeroom."

The point illustrates the manufacturing manager's knowledge that while he needs to worry about a stock-out only four times a year, the cost of manufacturing's security blanket (inventory) can be high.

> Controller: "$25,000 worth of inventory on the average is just too much. It ties up working capital, and money doesn't grow on trees, you know."
>
> Plant engineer: "Where do you guys plan to store 50,000 units? We're already renting warehouse space across town. Besides, this stuff gets liberated (stolen) if it gets out of our sight."
>
> Sales manager: "I really don't have anything to say. Just don't let manufacturing stock-out. Keep the stuff coming off the production line. We have backorders by the tons."

So, you see that a rather routine decision about a purchased item's order quantity affects a variety of nonmaterials management people. How can the *best* decision be made—one that provides the desired *customer service* at *minimum cost*? In this example, the customers are manufacturing, sales, distribution, the final consumer, and, of course, purchasing, which is the supplier's customer. The costs of satisfactory customer service are only partly identifiable and quantifiable. Our knowledge of the opportunity costs of poor customer service is also incomplete. Yet decisions must be made while recognizing that systemwide decision criteria are

1. multiple,
2. complex, and
3. conflicting.

Supply management is a developing discipline and an area of management specialization. Measures of customer service are usually expressed in terms of the *availability* of material. Did the plant ship on time? Was the product on the shelf when the customer entered the shop? While important, availability is only one dimension of customer service.

Purchasing, inventory control, and distribution do not have detailed cost classification and accounting procedures. In manufacturing, we have a history of cost accounting going back to the turn of the century. Elaborate techniques are used to relate costs to output levels. Costs are segregated into variable and fixed portions. Budgeting for manufacturing is done with precision using resource standards produced by work measurement methods perfected many decades ago. Tell us what you want to produce and we'll tell you exactly what amounts of resources you'll need—direct materials, manufacturing supplies, tooling, machining time, setup, and so on.

Standard costs of production are the basis for operating budgets, product prices, and control of production costs. Such is not the case in purchasing, marketing, and transportation.

As these areas develop, purchasing and distribution cost accounting will become part of the accounting-information system. Standard costs to create the *time* and *place* utilities will be calculable. Budgeting for materials management activities will have the detail and reliability of budgeting in manufacturing. When supply management costs become more visible, their control becomes more feasible.

ORGANIZING FOR PURCHASING

LO 1.6 Identify the advantages and disadvantages of various purchasing organizational designs.

Supply coordination involves both structure and design of the organization. Purchasing organizational *structure* is the sum total of the ways in which an organization divides its labor into distinct tasks and then coordinates among them. Organizational *design* is concerned with bringing together a group of interrelated tasks for a common goal. However, organization design alone does not ensure effectiveness or efficiency. Most companies' organizational charts do not reflect true lines of authority and responsibility that flow through managers. Too much detail can lead to micromanagement. On the other hand, a loosely designed organizational structure can lead to a greater risk.

In any purchasing organization, two major problems must first be considered. The first issue: Where should the purchasing functions be located in the organization? Second, what level of authority should the purchasing function have? Given the evolution of outsourcing, the purchasing function is expected to gain more authority in the corporate hierarchy.

Centralized Versus Decentralized Purchasing

The first issue deals with centralized purchasing of decentralized functions. **Centralized purchasing** involves coordinating all purchasing activities for the entire plant through one central location. That purchasing department is the only place in the firm where requisitions are processed and suppliers are selected. In **decentralized purchasing**, authority and responsibility for supply-related functions are dispersed throughout the organization.

Centralized purchasing The coordination of all purchasing activities for the entire plant through one central location.

Decentralized purchasing The authority and responsibility for supply-related functions are dispersed throughout the organization.

Advantages of Centralized Purchasing

In most cases, centralized purchasing results in lower costs because of the availability of purchase quantity discounts. If all material uses are coordinated into one major purchase, the supplier will work harder to service the buying firm. Large dollar purchase quantities equal buying power. Most manufacturing firms spend more than 70% of their total revenue on purchasing materials and component parts. Thus, the effectiveness of a centralized organizational design will have a significant impact on profit. As an example, consider a firm that has several departments that use similar components; they could actually compete against each other for scarce material, resulting in higher prices for each department.

Centralized purchasing promotes the effective use of purchasing professionals because it allows the supply manager more authority and credibility. Each buyer can easily become an expert on associated buys (commodities and noncommodities). Expertise will be developed when there is a critical mass. GM, Dell, Walmart, and IBM all use centralized purchasing and have in-house expertise ranging from engine parts to rental cars to office equipment to pharmaceuticals.

Centralized purchasing enables the buying firm to do a better job of monitoring various changes throughout the industry. Centralized purchasing also lends itself to periodic

(1) reviews of purchasing activities, (2) evaluation of suppliers, and (3) development of purchasing training programs. In decentralized purchasing operations, these important strategic activities may not be accomplished.

Centralized purchasing is preferred from the suppliers' point of view. The selling firm can easily determine whom to call on. This will improve efficiency for both parties.

According to a recent Center for Advanced Procurement and Supply (CAPS) study, 59% of the firms used a combination centralized–decentralized structure, and 28% used centralized purchasing. Only 13% of the firms responding used decentralized purchasing.

Disadvantages of Centralized Purchasing

There are several arguments against centralization. Most of the resistance is from companies where there are decentralized profit centers. The following three main arguments are given:

1. *High engineering involvement in procurement decision-making.* At the early stages of product development, engineering needs to be deeply involved with the design, which can be different with remotely located centralized purchasing.
2. *High need to coordinate purchased parts with production schedules.* This is especially applicable when small amounts are ordered frequently. The supplying firm must be within close geographical proximity or guarantee JIT deliveries. It may not be cost-effective to have centralized purchasing operations in some JIT situations.
3. *High need to buy from local community.* Sometimes it makes good political sense for firms to make purchases in the community where the plant is located.

Because of the profit-leveraging effect, profit center managers feel the need to control purchasing if they are to be held accountable for profits.

Advantages of Decentralized Purchasing

Decentralized purchasing provides for a more streamlined procedure since the department manager's purchasing needs and thus decisions can be made immediately. As an example, if a manager needs to purchase 10 laptops for the business unit, the unit manager can easily make the purchase online or from a local computer store.

Disadvantages of Decentralized Purchasing

The disadvantages of decentralized purchasing are duplication of effort in buying, receiving, inspection, and accounts payable. Decentralized purchasing also prevents the buying organization from taking advantage of volume discounts.

Centralized/Decentralized Hybrid Purchasing Systems

Some organizations adopt a hybrid system that combines both centralized and decentralized purchasing. They use centralized purchasing for larger organization-wide contracts, but give individual business units autonomy to make small purchases for their departments or subsidiaries. Table 1.1 summarizes the three approaches.

TABLE 1.1
The Degree of Centralization Impacts on Purchasing Success

	Decentralized Purchasing System	Hybrid Purchasing System	Centralized Purchasing System
Advantages	Business responsiveness	Business responsive, increased leverage, some processes	Increased cost savings, enhanced talent management, consistent processes
Disadvantages	Loss of leverage, lack of consistent sourcing process	Priority given to business requirements, control and coordinate activities	Significant focus on cost savings, less focus on business requirements
Example organization	Heavy highway construction	Universities	Major retailer, automotive manufacturers, and technology

FIGURE 1.9
Example of Geographically Centralized Purchasing

A Fortune 500 appliance company is a good example of a company that has great difficulty in centralizing purchasing on a geographical basis. The company has many plants throughout the country. Although each plant makes electrical products, the product lines are diverse. As a result, the company has relatively few common suppliers, and those are widely separated geographically.

In some cases, national pricing contracts have been negotiated on a centralized basis for common items that can be used by the individual plants as they see fit, particularly where the vendor has several plants nationwide and can provide adequate delivery. Such items are relatively few, however, and are of a supply rather than a production nature. In no case are actual purchase orders placed from the central location in Cincinnati. At one time, machine tools were purchased in this manner. This practice was later abandoned because of objections by manufacturing.

Even when several plants are located in the same local geographical area, their requirements could be so specialized that they would often prefer to do their own purchasing. On the other hand, the Columbus, Ohio, plant operates with a centralized purchasing department handling the buying of all raw materials, fabricated component parts, and maintenance repair and operating (MRO) items for four product lines:

- Refrigerators and freezers
- Room air conditioners
- Specialty product (dishwashers)
- Compressors

Each division has its own manufacturing, engineering, and sales departments, all reporting to a general manager. Production control is reported to the manufacturing manager in each case. Purchasing is reported to the general manager.

The Future Organization Concept

The outlook is that the majority of significant dollar-valued purchases will continue to be centralized. This trend also will be the result of increased computer-based management information systems. As firms become lean, centralized purchasing will become a major focus. Long-term agreements will be more frequently negotiated to stabilize prices. Honda of America is an excellent example of a firm that uses centralized procurement as a competitive weapon. Approximately 75% of the sales dollar for each automobile manufactured in Marysville, Ohio, is purchased from Japanese firms. Moreover, as multinational firms continue to expand and grow, the host government's national interest will increasingly become the focal point of a firm's procurement strategies. An example of geographically centralized purchasing is given in Figure 1.9.

REPORTING STRUCTURE

LO 1.7 Describe the reporting structures common in the purchasing profession.

The status of the purchasing professional in an organization is determined by the capacity structure. In the majority of Fortune 500 firms, the purchasing professional reports directly to the manufacturing vice president. This is also true for medium-sized firms. To be effective, the purchasing function should never report to another major line activity. If this occurs, the purchasing professional does not have the appropriate authority to make a difference. Of course, the reporting structure must be consistent with the capabilities of the specific person in each position. The purchasing organizational structure also should be different for service-based firms. Purchasing services are addressed in Chapter 18.

A recent Center for Strategic Supply Management (CAPS) study found that in 16% of the firms surveyed, purchasing managers report directly to the president. However, in the majority of the firms, the purchasing manager reports directly to the VP of manufacturing/operations. In smaller firms, more than one third of the purchasing professionals report to the VP of manufacturing. What's more, in firms with sales between $5.1 and $10 billion, 61% report to either the president or executive VP.

The Organization Concept of Supply Management

A formal organizational concept of supply management involves the flow of materials through a manufacturing firm. The functional areas involved in this flow include (1) purchasing, (2) inventory control, (3) traffic, (4) production control, and (5) stores, as shown in Figure 1.10. Approximately 70% of the firms surveyed follow this organizational concept. Figure 1.10 also shows some emerging organizational examples trending in supply chain management. The overwhelming acceptance of the supply management concept has created a need for more technical and managerial sophistication from the supply manager. A common feature of all the organizational examples is that people support and adjust the process using technology to increase throughput.

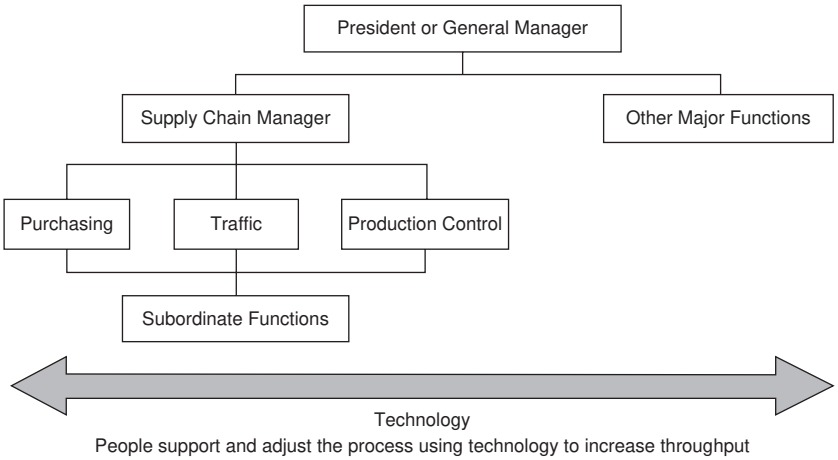
The examples in this section are by no means conclusive. In summary, designing an organizational structure depends on the following:

- The kind and quality of information it gathers from its customers, suppliers, and partners
- How the company gathers the information
- How it interacts with each of these constituents
- How this information flows through the organizational structures
- Who has access to it and who doesn't
- How the information is used in making decisions
- How the information is stored for ease of use and analyzed
- Whether both the organizational processes and systems reflect and mirror information flow

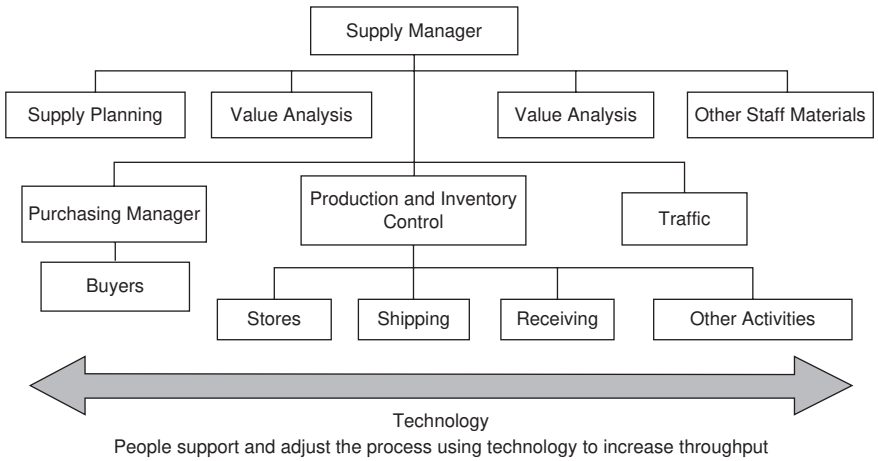
FIGURE 1.10

Organizational Examples

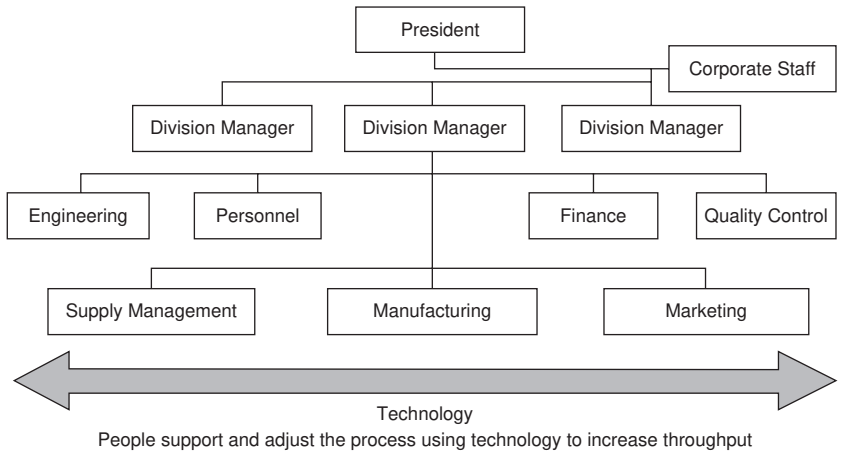
I. Basic Supply Management Organization



II. Supply Management with a Staff Operation



III. Divisional Supply Management



PROFESSIONALISM WITHIN PURCHASING AND SUPPLY MANAGEMENT

LO 1.8 Identify careers in purchasing and supply management.

As supply chains continue to grow globally, and as products become more complex, the supply chain professional must become more sophisticated. Supply management professionals across all industry sectors must become major players in the organization's decision-making process.

Institute for Supply Management
A professional association with a mission to provide national and international leadership in purchasing and material management, particularly in the areas of education, research, and standards of excellence. Membership is individual, not institutional, with local affiliates in Southwest Michigan and Central Michigan. See http://www.ism.ws.

The **Institute for Supply Management** offers two professional certifications. They are the Certified Professional in Supply Management (CPSM) and the Certified Professional in Supplier Diversity (CPSD). The knowledge base for CPSM focuses on effective decision-making in an integrated supply management operating environment. Specifically, the knowledge base includes financial analysis, strategic sourcing, and international regulations. More than 20,000 professionals have been certified as CPSMs. The CPSD was established in 2010. The primary purpose of the CPSD is to show that the organization is committed to diversity throughout the company's supply chain. The 2019 ISM salary survey shows that the average salary for the CPSM credential was $119,551, and the average salary for the CPSD credential was $125,596, compared to $114,348 for those with no certification. A summary of the two professional credentials is given in Table 1.2.

Careers in Purchasing

Now is the best time for the next generation of managers to pursue a career in purchasing and supply management. Supply management professionals must possess a diverse skill set. First, the successful supply manager must have excellent technology, people, and negotiations skills in order to add value to his or her organization. Supply professionals must also be

TABLE 1.2
A Snapshot of Requirements for ISM's Professional Credentials

	CPSM		CPSD	
Education requirement	Bachelor's degree from a regionally accredited institution or international equivalent	No degree	Bachelor's degree from a regionally accredited institution or international equivalent	No degree
Experience requirement	Three years of full-time, professional supply management experience (nonclerical and nonsupport)	Five years of full-time, professional supply management experience (nonclerical and nonsupport)	Three years of full-time, professional supply management experience (nonclerical and nonsupport)	Five years of full-time, professional supply management experience (nonclerical and nonsupport)
Testing requirement	Pass three exams: "Supply Management Core," "Supply Management Integration," and "Leadership and Transformation in Supply Management"		Pass two exams: "Supply Management Core" and "Essentials in Supplier Diversity"	

analytical problem solvers. In today's global business arena, supply management professionals must be able to interact with potential sources of materials and services throughout the world.

The average salary for a supply management professional is $119,271. One of the major factors affecting salary and professional achievement continues to be education. Those with a bachelor's degree earned an average of $108,065, while the average for those with a master's degree was $139,476. Professional certifications from ISM are also associated with higher wages, as is work experience.

An increasing number of supply management professionals are earning salaries that exceed $100,000. More than half of the respondents to a 2019 ISM salary survey reported earning a six-figure salary. The median salary was $102,352, while the top 5% of earners received an average of $340,956. Entry-level (less than 5 years) supply management professionals reported an average of $74,162. The purchasing and supply management salary drivers are job title, experience, education, credentials, annual spend, gender, and size of the organization. A summary of the results of the 2019 ISM salary survey is shown in Table 1.3.

For a more comprehensive discussion of purchasing and supply management career opportunities, see www.ism.ws/CareerCenter.

The Institute for Supply Management: J. Shipman Gold Medal Award

Johnson Shipman was a pioneer member of the New York affiliate of the National Association of Purchasing Agents, now Institute for Supply Management, well-known for giving liberally of his time and counsel. The J. Shipman Gold Medal Award was created in 1931 and is presented to those individuals whose modest, unselfish, sincere, and persistent efforts have aided the advancement of the procurement and supply chain management field. Those chosen for the award have also assisted and guided members of the profession in their endeavor. Each year the ISM recognizes a procurement leader that exhibits achievements within the supply management profession.

On April 19, 2019, the Institute for Supply Management named Thomas K. Linton, chief procurement and supply chain officer at Flex, the 2019 J. Shipman Gold Medal Award winner in recognition of his distinguished service for the cause and advancement of the supply management profession.

Linton was honored during the 2019 Shipman Award ceremony at ISM2019, ISM's annual international supply management conference, taking place April 7–10 in Houston,

TABLE 1.3
Summary of Salary From 2019 ISM Survey

	2019 Salary Survey
Overall average for supply management professionals	$119,271
Average for those with 4 or fewer years of experience	$74,162
Average for those with a bachelor's degree	$108,065
Average for those with CPSM certification	$119,551
Average for those with a master's degree	$139,476

Source: Institute for Supply Management.

Texas. "Tom Linton is an inspiring leader at the pinnacle of his career," said ISM CEO Tom Derry. "He has made a lasting impact in giving back to the profession and in driving transformational change through his leadership that spans the globe."

In Linton's 37-year career in procurement and supply chain, four times as chief procurement officer (CPO) over the last 16 years, he has earned the reputation as a visionary leader. Since joining Flex in 2011 after CPO roles at LG Electronics in Seoul, South Korea, as well as previous CPO roles at Freescale Semiconductor, and Agere Systems, he is now responsible for serving automotive, industrial, consumer, networking, energy, medical, and telco industries with more than US$1B spend in each.

In a US$25B global supply chain solutions company, he oversees execution of supply chain management, sourcing (direct and indirect), materials operations, logistics, and systems transformation. He assists in managing 9,000 employees in 30 countries and more than 100 factories and is a force for innovation and technological advancement. For example, he established an industry-leading real-time information platform called Flex Pulse, which drives asset velocity with supply chain visibility.

In his current and prior roles at Flex and LG, respectively, he implemented corporate-wide procurement policies that fundamentally improved their way of doing business while enhancing and driving all sourcing decisions into and through the procurement organization.

Tom leads with the objective to "drive the business, before the business drives you." This philosophy has led to a career of innovations that drive cost savings, business process innovations, and the enhancement of the business reputation of the places he has worked. This has included a rigorous adherence to a code of ethics.

"It is an honor to be named as this year's winner of the J. Shipman Gold Medal," said Tom Linton, chief procurement and supply chain officer at Flex. "Over its 87-year history, the J. Shipman award has recognized many of the leaders and innovators in the supply chain and purchasing field, and I'm humbled to be included in their ranks."

Beyond his full-time professional endeavors, Linton's passion for procurement leads to extensive volunteering to help develop the industry. His ISM contributions include terms on the ISM global board of directors, including as chairman of the board (2013–2015), in addition to serving on multiple ISM committees, undertaking speaking engagements, serving as an R. Gene Richter Scholarship executive mentor, and volunteering as a member and leader in numerous other professional organizations.

SUMMARY

LO 1.1 Identify the role of the purchasing manager, buyer, and purchasing agent in an organization.

Purchasing managers, buyers, and purchasing agents seek to obtain the highest-quality merchandise at the lowest possible purchase cost for their organization. In general, purchasing managers, purchasing agents, and buyers determine which commodities or services are best for the specific requirement, choose the suppliers of the product or service, negotiate the lowest price, and award contracts that ensure the correct amount of the product or service is received at the appropriate time. To accomplish these tasks successfully, purchasing managers, buyers, and purchasing agents identify foreign and domestic suppliers. Purchasing managers, buyers, and agents must become experts on the services, materials, and products they purchase.

LO 1.2 Describe the evolution of the purchasing and supply management function as organizations

To become a competitive organization in today's global economy, the purchasing and supply management function must become world class. The supply management function is the key to unlocking the value within the organization. Organizations must optimize sourcing assets. The purchasing process involves leveraging through volume discounts. It can easily lead to significant reductions in the total purchasing costs. The organizations that produce excellence are those that continuously improve. In general, the purchasing and supply management function has evolved from a pure cost management function to a competitive advantage.

LO 1.3 Explain the relationship between the purchasing function and inventory, ordering, and transportation costs.

Supply management exists to explore business opportunities and implement supply strategies that deliver the most value possible to the organization, its suppliers, and its customers. Strategic supply management is the organization's primary source for collecting market intelligence and developing cost-reduction programs.

The mission of a successful organization's supply management process is to manage purchasing, planning, scheduling, and the transportation of material required for specific products in a manner that will provide a *significant competitive advantage* to the organization in the production of quality products or services. Integrative purchasing and supply management make possible production of goods and services in terms of cost and quality that are competitive in the world.

LO 1.4 Explain the purchasing function's contribution to profitability.

There are many opportunities to reduce the cost of purchases. If the firm's sales remained the same but materials costs decreased, the effect would be an increase on profit. For each $1 reduction of material cost, there would be a $1 increase in profit. The ratio is 1:1.

LO 1.5 Identify the relationship between the purchasing function and other functional areas.

Achieving an integrative purchasing model (IPM) is a challenge. In firms with conventionally organized subfunctions, supply managers are primarily concerned with satisfying their own subfunctional objective. Purchasing managers minimize purchasing costs; marketing managers minimize distribution costs; and so on. These objectives are local, not systemwide. The decision of the purchasing manager affects not only the purchasing function but other materials functions. It is the objective of IPM to manage the related considerations. Purchasing should consider the nonpurchasing consequences of its decisions.

LO 1.6 Identify the advantages and disadvantages of various purchasing organizational designs.

Supply coordination involves both structure and design of the organization. Purchasing organizational *structure* is the sum total of the ways in which an organization divides its labor into distinct tasks and then coordinates among them. Organizational *design* is concerned with bringing together a group of interrelated tasks for a common goal. However, organization design alone does not ensure effectiveness or efficiency. Most companies' organizational charts do not reflect true lines of authority and responsibility that flow through managers. Too much detail can lead to micromanagement. On the other hand, a loosely designed organizational structure can lead to a greater risk.

The outlook is that the majority of significant dollar-valued purchases will continue to be centralized. This trend also will be the result of increased computer-based management information systems. As firms become lean, centralized purchasing will become a major focus. Long-term agreements will be more frequently negotiated to stabilize prices. Honda of America is an excellent example of a firm that uses centralized procurement as a competitive weapon.

LO 1.7 Describe the reporting structures common in the purchasing profession.

Given the strategic nature of the supply function, the top supply management professional is usually a member of the organization's senior management team. In this leadership role, supply management professionals must be knowledgeable and understand all areas of the business in order to develop strategies consistent with the organization's goals and successful business procedures.

LO 1.8 Identify careers in purchasing and supply management.

As supply chains continue to grow globally, and as products become more complex, the supply chain professional must become more sophisticated. Supply management professionals across all industry sectors must become major players in the organization's decision-making process.

The Institute for Supply Management offers two professional certifications. They are the Certified Professional in Supply Management (CPSM) and the Certified Professional in Supplier Diversity (CPSD). The knowledge base for CPSM focuses on effective decision-making in an integrated supply management operating environment.

KEY TERMS

Buyers 4
Centralized purchasing 15
Cost of goods sold 9
Decentralized purchasing 15
Institute for Supply Management 20
Integrative materials management 7
Purchasing agents 4
Purchasing managers 4
Supply management 7

DISCUSSION QUESTIONS

1. Compare the two unique types of purchasing categories in the business world.
2. The purchasing function can easily make a contribution to profitability. Please discuss this statement. What is the profit leverage effect of purchasing?
3. What is meant by "integrative materials management"?
4. What is meant by "supply management"?
5. Describe how purchasing interacts with other functional areas of the firm.
6. Discuss the issue of centralization versus decentralization as it applies to the purchasing function. What are the advantages of centralized purchasing organizations? What are the disadvantages of centralized purchasing?
7. Discuss the specific objectives of purchasing and supply management. Relate these to (1) the automobile industry, (2) a hospital, and (3) a pizza shop.
8. What are some careers in purchasing?
9. What are the most well-known professional purchasing associations?

SUGGESTED CASES

Case 5: BSD at 777-Holdings

Case 13: GRC Systems, Inc.

Case 28: Tom & Jerry (T&J) Construction, Inc.

Purchasing Decisions and Business Strategy

2

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National Medico has been a manufacturer of quality, low-cost blood pressure monitors since 2010. The company has based its business strategy on automation, fast delivery, and reliable service. National is one of the first low-cost monitor manufacturers still producing and selling blood pressure monitors in the United States. Competition, especially from China, has made this an increasingly difficult business. The manufacturing process is highly dependent on timely delivery, low cost, and high-quality materials as a means of staying competitive. In the third quarter of 2019 there was a drop in sales due largely to the cost of plastic components increasing. What decisions might the management at National Medico be facing as they strategically plan for the upcoming year? How should Medico plan for their 5 year strategic plan?

LEARNING OBJECTIVES

Upon completion of this chapter, the reader should be able to:

2.1 Explain the relationship between purchasing and competitive strategy.

2.2 Describe the impact of competitive strategy and purchasing strategy on the supply chain and supplier relationships.

2.3 Discuss the competitive ranking system used to control quality relationships between suppliers and buyers.

2.4 State the decision-making factors that impact a buying decision.

2.5 Demonstrate how to develop a strategic sourcing plan.

2.6 Identify the continuing trends of purchasing and supply chain management.

INTRODUCTION

Purchasing can play a significant role in making a firm competitive. Purchased inputs constitute a large portion of the company's resources. In most industrial firms, materials constitute 60% to 80% of total revenue. Purchased inputs offer a potential source for helping a company develop leverage against its competitors. Purchasing actions designed to reinforce the firm's competitive priorities can give the firm advantages over its competitors. In essence, firms must design their purchasing actions to emphasize the competitive strategy.

In this chapter, a framework for linking purchasing decisions with the firm's competitive strategy is presented. Alternate purchasing strategies can be formulated by selecting a unique combination of purchasing actions. The framework in Table 2.1 offers a systematic approach for designing purchasing strategies consistent with a firm's competitive strategy. As can be seen in Table 2.1, an effective purchasing framework includes four important decision areas: (1) supply management, (2) buying, (3) supplier development, and (4) the scope of manufacturing.

TABLE 2.1
Purchasing Strategy Framework

Decision Areas	Decisions	Alternatives
Supply management	Number Location	Single or multiple source
	Size	Close or geographically dispersed
	Managerial expertise	Small versus large
	Financial health	High or low
	Amount of purchase	Restrict to a certain percentage of supplier's output or no constraint
	Engineering	Developmental versus experienced supplier
	Length of contract	Long term (annual or larger) or short term
	Relationship	Strategic versus commodity focused
	Extent of computerization	Manual versus information systems
	Extent of communication	Share production plan versus nonsharing (integration)
	Value engineering	Active program versus no program
Buying	Criteria	Cost, quality, delivery or lead time, perceived reliability or reputation
	Purchasing scale	Economies of scale (cost/volume) or economies of scope (joint replenishment)
	Ordering policy	Integrated with supplier information system or nonintegration
Supplier development	New product or development	Develop supplier or look for new substitute product sources
Scope of manufacturing activity	Degree of integration	Make versus buy, outsourcing

Some of the tactical tools used for implementation of the strategic framework include total cost ownership (TCO) and SWOT analysis. This chapter also shows how decision-makers can operationalize the linkages between competitive strategy and purchasing decisions.

THE RELATIONSHIP BETWEEN PURCHASING AND COMPETITIVE STRATEGY

LO 2.1 Explain the relationship between purchasing and competitive strategy.

In today's turbulent supply markets, purchasing professionals are expected to develop options that can help business units remain competitive. In doing so, purchasing managers need to devise purchasing actions such that they are consistent with each other and with the firm's **competitive strategy**. The framework for purchasing strategy given in Table 2.1 proposes a way of linking the competitive strategy with the purchasing policy. The components and linkages for purchasing strategy are given in Figure 2.1.

Competitive strategy The plan created to implement a company's unique advantages over competitors in a specific industry.

The purchasing decisions or actions that constitute purchasing strategy are determined by the firm's competitive priorities, its resource capabilities, and the environment. In the formulation of purchasing strategy, the organization's competitive priorities, the organization's strengths and weaknesses, and the competitive environment must be considered.

Competitive Strategy

A firm can compete in two broad alternate ways. It can either seek competitive advantages on cost or choose to differentiate itself from its competitors on some attributes of the product

FIGURE 2.1
Components of Purchasing Strategy

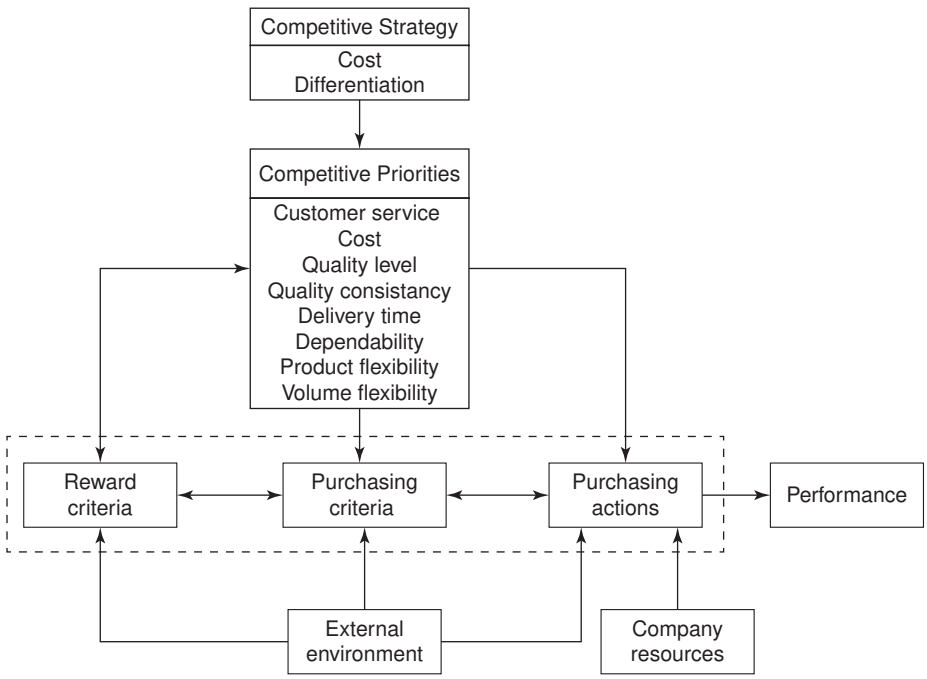

TABLE 2.2
Cost and Differentiation Strategies

	Cost	Differentiation
Purchasing criteria	Low cost/unit Consistent quality Short lead time Dependable delivery	High quality Short lead time Dependable delivery Unit cost based on freight rates
Bargaining basis supplier	Economies of scale	Economies of scope
Number of suppliers	Multiple suppliers	One or few suppliers
Supplier size	Suppliers with moderate/ large capacities	Suppliers with moderate/ small capacities

or in the way it markets its product (see Table 2.2). The notion of two generic competitive advantages—cost and differentiation—is important but too broad to be useful for management faced with day-to-day decision-making. The competitive strategy is articulated in terms of competitive priorities. Key environmental factors also must be considered.

As an example, low-cost strategies generally imply more product standardization, less flexibility in responding to customer demands, fewer options, acceptable quality, and continuous process technology. A low-cost strategy is mostly concerned with market penetration with a high-volume, low-cost product. On the other hand, a product differentiation strategy is concerned with providing the customer with more selection, which implies higher costs and prices. The higher costs are a result of higher material costs and skilled labor costs. The higher service levels expected also lead to increased finished goods inventories.

Competitive Priorities

Competitive priority A key determinant of the importance given to different criteria in purchasing material.

Purchasing criteria Price, quality, and delivery speed.

Reward criteria Determine how closely the objectives are met.

Competitive priorities are one means of articulating a firm's competitive strategy. The **competitive priority** is a key determinant of the importance given to different criteria in purchasing material. However, the **purchasing criteria** also are influenced by individual buyer performance and reward criteria. The competitive priorities define the intended or desired purchase criteria, and the **reward criteria** determine how closely the objectives are met.

The competitive priorities operationalize the firm's competitive strategy. The two generic competitive advantages—delivery speed and reliability—are operationalized in terms of cost, quality level, quality consistency, delivery time, dependability, product flexibility, volume flexibility, and customer service. By assigning priorities to these dimensions, the firm operationalizes its strategy. The priorities can then be used to generate alternatives consistent with the firm's competitive strategy. A company competing on cost should drive the overall costs down. On the other hand, a firm competing on differentiation must devise its actions to enhance its uniqueness on quality, flexibility, customer service, or any combination of the three. Expertise and understanding of the buying organization to cost differentiation and environmental factors usually lead to a competitive advantage.