Sixteenth Edition

PURCHASING and Supply Management

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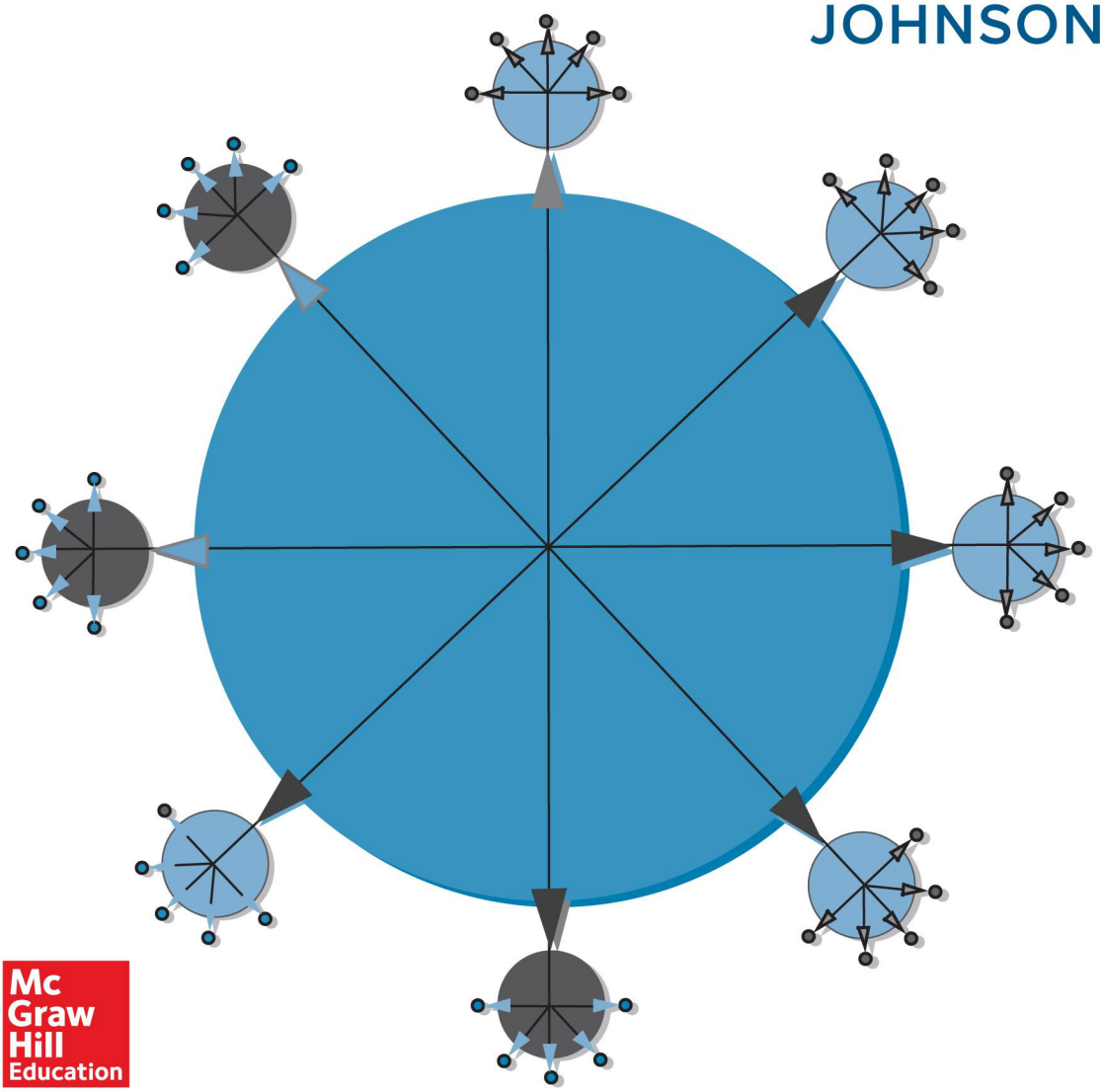

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Purchasing and Supply Management

Sixteenth Edition

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Mc Graw Hill Education

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Preface

Purchasing and supply management has become increasingly visible in a world where supply is a major determinant of corporate survival and success. Supply chain performance influences not only operational and financial risks but also reputational risk. Extending the supply chain globally into emerging regions places new responsibilities on the supplier and supply, not only to monitor environmental, social, political, and security concerns, but also to influence them. Thus, the job of the supply manager of today goes beyond the scope of supply chain efficiency and value for money spent to search for competitive advantage in the supply chain. Cost containment and improvement represent one challenge; the other is revenue enhancement. Not only must the supply group contribute directly to both the balance sheet and the income statement; it must also enhance the performance of other members of the corporate team. Superior internal relationship and knowledge management need to be matched on the exterior in the supply network to assure that the future operational and strategic needs of the organization will be met by future markets. The joy of purchasing and supply management lives in the magnitude of its challenges and the opportunities to achieve magnificent contributions.

For more than 85 years, this text and its predecessors have championed the purchasing and supply management cause. Based on the conviction that supply and suppliers have to contribute effectively to organizational goals and strategies, this and previous editions have focused on how to make that mission a reality.

A great deal has happened in the supply field since the fifteenth edition was published. Continuing advances in information technology provide new ways to improve supply efficiency and effectiveness. New risk management, sustainability, and transparency requirements, and the search for meaningful supply metrics, have further complicated the challenges faced by supply managers all over the world. As a consequence, several changes and updates have been made to the sixteenth edition. First, the new edition provides an opportunity to incorporate the latest theory and best practice in supply chain management into the text. Wherever appropriate, real-world examples and current research are used to illustrate key points. Second, the application of information technology to supply chain processes continues to change rapidly, including the evolution of cloud-based computing, digitization, and blockchain. The text has been updated accordingly. Third, there are also several important emerging issues—including sustainability, challenges of managing risk in a global supply chain, and collaboration—that are addressed in this text. Meanwhile, other supply management issues, such as global sourcing and supply chain collaboration, continue to remain at the forefront. As the world's technological and political environments continue to change and evolve, supply managers are faced with new challenges and risks managing their global supply chains. Lastly, nearly one-third of the cases have been replaced with new cases that cover topics such as risk management, cost analysis, metrics, purchasing consortiums, and acquisition of capital equipment. Thus, the examples in the text and 49 real-life supply chain cases afford the chance to apply the latest research and theoretical developments in the field to real-life issues, opportunities, decisions, and problems faced by practitioners.

In this edition, the focus on decision making in the supply chain has also been strengthened considerably. The chapter sequence reflects the chronological order of the acquisition process. Criteria for supply decisions have been identified in three categories: (1) strategic, (2) operational, and (3) additional. Criteria in the third category, including balance sheet and income statement considerations, all dimensions of risk, sustainability considerations, are growing in relevance and making sound supply decisions an even more complex challenge.

Anna E. Flynn has been a coauthor of this text since the twelfth edition of this text in 2002, after previously assisting with tenth and eleventh editions. Anna has been a committed educator in the supply management field. She is a former faculty member at Thunderbird School of Global Management and Arizona State University, where she was also director of the undergraduate program in supply chain management. Anna also served as vice president and associate professor at the Institute for Supply Management (ISM). As a research associate for CAPS Research, she was able to explore important topics relevant for supply management professionals. Her accomplishments include authorship of several books. Although Anna did not participate in this edition, her past contributions are still evident throughout this text.

A book with text and cases depends on many to contribute through their research and writing to expand the body of knowledge of the field. Thus, to my academic colleagues, I extend my thanks for pushing out the theoretical boundaries of supply management. To many practitioners, I wish to extend my gratitude for proving what works and what does not and providing their stories in the cases in this text. Also, many case writers contributed their efforts so that approximately one-third of all the cases in this edition are new. Case contributors in alphabetical order included: Carolynn Cameron, Garland Chow, Jenni Denniston, Dominque Fortier, Manish Kumar, Glen Luinenberg, Eric Silverberg, Dave Vannette, and Marsha Watson.

The production side of any text is more complicated than most authors care to admit. At McGraw-Hill Education Noelle Bathurst, Harper Christopher, Michele Janicek, Erika Jordan, Elizabeth Kelly, Tobi Philips, Charles (Chuck) Synovec, Erin Tilley, and many others contributed to turn our efforts into a presentable text.

The support of Acting Dean Mark Vandenbosch and my colleagues at the Ivey Business School has been most welcome. Professors Larry Menor and Robert Klassen have provided invaluable feedback and assistance.

The assistance of the Institute for Supply Management (ISM) and the Supply Chain Management Association in supporting the continuous improvement of supply education is also very much appreciated.

P. Fraser Johnson

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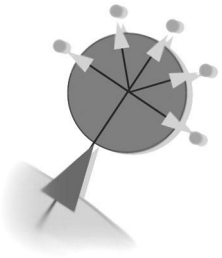


Purchasing and Supply Management

Chapter Outline

Key Questions for the Supply Decision Maker

Should we

- Rethink how supply can contribute more effectively to organizational goals and strategies?
- Try to find out what the organization's total spend with suppliers really is?
- Identify opportunities for meaningful involvement in major corporate activities?

How can we

- Align our supply strategy with the organization's strategy?
- Get others to recognize the profit-leverage effect of purchasing/supply management?
- Show top management how supply can affect our firm's competitive position?

Every organization needs suppliers. No organization can exist without suppliers. Therefore, the organization's approach to its suppliers, acquisition processes and policies, and relationships with suppliers will impact not only the performance of the suppliers, but also the organization's own performance. No organization can be successful without the short- and long-term support of its supplier base, operationally and strategically.

Supply management is focused on the acquisition process recognizing the supply chain and organizational contexts. Special emphasis is on decision making that aligns the supplier network and the acquisition process with organizational goals and strategies and ensures short- and long-term value for funds spent.

There is no one best way of organizing the supply function, conducting its activities, and integrating suppliers effectively. This is both interesting and challenging. It is interesting because the acquisition of organizational requirements covers a very wide and complex set of approaches with different needs and different suppliers. It is challenging because of the complexity and because the process is dynamic, not static. Moreover, some of the brightest minds in this world have been hired as marketing and sales experts to persuade supply managers to choose their companies as suppliers. It is also challenging because every supply decision depends on a large variety of factors, the combination of which may well be unique to a particular organization.

For more than 85 years, this text and its predecessors have presented the supply function and suppliers as critical to an organization's success, competitive advantage, and customer satisfaction. Whereas in the 1930s this was a novel idea, over the past few decades there has been growing interest at the executive level in the supply chain management and its impact on strategic goals and objectives.

To increase long-term shareholder value, the company must increase revenue, decrease costs, or both. Supply's contribution should not be perceived as only focused on cost. Supply can and should also be concerned with revenue enhancement. What can supply and suppliers do to help the organization increase revenues or decrease costs? should be a standard question for any supply manager.

The supply function continues to evolve as technology and the worldwide competitive environment require innovative approaches. The traditionally held view that multiple

sourcing increases supply security has been challenged by a trend toward single sourcing. Results from closer supplier relations and cooperation with suppliers call into question the wisdom of the traditional arm's-length dealings between purchaser and supplier. Negotiation as opposed to competitive bidding, is receiving increasing emphasis, and longer-term contracts are replacing short-term buying techniques. E-commerce tools permit faster and lower-cost solutions, not only on the transaction side of supply but also in management decision support. Organizations are continually evaluating the risks and opportunities of global sourcing. All of these trends are logical outcomes of increased managerial concern with value and increasing procurement aggressiveness in developing suppliers to meet specific supply objectives of quality, quantity, delivery, price, service, flexibility, and continuous improvement.

Effective purchasing and supply management contributes significantly to organizational success. This text explores the nature of this contribution and the management requirements for effective and efficient performance. The acquisition of materials, services, and equipment—of the right qualities, in the right quantities, at the right prices, at the right time, and on a continuing basis—long has occupied the attention of managers in both the public and private sectors.

Today, the emphasis is on the total supply management process in the context of organizational goals and management of supply chains. The rapidly changing supply scene, with cycles of abundance and shortages, and varying prices, lead times, and availability, provides a continuing challenge to those organizations wishing to obtain a maximum contribution from this area. Furthermore, environmental and social sustainability, security, and financial regulatory requirements have added considerable complexity to the task of ensuring that supply and suppliers provide competitive advantage.

PURCHASING AND SUPPLY MANAGEMENT

Although some people may view interest in the performance of the supply function as a recent phenomenon, it was recognized as an independent and important function by many of the nation's railroad organizations well before 1900.

Yet, traditionally, most firms regarded the supply function primarily as a clerical activity. However, during World War I and World War II, the success of a firm was not dependent on what it could sell, since the market was almost unlimited. Instead, the ability to obtain from suppliers the raw materials, supplies, and services needed to keep the factories and mines operating was the key determinant of organizational success. Consequently, attention was given to the organization, policies, and procedures of the supply function, and it emerged as a recognized managerial activity.

During the 1950s and 1960s, supply management continued to gain stature as the number of people trained and competent to make sound supply decisions increased. Many companies elevated the chief purchasing officer to top management status, with titles such as vice president of purchasing, director of materials, or vice president of purchasing and supply.

As the decade of the 1970s opened, organizations faced two vexing problems: an international shortage of almost all the basic raw materials needed to support operations and a rate of price increase far above the norm since the end of World War II. The Middle East

oil embargo during the summer of 1973 intensified both the shortages and the price escalation. These developments put the spotlight directly on supply, for their performance in obtaining needed items from suppliers at realistic prices spelled the difference between success and failure. This emphasized again the crucial role played by supply and suppliers.

As the decade of the 1990s unfolded, it became clear that organizations must have an efficient and effective supply function if they were to compete successfully in the global marketplace. The early twenty-first century has brought new challenges in the areas of sustainability, supply chain security, and risk management.

In large supply organizations, supply professionals often are divided into two categories: the tacticians who handle day-to-day requirements and the strategic thinkers who possess strong analytical and planning skills and are involved in activities such as strategic sourcing. The extent to which the structure, processes, and people in a specific organization will match these trends varies from organization to organization, and from industry to industry.

The future will see a gradual shift from predominantly defensive strategies, resulting from the need to change in order to remain competitive, to aggressive strategies, in which firms take an imaginative approach to achieving supply objectives to satisfy short-term and long-term organizational goals. The focus on strategy now includes an emphasis on process and knowledge management. This text discusses what organizations should do today to remain competitive as well as what strategic purchasing and supply management will focus on tomorrow.

Growing management interest through necessity and improved insight into the opportunities in the supply area have resulted in a variety of organizational concepts. Terms such as *purchasing, procurement, materiel, materials management, logistics, sourcing, supply management,* and *supply chain management* are used almost interchangeably. No agreement exists on the definition of each of these terms, and managers in public and private institutions may have identical responsibilities but substantially different titles. The following definitions may be helpful in sorting out the more common understanding of the various terms.

Supply Management Terminology

Some academics and practitioners limit the term *purchasing* to the process of buying: learning of the need, locating and selecting a supplier, negotiating price and other pertinent terms, and following up to ensure delivery and payment. This is not the perspective taken in this text. *Purchasing, supply management,* and *procurement* are used interchangeably to refer to the integration of related functions to provide effective and efficient materials and services to the organization. Thus, purchasing or supply management is not only concerned with the standard steps in the procurement process: (1) the recognition of need, (2) the translation of that need into a commercially equivalent description, (3) the search for potential suppliers, (4) the selection of a suitable source, (5) the agreement on order or contract details, (6) the delivery of the products or services, and (7) the payment of suppliers.

Further responsibilities of supply may include receiving, inspection, warehousing, inventory control, materials handling, packaging scheduling, in- and outbound transportation/traffic, and disposal. Supply also may have responsibility for other components of the supply chain, such as the organization's customers and their customers and

their suppliers' suppliers. This extension represents the term *supply chain management,* where the focus is on minimizing costs and lead times across tiers in the supply chain to the benefit of the final customer. The idea that competition may change from the firm level to the supply chain level has been advanced as the next stage of competitive evolution.

In addition to the *operational responsibilities* that are part of the day-to-day activities of the supply organization, there are *strategic responsibilities. Strategic sourcing* focuses on long-term supplier relationships and commodity plans with the objectives of identifying opportunities in areas such as cost reductions, new technology advancements, and supply market trends. The Suman case in Chapter 2 provides an excellent example of the need to take a strategic perspective when planning long-term supply needs.

Lean purchasing or *lean supply management* refers primarily to a manufacturing context and the implementation of just-in-time (JIT) tools and techniques to ensure every step in the supply process adds value, that inventories are kept at a minimum level, and that distances and delays between process steps are kept as short as possible. Instant communication of job status is essential and shared.

Supply and Logistics

The large number of physical moves associated with any purchasing or supply chain activity has focused attention on the role of logistics. According to the Council of Supply Chain Management Professionals, "Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements."[1] This definition includes inbound, outbound, internal, and external movements. Logistics is not confined to manufacturing organizations. It is relevant to service organizations and to both private- and public-sector firms.

The attraction of the logistics concept is that it looks at the material flow process as a complete system, from initial need for materials to delivery of finished product or service to the customer. It attempts to provide the communication, coordination, and control needed to avoid the potential conflicts between the physical distribution and the materials management functions.

Supply influences a number of logistics-related activities, such as how much to buy and inbound transportation. With an increased emphasis on controlling material flow, the supply function must be concerned with decisions beyond supplier selection and price. The Qmont Mining case in Chapter 4 illustrates the logistics considerations of supplying multiple locations.

Organizations are examining business processes and exploring opportunities to integrate boundary-spanning activities in order to reduce costs and improve lead times. Opportunities include the ability to reduce costs, increase speed to market and improve quality, achieved through the use of cross-functional teams that integrate purchasing activities with operations, logistics, and new product development.

[1] Council of Supply Chain Management Professionals, "SCM Definitions and Glossary," http://cscmp.org/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx?hkey=60879588-f65f-4ab5-8c4b-6878815ef921.

Supply chain management is a systems approach to managing the entire flow of information, materials, and services from raw materials suppliers through factories and warehouses to the end customer. The Institute for Supply Management (ISM) glossary defines *supply chain management* as "the design and management of seamless, value-added processes across organizational boundaries to meet the real needs of the end customer. The development and integration of people and technological resources are critical to successful supply chain integration."[2]

The term *value chain,* a term commonly used in the strategy literature, has been used to trace a product or service through its various moves and transformations, identifying the costs added at each successive stage. Some academics and practitioners believe the term *chain* does not properly convey what really happens in a supply or value chain, and they prefer to use the term *supply network* or *supply web.*

The use of the concepts of purchasing, procurement, supply, and supply chain management will vary from organization to organization. It will depend on (1) their stage of development and/or sophistication, (2) the industry in which they operate, and (3) their competitive position.

The relative importance of the supply area compared to the other prime functions of the organization will be a major determinant of the management attention it will receive. How to assess the materials and services needs of a particular organization in context is one of the purposes of this book. The 49 cases in this book provide insights into a variety of situations and give practice in resolving managerial problems.

THE SIZE OF THE ORGANIZATION'S SPEND AND FINANCIAL SIGNIFICANCE

The amount of money organizations spend with suppliers is staggering. Collectively, private and public organizations in North America spend about 1.5 times the GDPs of the United States, Canada, and Mexico combined, totaling at least $33 trillion U.S. dollars spent with suppliers.

Dollars spent with suppliers as a percentage of total revenues is a good indicator of supply's financial impact. Obviously, the percentage of revenue that is paid out to suppliers varies from industry to industry and organization to organization, and increased outsourcing over the last two decades has increased the percentage of spend significantly. In almost all manufacturing organizations, the supply area represents by far the largest single category of spend, ranging from 50 to 80 percent of revenue. Wages, by comparison, typically amount to about 10 to 20 percent. In comparison, the total dollars spent on outside suppliers in service organizations usually ranges from 25 to 35 percent of revenues. The Lambert-Martin Automotive Systems Inc. case in Chapter 3 is a good illustration of the significance of spend in a manufacturing organization. Purchases where 50 percent of revenues, which represented 63 percent of total costs.

The financial impact of the corporate spend is often illustrated by the profit-leverage effect and the return-on-assets effect.

[2] Institute for Supply Management, "Glossary of Key Supply Management Terms," www.instituteforsupplymanagement.org.

Profit-Leverage Effect

The profit-leverage effect of supply savings is measured by the increase in profit obtained by a decrease in purchase spend. For example, for an organization with revenue of $100 million, purchases of $60 million, and profit of $8 million before tax, a 10 percent reduction in purchase spend would result in an increase in profit of 75 percent. To achieve a $6 million increase in profit by increasing sales, assuming the same percentage hold, might well require an increase of $75 million in sales, or 75 percent! Which of these two options—an increase in sales of 75 percent or a decrease in purchase spend of 10 percent—is more likely to be achieved?

This is not to suggest that it would be easy to reduce overall purchase costs by 10 percent. In a firm that has given major attention to the supply function over the years, it would be difficult, and perhaps impossible, to do. But, in a firm that has neglected supply, it would be a realistic objective. Because of the profit-leverage effect of supply, large savings are possible relative to the effort that would be needed to increase sales by the much-larger percentage necessary to generate the same effect on the profit and loss (P&L) statement. Since, in many firms, sales already has received much more attention, supply may be the best untapped "profit producer."

Return-on-Assets Effect

Financial experts are increasingly interested in return on assets (ROA) as a measure of corporate performance. Figure 1–1 shows the standard ROA model, using the same ratio of figures as in the previous example, and assuming that inventory accounts for 30 percent of total assets. If purchase costs were reduced by 10 percent, that would cause an extra benefit of a 10 percent reduction in the inventory asset base. The numbers in the boxes show the initial figures used in arriving at the 10 percent ROA performance.

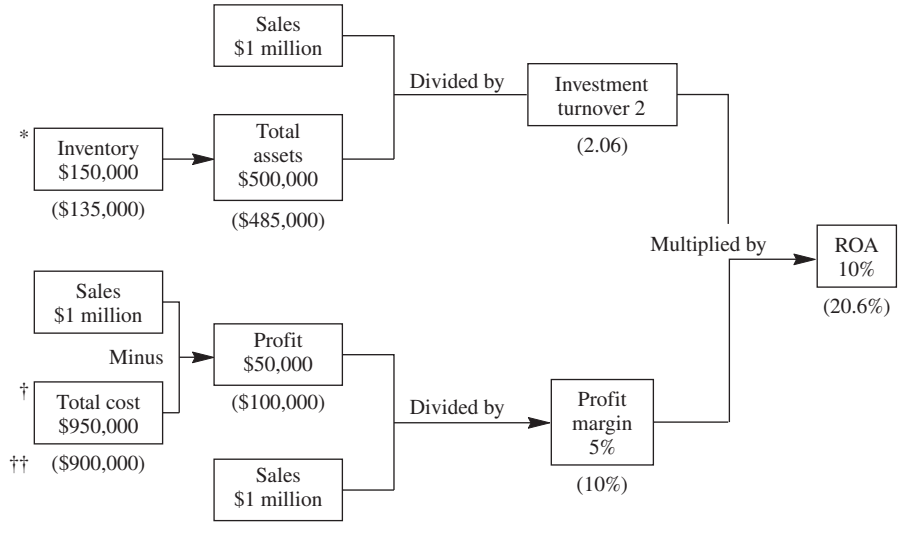


FIGURE 1–1
Return-on-Assets Factors

*Inventory is approximately 30 percent of total assets.
†Purchases account for half of total sales, or $500,000.
‡Figures in parentheses assume a 10 percent reduction in purchase costs.

The numbers below each box are the figures resulting from a 10 percent overall purchase price reduction, and the end product is a new ROA of 20.6 percent or about an 100 percent increase in return on assets.

Reduction in Inventory Investment

Charles Dehelly, senior executive vice president at Thomson Multimedia, headquartered in Paris, France, said: "It came as quite a surprise to some supply people that I expected them to worry about the balance sheet by insisting on measuring their return on capital employed performance."[3] Mr. Dehelly was pushing for reductions in inventory investment, not only by lowering purchase price, as shown in the example in Figure 1–1, but also by getting suppliers to take over inventory responsibility and ownership, thereby removing asset dollars in the ROA calculations, but also taking on the risk of obsolescence, inventory carrying, and disposal costs. Since accountants value inventory items at the purchaser at purchased cost, including transportation, but inventory at the supplier at manufacturing cost, the same items stored at the supplier typically have a lower inventory investment and carrying cost.

Thus, it is a prime responsibility of supply to manage the supply process with the lowest reasonable levels of inventory attainable. Inventory turnover and level are two major measures of supply chain performance. The QBL Products case in Chapter 17 is an illustration where the company's board of directors expects improved working capital utilization through higher inventory turns.

Evidently, the financial impact of supply is on the balance sheet and the income statement, the two key indicators of corporate financial health used by managers, analysts, financial institutions, and investors. While the financial impact of the supply spend is obviously significant, it is by no means the only impact of supply on an organization's ability to compete and to be successful.

SUPPLY CONTRIBUTION

Although supply's financial impact is major, supply contributes to organizational goals and strategies in a variety of other ways. The three major perspectives on supply are shown in Figure 1–2:

1. Operational versus strategic.
2. Direct and indirect.
3. Negative, neutral, and positive.

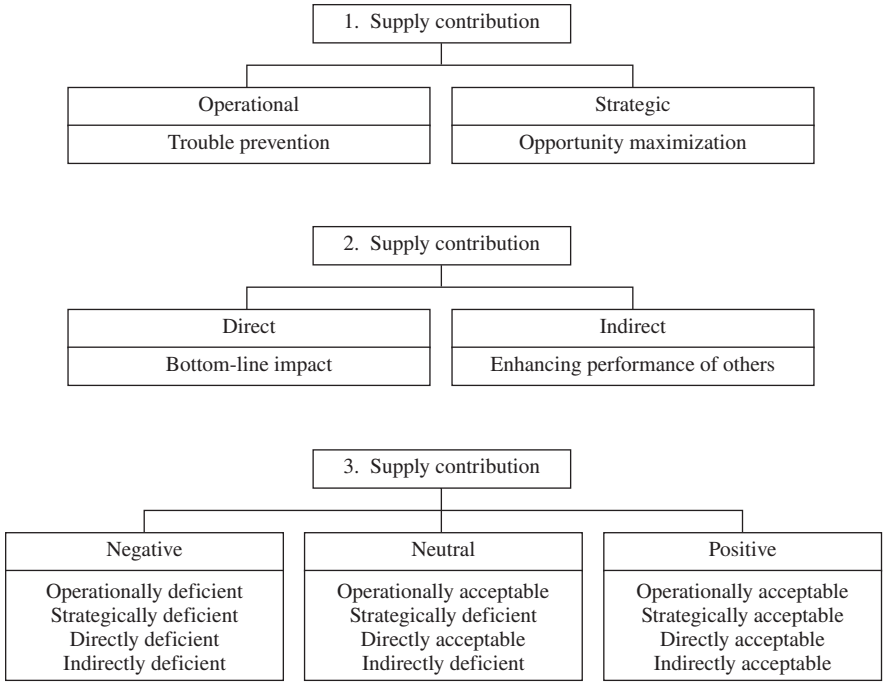
The Operational versus Strategic Contribution of Supply

First, supply can be viewed in two contexts: operational, which is characterized as *trouble avoidance,* and strategic, which is characterized as *opportunistic.*

The operational context is the most familiar. Many people inside the organization are inconvenienced to varying degrees when supply does not meet minimum expectations. Improper quality, wrong quantities, and late deliveries may make life miserable for the

[3] M. R. Leenders and P. F. Johnson, *Major Changes in Supply Chain Responsibilities* (Tempe, AZ: CAPS Research, March 2002), p. 104.

FIGURE 1–2
Purchasing's Operational and Strategic Contributions[4]



ultimate user of the product or service. This is so basic and apparent that "no complaints" is assumed to be an indicator of good supply performance. The difficulty is that many users never expect anything more and hence may not receive anything more.

The operational side of supply concerns itself with the transactional, day-to-day operations traditionally associated with purchasing. The operational side can be streamlined and organized in ways designed to routinize and automate many of the transactions, thus freeing up time for the supply manager to focus on the strategic contribution.

The strategic side of supply is future oriented and searches for opportunities to provide competitive advantage. Whereas on the operational side the focus is on executing current tasks as designed, the strategic side focuses on new and better solutions to organizational and supply challenges. (Chapter 2 discusses the strategic side in detail.)

The Direct and Indirect Contribution of Supply

The second perspective is that of supply's potential direct or indirect contribution to organizational objectives.

Supply savings, the profit-leverage effect, and the return-on-assets effect demonstrate the direct contribution supply can make to the company's financial statements. Although the argument that supply savings flow directly to the bottom line appears self-evident, experience shows that savings do not always get that far. Budget heads, when presented with savings, may choose to spend this unexpected windfall on other requirements.

[4] Michiel R. Leenders and Anna E. Flynn, *Value-Driven Purchasing: Managing the Key Steps in the Acquisition Process* (Burr Ridge, IL: Richard D. Irwin, 1995), p. 7.

To combat this phenomenon, some supply organizations have hired financial controllers to assure that supply savings do reach the bottom line. Such was the case at Praxair, a global supplier of specialty gases and technologies. The chief supply officer and the CFO agreed that a financial controller position was needed in the supply organization to support financial analysis and budgeting. Validating cost savings and linking cost savings to the business unit operating budgets were important parts of this person's responsibilities.[5]

The appeal of the direct contribution of supply is that both inventory reduction and purchasing savings are measurable and tangible evidence of supply contribution, as demonstrated in the QBL Products case in Chapter 17.

The supply function also contributes indirectly by enhancing the performance of other departments or individuals in the organization. This perspective puts supply on the management team of the organization. Just as in sports, the team's objective is to win. Who scores is less important than the total team's performance. For example, better quality may reduce rework, lower warranty costs, increase customer satisfaction, and/or increase the ability to sell more or at a higher price. Ideas from suppliers may result in improved design, lower manufacturing costs, and/or a faster idea-to-design-to-product-completion-to-customer-delivery cycle. Each would improve the organization's competitiveness.

Indirect contributions come from supply's role as an information source; its effect on efficiency, competitive position, risk, and company image; the management training provided by assignments in the supply area; and its role in developing management strategy and social policy. The benefits of the indirect contribution may outweigh the benefits of direct contribution, but measuring the indirect benefits is difficult since it involves many "soft" or intangible contributions that are difficult to quantify.

Information Source

The contacts of the supply function in the marketplace provide a useful source of information for various functions within the organization. Primary examples include information about prices, availability of goods, new sources of supply, new products, and new technology, all of interest to many other parts of the organization. New marketing techniques and distribution systems used by suppliers may be of interest to the marketing group. News about major investments, mergers, acquisition candidates, international political and economic developments, pending bankruptcies, major promotions and appointments, and current and potential customers may be relevant to marketing, finance, research, and top management. Supply's unique position vis-à-vis the marketplace should provide a comprehensive listening post.

Effect on Efficiency

The efficiency with which supply processes are performed will show up in other operating results. While the firm's accounting system may not be sophisticated enough to identify poor efficiency as having been caused by poor purchase decisions, that could be the case. If supply selects a supplier who fails to deliver raw materials or parts that measure up to the agreed-on quality standards, this may result in a higher scrap rate or costly rework, requiring excessive direct labor expenditures. If the supplier does not meet the agreed-on delivery schedule, this may require a costly rescheduling of production, decreasing overall production efficiency, or, in the worst case, a shutdown of the production line—and fixed

[5] Leenders and Johnson, *Major Changes in Supply Chain Responsibilities,* p. 89.

costs continue even though there is no output. Many supply managers refer to user departments as internal customers or clients and focus on improving the efficiency and effectiveness of the function with a goal of providing outstanding internal customer service.

Effect on Competitive Position/Customer Satisfaction

A firm cannot be competitive unless it can deliver end products or services to its customers when they are wanted, of the quality desired, and at a price the customer feels is fair. If supply does not do its job, the firm will not have the required materials or services when needed, of desired quality, and at a price that will keep end-product or service costs competitive and under control.

The ability of the supply organization to secure requirements of better quality, faster, at a better price than competitors, will not only improve the organization's competitive position, but also improve customer satisfaction. The same can be said for greater flexibility to adjust to customers' changing needs. Thus, a demonstrably better-performing supply organization is a major asset on any corporate team.

A major chemical producer was able to develop a significantly lower-cost option for a key raw material that proved to be environmentally superior as well as better quality. By selling its better end product at somewhat lower prices, the chemical producer was able to double its market share, significantly improving its financial health and competitive position as well as the satisfaction of its customers.

Effect on Organizational Risk

Risk management is becoming an ever-increasing concern. The supply function clearly impacts the organization in terms of operational, financial, and reputation risk. Supply disruptions in terms of energy, service, or direct or indirect requirements can impact the ability of the organization to operate as planned and as expected by its customers, creating operational risks.

Given that commodity and financial markets establish prices that may go up or down beyond the control of the individual purchaser, and that long-term supply agreements require price provisions, the supply area may represent a significant level of financial risk. Furthermore, unethical or questionable supply practices and suppliers may expose the organization to significant reputation risk.

Effect on Image

The actions of supply personnel influence directly the public relations and image of a company. If actual and potential suppliers are not treated in a businesslike manner, they will form a poor opinion of the entire organization and will communicate this to other firms. This poor image will adversely affect the purchaser's ability to get new business and to find new and better suppliers. Public confidence can be boosted by evidence of sound and ethical policies and fair implementation of them.

The large spend of any organization draws attention in terms of supplier chosen, the process used to choose suppliers, the ethics surrounding the supply process, and conformance to regulatory requirements. Do the suppliers chosen have a track record of responsible social and environmental sustainability performance? Do they have a good reputation? Is the acquisition process transparent and legally, ethically, strategically, and operationally defensible as sound practice? Do supply's actions take fully into account environmental, social, financial, and other regulatory requirements, such as national security?

Global brands have come under increased scrutiny for their sourcing policies, accused of turning a blind eye to the labor practices of their suppliers. Collapse of the Rana Plaza in Bangladeshi in 2013, killing more than 1,100 people, focused worldwide attention on poor working conditions and low pay for workers manufacturing garments for companies that included Walmart, Benetton, and Loblaws. The disaster spurred a debate about the responsibility of large retailers to ensure that their supplier factories met acceptable safety standards and paid their workers a living wage. There are an estimated 5,000 garment factories in Bangladesh, employing more than 3.5 million workers, many of whom are paid the minimum wage of approximately $65 a month.

Maintaining a proper corporate image is the responsibility of every team member and supply is no exception.

Training Ground

The supply area also is an excellent training ground for new managers where needs of the organization may be quickly grasped. Exposure to the pressure of decision making under uncertainty with potentially serious consequences allows for evaluation of the individual's ability and willingness to make sound decisions and assume responsibility. Contacts with many people at various levels and a variety of functions may assist the individual in learning about how the organization works. Many organizations find it useful to include the supply area as part of a formal job rotation system for high-potential employees.

Examples of senior corporate executives with significant supply experience include Mary Barra, chairman and CEO of General Motors Company, Tim Cook, CEO of Apple, and Fabian Garcia, president and CEO of Revlon.

Management Strategy

Supply also can be used as a tool of management strategy and social policy. Does management wish to introduce and stimulate competition? Does it favor geographical representation, minority interest, and environmental and social concerns? For example, are domestic sources preferred? Will resources be spent on assisting minority suppliers? As part of an overall organization strategy, the supply function can contribute a great deal. Assurance of supply of vital materials or services in a time of general shortages can be a major competitive advantage. Similarly, access to better-quality or lower-priced products and services may represent a substantial gain. These strategic positions in the marketplace may be gained through active exploration of international and domestic markets, technology, innovative management systems, and the imaginative use of corporate resources. Vertical integration and its companion decisions of make or buy (insource or outsource) are ever-present considerations in the management of supply.

The potential contribution of supply to strategy is obvious. Achievement depends on both top executive awareness of this potential and the ability to marshal corporate resources to this end. At the same time, it is the responsibility of those charged with the management of the supply function to seek strategic opportunities in the environment and to draw top executive attention to them. This requires a thorough familiarity with organizational objectives, strategy, and long-term plans and the ability to influence these in the light of new information. Chapter 2 discusses both potential supply contributions to business strategy *and* the major strategy areas within the supply function.

Progressive managers have recognized the potential contributions of the supply management area and have taken the necessary steps to ensure results. One important step in successful organizations has been the elevation to top executive status of the supply manager. Although titles are not always consistent with status and value in an organization, they still make a statement within and outside of most organizations. Currently, the most common title of the chief supply officer is vice president, followed by director and manager.

The elevation of the chief supply officer to executive status, coupled with high-caliber staff and the appropriate authority and responsibility, has resulted in an exciting and fruitful realization of the potential of the supply function in many companies. Chapter 3 discusses supply organizations issues in greater detail.

THE NATURE OF THE ORGANIZATION

The nature of the organization will determine how it will structure and manage its supply function. Whether the organization is public or private; produces goods, services, or both; its mission, vision, and strategies; its size, number of sites, location, financial strength, and reputation will all be factors influencing its supply options and decisions. These will be addressed broadly in this first chapter and will be expanded on subsequently in this text.

Public or Private Organization

Public institutions, including all levels of government from municipal to state or provincial to federal, tend to be service providers but are not exclusively so and are subject to strict regulatory requirements regarding acquisition processes and policies. The public sector in many countries also includes education, health, utilities, and a host of agencies, boards, institutes, and so forth. The Wentworth Hospital case in Chapter 7 provides an example of supply in a public-sector context. This case illustrates how many purchases in the public sector can be for capital and indirect supplies, which creates challenges for supply to influence purchasing decisions that ensure best value.

A large segment of the acquisition needs of public institutions is concerned with the support of the organization's mission and maintenance of facilities and offices. Concerns over public spending deal with transparency and fairness of access to all eligible suppliers, social aims such as support of minority and disadvantaged groups, and national security. Need definition and specification are often part of the supply manager's responsibilities and are often geared to allow for multiple bidders.

That not all public organizations are alike is evident from Figure 1–3, which shows just some of the differences among public bodies. Nongovernmental organizations (NGOs)

FIGURE 1–3
Differentiations for Supply Management in Public Organizations

Level:	Municipal ⟷	State or Provincial ⟷	Federal
Mission:	Social Aims ⟷	Other or Combination ⟷	Economic
Revenue Generation:	Limited ⟷	Combination ⟷	Substantial
Size:	Small ⟷	Medium ⟷	Large
Number of Sites:	Single ⟷	Few ⟷	Many

FIGURE 1–4 Differentiations for Supply Management in Private Organizations

Goods or Services:	Manufacturer ⟷	Combination ⟷	Services
Strategy:	Low cost ⟷	Combination ⟷	Differentiation
Size:	Small ⟷	Medium ⟷	Large
Number of Sites:	Single ⟷	Few ⟷	Many
Location:	Domestic ⟷	Few International ⟷	Many International
Financial Strength:	Weak ⟷	Medium ⟷	Strong
Reputation:	Poor ⟷	Medium ⟷	Outstanding

and other nonprofit organizations would have a breakdown similar to those listed for public organizations, but might also operate internationally.

Private Organizations

Private organizations, which include companies with publicly traded stocks, tend to have fewer constraints on need definition, specification, and supplier selection. The laws of the land (covered in Chapter 5) will establish the main ground rules for commerce. Transparency of commitments with suppliers has recently become more relevant, ensuring that long-term commitments are properly disclosed in the company's financial statements. Whereas in public institutions standardization is seen as a means of fairness to suppliers, in private companies, custom specifications are seen as a means of securing competitive advantage.

Figure 1–4 shows some of the influencers that will affect supply management in private organizations. It is clear that for both public and private organizations these differences will affect supply significantly and some generalizations on supply impact follow.

Goods or Service Producers

Another major supply influence is whether the organization produces goods or services or both. Goods producers, often called manufacturers, may produce a wide range of products, both in the industrial goods category and in consumer goods. For goods producers, normally the largest percentage of total spend of the organization is on materials, purchased parts, packaging, and transportation for the goods produced. For service providers (and the range of possible services is huge), normally the largest percent of spend is focused on services and the process enabling the delivery of the services. The Brennan Bank case in this chapter describes a supply decision in a large services organization, a financial institution. This case illustrates the opportunities for supply to contribute to the customer value proposition.

The following table identifies what the impact on organizational requirements is likely to be depending on whether the organization is primarily focused on manufacturing or providing a service:

Manufacturer	Service Provider
• The largest portion of needs is generated by customer needs. • The largest portion of spend with suppliers will be on direct requirements which comprise products sold to customers.	• The largest portion of needs is generated by capital, services, and other requirements enabling employees to provide the service. • In retailing, the largest spend is focused on resale requirements.

Very few organizations are pure manufacturers or service providers. Most represent a mixture of both. A restaurant provides meals and drinks as well as service and a place to eat. An insurance company provides insurance policies and claim service as well as peace of mind. An R&D organization performs research, as well as research reports, models, and prototypes. A manufacturer may supply capital goods as well as repair service and availability of replacement parts.

Wholesalers, distributors, and retailers provide resale products in smaller quantities and in more convenient locations at more convenient times than the manufacturers can provide. For these resellers, the ability to buy well is critical for success.

Resource and mining organizations explore for natural resources and find ways and means of bringing these to commodity markets. Educational institutions attempt to transform students into educated persons, frequently providing them with meals, residences, classrooms, parking facilities, and, hopefully, diplomas or degrees. Health organizations provide diagnostic and repair services using a very large variety of professionals, equipment, facilities, medicines, and parts to keep their clients healthy and functioning.

It is no surprise that the nature of the organization in terms of the goods and services it provides will significantly affect the requirements of its supply chain.

The Mission, Vision, and Strategy of the Organization

Supply strategy has to be congruent with organizational strategy. Therefore, the mission, vision, and strategy of the organization are the key drivers for how the supply function will be managed and how supply decisions are made and executed. A nonprofit organization with social aims may acquire its office needs totally differently from one that competes on cost in a tough commercial or consumer marketplace. An innovation-focused organization may define flexibility quite differently from one that depends largely on the acquisition and transformation or distribution of commodities.

In the past, the supply manager was largely focused on the traditional value determinants of quality, quantity, delivery, price, and service as the five key drivers of sound supply decisions. Today's supply managers face a host of additional concerns, as corporate mission, vision, and strategies require concerns over risk, the environment, social responsibility, transparency, regulation, and innovation as well. Thus, the old adage of value for money, a guiding principle for supply managers for centuries, has become a lot tougher over the last few decades and continues to evolve. The text and cases in this book are focused on major supply decisions appropriate for the unique organization in which the supply professional is employed.

The Size of the Organization

The larger the organization, the greater the absolute amount of spend with suppliers. And the amount of the spend will be a major determinant of how many resources can be allocated to the acquisition process. Given a cost of acquisition of 1 to 2 percent of what is acquired, for a $100,000 purchase, up to $2,000 can be spent on acquisition. However, a $100 million acquisition can afford up to $2 million and a $1 billion spend up to $20 million.

Therefore, the larger the amount of spend, the greater the time and care that can and should be allocated to acquisition. Therefore, in very small organizations, the responsibility for acquisition may be a part-time allocation to one or more individuals who probably wear multiple hats. In very large organizations, supply professionals may be completely dedicated to one category of requirements on a full-time basis. And a supply group may count hundreds of professionals.

Single or Multiple Sites

An additional influence is whether the organization operates out of a single or multiple sites. The simplest situation is the single site. The supply situation becomes more complex as the number of sites increases. Transportation and storage issues multiply with multiple sites along with communication and control challenges. This is especially true for multinational corporations supplying multiple sites in different countries.

Financial Strength

Supply management stripped to its bare essentials deals with the exchange of money for goods and services. With the acquiring company responsible for the money and the supplier for the goods and services, the ability of the buying organization to pay will be a very important issue in the supplier's eyes. And the ability to pay and flexibility on when to pay depend on the financial strength of the organization. The stronger the buying organization is financially, the more attractive it becomes as a potential customer. A supplier will be more anxious to offer an exceptionally good value proposition to an attractive customer. And the ability and willingness to pay quickly after receipt of goods or services add valuable bargaining chips to any purchaser.

Reputation

Corporate reputation in the trade is another important factor in building a positive corporate image both for suppliers and purchasers. If supply management is defined as the fight for superior suppliers, then a strong corporate image and reputation are valuable contributors. Superior suppliers can pick and choose their customers. Superior suppliers prefer to deal with superior customers. Superior customers enhance a superior supplier's reputation. "You are known by the company you keep" applies in the corporate world just like it does in personal life. And supply managers can significantly affect their company's image by their actions and relations with suppliers.

For a long time, the reputation of Fisher & Paykel (F&P) in New Zealand and Australia was such that any F&P supplier could use this as a persuasive argument for gaining additional customers in that area of the world. "If you are good enough to supply F&P, you are good enough for us" was the implication. A good buyer–supplier relationship is built on the rock of impeccable performance to contract agreements. Pay the right

amount on time without hassle and deliver the right quality and quantity of goods or services on time and charge the correct price without hassle. These commitments are not as simple as they sound. Moreover, superior customers and superior suppliers add ethical treatment; advance communications on future developments in technology, markets, and opportunities for improvements as additional expectations; and are continually striving to do better.

Corporate reputations are built on actions and results, not on noble intentions. It takes time to build a superior reputation, but not much time to harm a reputation.

SUPPLY QUALIFICATIONS AND ASSOCIATIONS

In recognition that the talent in supply has to match the challenges of the profession, public and private organizations as well as supply associations have taken the initiative to ensure well-qualified supply professionals are available to staff the function.

Education

Although there are no universal educational requirements for entry-level supply jobs, most large organizations require a college degree in business administration or management. Several major educational institutions, such as Arizona State University, Bowling Green State University, George Washington University, Miami University, Michigan State University, and Western Michigan University, now offer an undergraduate degree major in purchasing/supply/supply chain/logistics management as part of the bachelor in business administration degree. In addition, many schools offer certificate programs or some courses in supply, for either full- or part-time students. A number of schools, including Arizona State, Michigan State, NYU Stern, and Howard University, also offer a specialization in supply chain management as part of a master of business administration degree program.

In Canada, the Ivey Business School has offered for more than 60 years a purchasing and supply chain course as part of its undergraduate and MBA degree offerings. Other universities such as HEC, Laval, York, Queens, University of British Columbia, and Victoria have followed suit; academic interest in supply chain management is at an all-time high.

While, obviously, a university degree is not a guarantee of individual performance and success, the supply professional with one or more degrees is perceived to be on an educational par with professionals in other disciplines such as engineering, accounting, marketing, information technology (IT), human resources (HR), or finance. That perception is important in the role that supply professionals are invited to play on the organizational team.

Professional Associations

As any profession matures, its professional associations emerge as focal points for efforts to advance professional practice and conduct. In the United States, the major professional association is the Institute for Supply Management (ISM), founded in 1915 as the National Association of Purchasing Agents. The ISM is an educational and research association with 50,000 members who belong to ISM through its network of domestic and international affiliated associations.

In addition to regional and national conferences, ISM sponsors seminars for supply people. It publishes a variety of books and monographs and the leading scholarly journal in the field, *The Journal of Supply Chain Management,* which it began in 1965. Additionally, ISM and its Canadian counterpart, the Supply Chain Management Association (SCMA), work with colleges and universities to encourage and support the teaching of purchasing and supply management and related subjects and provide financial grants to support doctoral student research.

ISM launched the Certified Professional in Supply Management (CPSM) program in May 2008. The CPSM program focuses skill development in areas such as supplier relationship management, commodity management, risk and compliance issues, and social responsibility.

Since the early 1930s, ISM has conducted the monthly "ISM Report on Business," which is one of the best-recognized current barometers of business activity in the manufacturing sector. In 1998, the association initiated the Nonmanufacturing ISM Report on Business. The survey results are normally released on the second business day of each month. The Ivey Purchasing Managers Index (Ivey PMI), conducted by the Ivey Business School, is the Canadian equivalent of ISM's Report on Business, but covers the complete Canadian economy, including the manufacturing services and government sectors.

In 1986, CAPS Research (formally the Center for Advanced Purchasing Studies) was established as a national affiliation agreement between ISM and the College of Business at Arizona State University. CAPS is dedicated to the discovery and dissemination of strategic supply management knowledge and best practices. It conducts benchmarking studies, runs executive round tables and best practices workshops, and publishes research reports in a wide range of areas.

In Canada, the professional association is the Supply Chain Management Association (SCMA), formally the PMAC, formed in 1919. Its membership of approximately 7,500 is organized in 10 provincial and territorial institutes from coast to coast. Its primary objective is education, and in addition to sponsoring a national conference, it offers an accreditation program leading to the Supply Chain Management Professional (SCMP) designation.

In addition to ISM and SCMA, there are other professional purchasing associations, such as the National Institute of Governmental Purchasing (NIGP), the National Association of State Procurement Officials (NASPO), the National Association of Educational Procurement (NAEP), and the Association for Healthcare Resource and Materials Management (AHRMM).

Several of these associations offer their own certification programs. Most industrialized countries have their own professional purchasing associations. The Chartered Institute of Procurement & Supply (CIPS), headquartered in the United Kingdom, has regional offices in Australia, South Africa, Singapore, and the Middle East. With a global membership of more than 100,000 people in more than 150 countries, CIPS is the largest procurement association in the world. Other examples include the Indian Institute of Materials Management and the Japan Materials Management Association. These national associations are loosely organized into the International Federation of Purchasing and Supply Management (IFPSM), which has as its objective the fostering of cooperation, education, and research in purchasing on a worldwide basis among 48 national and regional purchasing associations worldwide, representing approximately 250,000 supply professionals.

CHALLENGES AHEAD

There are at least seven major challenges facing the supply profession over the next decade: supply chain management, measurement, risk management, sustainability, growth and influence, technology, and effective contribution to corporate success.

Supply Chain Management

The success of firms such as Amazon, Walmart and Zara in exploiting supply chain opportunities has helped popularize the whole field of supply chain management. Nevertheless, significant challenges remain: While the giant firms in automotive, electronics, and retailing can force the various members of the supply chain to do their bidding, smaller companies do not have that luxury. Thus, each organization has to determine for itself how far it can extend its sphere of influence within the supply chain and how to respond to supply chain initiatives by others. Clearly, opportunities to reduce inventories, shorten lead times and distances, plan operations better, remove uncertainties, and squeeze waste out of the supply chain are still abundant. Thus, the search for extra value in the supply chain will continue for a considerable period of time.

Measurement

There is significant interest in better measurement of supply, not only to provide senior management with better information regarding supply's contribution, but also to be able to assess the benefits of various supply experiments. No one set of measurements is likely to suffice for all supply organizations. Therefore, finding the set of measures most appropriate for a particular organization's circumstances is part of the measurement challenge.

Risk Management

Supply chain disruptions and supply chain risk continue to be among the most critical issues facing supply chain managers. Supply chains have become increasingly global and, therefore, face risks of supply interruptions, financial and exchange rate fluctuations, lead time variability, and security and protection of intellectual property rights, to name only a few. The trend to single sourcing and lean global supply chains has also created the increased risks for supply disruptions.

Supply managers need to continually assess risks in the supply chain and balance risk/reward opportunities when making supply decisions. For example, the attraction of lower prices from an offshore supplier may create longer-term high costs as a result of the need to carry additional safety stock inventories or lost sales from stock-outs. The Russel Wisselink case in Chapter 9 describes how one organization ran into problems in a low-cost country sourcing program. Risk management will be covered in more detail in Chapter 2.

Sustainability

Responsibility for reverse logistics and disposal has traditionally fallen under the supply organization umbrella (see Chapters 16 and 17). These activities include the effective and efficient capture and disposition of downstream products from customers. More recently, however, pressure from various stakeholder groups, such as regulators, consumers, NGOs, are motivating organizations to improve their environmental and social sustainability performance. For example, the European Union (EU) has set aggressive targets for greenhouse

gas reductions and cuts to overall energy consumption, and has implemented new legislation as a result. Supply will be at the forefront of sustainability initiatives, and senior management will expect supply to work with suppliers to identify solutions for the sustainability challenges they face.

Growth and Influence

Growth and influence in terms of the role of supply and its responsibilities inside an organization can be represented in four areas as identified in a CAPS Research focus study.[6] In the first place, supply can grow in the percentage of the organization's total spend for which it is meaningfully involved. Thus, categories of spend traditionally not involving purchasing, such as real estate, insurance, energy, benefit programs, part-time help, relocation services, consulting, marketing spend with advertising and media agencies, travel and facilities management, IT, and telecommunications and logistics, have become part of procurement's responsibility in more progressive corporations.

Second, the growth of supply responsibilities can be seen in the span of supply chain activities under purchasing or supply leadership. Possible additions include accounts payable, legal, training and recruiting programs, customer bid support, and involvement with new business development.

Third, growth can occur in the type of involvement of supply in what is acquired and supply chain responsibilities. Clearly, on the lowest level, there is no supply involvement at all. The next step up is a transactionary or documentary role. Next, professional involvement implies that supply personnel have the opportunity to exercise their expertise in important acquisition process stages. At the highest level, meaningful involvement, a term first coined by Dr. Ian Stuart, represents true team member status for supply at the executive table. Thus, in any major decision made in the organization, the question *What are the supply implications of this decision?* is as natural and standard as *What are the financial implications of this decision?*

Fourth, supply can grow by its involvement in corporate activities from which it might have been previously excluded. While involvement in make-or-buy decisions, economic forecasts, countertrade, in- and outsourcing, and supplier conferences might be expected, other activities, such as strategic planning, mergers and acquisitions, visionary task forces, and initial project planning, might be good examples of broader corporate strategic integration.

Each of these four areas of opportunity for growth allows for supply to spread its wings and increase the value of its contributions.

Technology

During the last two decades, advances in technology have changed both the nature of work and how organizations work together. Nowhere in the organization have these changes been more far-reaching than in the purchasing function and in the relationship between buyers and suppliers. Management information and artificial intelligence systems have almost completely eliminated the need to dedicate staff to clerical, nonvalue-added supply activities, thereby enabling resources to be redeployed to more profitable areas. Similarly,

[6] Leenders and Johnson, *Major Changes in Supply Chain Responsibilities*.

automation and robotics are replacing and augmenting traditional manual labor roles in plants, warehouses and distribution centers. The ability to instantaneously exchange information has provided opportunities to increase supply chain transparency allowing organizations to reduce costs through lower inventories and transaction costs, while simultaneously improving customer service. Rapid expansion of e-commerce has traditional bricks-and-mortar retailers pursuing new omnichannel models to improve the customer shopping experience in order to compete with Amazon and other on-line retailers.

Changes to the purchasing function and to the supply chains of organizations will continue to accelerate as a result of technological innovations. Organizations will not only benefit from the development of new, less expensive technology that is easier to use and deploy, but also from a better understanding of how and where use technology. Opportunities still exist to use technology to improve intra- and inter-organizational collaboration for new product and service development, to eliminate waste in the supply chain and to improve customer service, to name but a few examples.

Effective Contribution to Organizational Success

Ultimately, supply's measure of its contribution needs to be seen in the success of the organization as a whole. Contributing operationally and strategically, directly and indirectly, and in a positive mode, the challenge for supply is to be an effective team member. Meaningful involvement of supply can be demonstrated by the recognition accorded supply by all members of the organization.

How happy are other corporate team members to have supply on their team? Do they see supply's role as critical to the team's success? Do they seek purchasing input on important decisions? Thus, to gain not only senior management recognition but also the proper appreciation of peer managers in other functions is a continuing challenge for both supply professionals and academics.

THE ORGANIZATION OF THIS TEXT

In this first chapter are listed the more common influences for all organizations. In subsequent chapters, we will cover various decisions regarding organizational and supply strategies, organization supply processes, make or buy, the variety of organizational needs, and how to translate these into commercial equivalents. These will be followed by decisions on quality, quantity, delivery, price, and service—the traditional five value criteria—culminating in supplier selection. Suppliers are located domestically and internationally and their location will affect how supply should be managed. The legal and ethical frameworks for supply establish the framework for the contract between these two parties. A section on how to evaluate supplier performance and how to relate to suppliers is followed by a section on supply chain associated responsibilities which may or may not be part of the supply manager's assignment. This text concludes with the evaluation of the supply function, its performance reporting, and current trends in the field.

Conclusion If the chief executive officer and all members of the management team can say, "Because of the kinds of suppliers we have and the way we relate to them, we can outperform our competition and provide greater customer satisfaction," then the supply function is contributing

to its full potential. This is the ambitious goal of this text: to provide insights for those who wish to understand the supply function better, whether or not they are or will be employed in supply directly.

Questions for Review and Discussion

1. What is the profit-leverage effect of supply? Is it the same in all organizations?
2. "Supply is not profit making; instead, it is profit taking since it spends organizational resources." Do you agree?
3. What kinds of decisions does a typical supply manager make?
4. "In the long term, the success of any organization depends on its ability to create and maintain a customer." Do you agree? What does this have to do with purchasing and supply management?
5. Is purchasing a profession? If not, why not? If yes, how will the profession, and the people practicing it, change over the next decade?
6. Differentiate between purchasing, procurement, materials management, logistics, supply management, and supply chain management.
7. In what ways might e-commerce influence the role of supply managers in their own organizations? In managing supply chains or networks?
8. In the petroleum and coal products industry, the total purchase/sales ratio is 80 percent, while in the food industry it is about 60 percent. Explain what these numbers mean. Of what significance is this number for a supply manager in a company in each of these industries?
9. How does supply management affect return on assets (ROA)? In what specific ways could you improve ROA through supply management?
10. How can the expectations of supply differ for private versus public organizations? Services versus goods producers?

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Case 1–1

Denniston Spices

Amy Lin, materials planner at Denniston Spices, in Phoenix, Arizona, was faced with an important problem caused by a supplier who was implementing a new enterprise resource planning (ERP) system. It was Tuesday, April 9, 2014, and during a call the previous day from Juan Aranda, sales manager at Whittingham Foods, Amy learned that potential supply problems might occur starting in September as the new system was implemented at the Whittingham's Indianapolis plant. In order to avoid stockouts, Juan asked Amy to provide a forecast of her plant's needs for September to November by April 30, so he could make arrangements to have product shipped to Denniston in late August.

DENNISTON SPICES

Founded in 1903 by Walter J. Denniston, Denniston Spices was a global leader in the food industry—manufacturing, marketing, and distributing a wide variety of spices, mixes, condiments, and other seasoning products to the retail, commercial, and industrial markets. Headquartered in Chicago, the company had sales revenues of $5.5 billion and sold its products in more than 100 countries worldwide. Its customers included retail outlets, food manufacturers, restaurant chains, food distributors, and food service businesses. Denniston Spices was also a leading supplier of private label items.

The Phoenix plant manufactured and distributed spices, herbs, extracts, and seasoning blends to retail and industrial customers in the southwest United States. Amy Lin was responsible for managing approximately 300 stock-keeping units (SKUs) consisting of spices and compounds, purchased from Whittingham Foods, which was the sole supplier for these products. All SKUs supplied to the Phoenix plant by Whittingham came from their Indianapolis facility.

INVENTORY CONTROL

It was company policy that each SKU had minimum safety stock inventory to protect against stockouts. Safety stock levels were set by the materials planners and typically ranged from two to four weeks. Reorder points were set at the safety stock level for each SKU plus four weeks, which reflected the lead time from Whittingham Foods for most products. Orders were constrained by minimum order quantities set by the supplier.

Forecasting and setting reasonable safety stock levels were made difficult because of variability in demand, particularly from industrial customers. Many of the Phoenix plant's industrial customers were small- and medium-sized manufacturers that ordered sporadically.

Prices for products supplied by Whittingham Foods ranged from $50 to $250 per pound and had shelf lives of either 90, 180, or 270 days. The major challenge in Amy's role was to balance high inventory costs and short shelf lives with the risks of stockout costs and inventory spoilage. Denniston Spices offered 10-day delivery lead times to its customers and it typically took 2 to 7 days for an order to be processed and shipped. The Phoenix plant had a customer service level target of 98 percent.

INVENTORY BUILD FOR AUGUST

The call from Juan Aranda did not come as a surprise to Amy, who had known for several weeks that Whittingham Foods was implementing a new ERP system and at some point she would need to purchase additional safety stock inventory. Whittingham Foods was a key supplier to several Denniston plants, and switching suppliers was not feasible for such a short period of time due to the costs and administrative issues related to government regulations regarding the certification of suppliers. While there was a possibility they would not experience any problems and supply would not be interrupted, Amy did not want to take any chances and had the full support of her boss, Kevin Sherman, the director of purchasing.

As a starting point, Amy collected demand data for eight SKUs during July to November period in 2012 and 2013 (see Exhibit 1). For each of the eight SKUs, she also collected information related to safety stock levels, minimum order quantities (MOQs), shelf life, and cost per pound. She purposely selected SKUs from different final products that included a range of costs and annual demand, with the objective of developing an inventory build policy for the SKUs ordered from Whittingham Foods. Amy knew that certain events in 2012 and 2013 distorted the data. For example, the company had expanded in 2013 through an acquisition and the plant

EXHIBIT 1 **Historical Usage for Whittingham Products**

		Monthly Demand (lb.)					Safety	MOQ	Shelf Life	Cost
SKU #	Year	July	Aug.	Sept.	Oct.	Nov.	Stock (lb.)	(lb.)	(Days)	($/lb.)
W9450	2012	51	208	80	75	103	1,000	200	90	$ 90
	2013	0	325	3,060	4,770	7,024				
W9451	2012	3,251	5,794	2,492	1,830	3,052	3,600	200	90	$ 195
	2013	956	2,854	2,730	2,621	3,786				
W9452	2012	979	680	460	894	778	600	200	180	$ 65
	2013	360	336	282	325	550				
W9453	2012	189	229	271	397	420	650	200	180	$ 110
	2013	549	642	1,019	1,655	2,588				
W9454	2012	52	56	54	45	50	100	200	270	$ 235
	2013	16	76	18	0	20				
W9455	2012	7	2	0	20	0	400	200	270	$ 65
	2013	724	304	304	376	424				
W9456	2012	120	4	55	1	60	15	80	270	$ 120
	2013	16	1	43	17	15				
W9457	2012	41	157	54	117	0	320	80	270	$ 120
	2013	0	131	82	69	0				

increased production in order to build additional finished goods inventories as a result of a facility consolidation project in the fall of 2013.

As Amy looked at the data on her spreadsheet, she wondered if it would be possible to balance stockout risks with inventory holding and inventory spoilage costs. It was important that she develop a preliminary plan within the next week so she could get it approved by the director of purchasing and the general manager. Margins were tight and Amy knew that she had to do her best to develop a plan that controlled costs without jeopardizing customer service levels.

Case 1–2

Brennan Bank

"We will do it for 10 percent less than what you are paying right now." Rachel Bonnell, purchasing manager at Brennan Bank, a large financial institution based in California had agreed to meet with Scott Kyle, a sales representative from P. Jolon Inc. (Jolon), a printing supplier from which Brennan currently was not buying anything. Scott Kyle's impromptu and unsolicited price quote concerned the printing and mailing of checks for Brennan.

Brennan, well known for its active promotional efforts to attract consumer deposits, provided standard personalized consumer checks free of charge. Despite the increasing popularity of Internet banking, the printing of free checks and mailing to customers cost Brennan $10 million in the past year. Rachel Bonnell was the purchasing manager in charge of all printing for Brennan and reported directly to the vice president of procurement.

It had been Rachel's decision to split the printing and mailing of checks equally between two suppliers. During the last five years, both suppliers had provided quick and quality service, a vital concern of the bank. Almost all checks were mailed directly to the consumers' home or business address by the suppliers. Because of the importance of check printing, Rachel had requested a special cost analysis study a year ago, with the cooperation of both suppliers. The conclusion of this study had been that both suppliers were receiving an adequate profit margin,

were efficient and cost conscious, and that the price structure was fair. Each supplier was on a two-year contract. One supplier's contract had been renewed eight months ago; the other supplier's contract expired in four months.

Rachel believed that Scott Kyle was underbidding to gain part of the check printing business. This, in turn, would give Jolon access to Brennan customer names and their contact information. Rachel suspected that Jolon might then try to pursue these customers more actively than the current two suppliers to sell special "scenic checks" and other products that customers paid for themselves.

CASE 1–3

Hansen Equipment

It was July 2, and Kathy Saxton had just been given her first assignment, the "Wire Management Program" (WMP) by Scott Carpenter, purchasing manager of Atlanta-based Hansen Equipment Inc. The purpose of the WMP was to reduce the supplier base for the company's wire and cable requirements. As a newly hired buyer, Kathy wondered how to proceed.

HANSEN EQUIPMENT

Hansen Equipment Inc. (Hansen) was a relatively new division of Hansen Equipment International, a multinational electrical engineering and technology company. Hansen generated sales of $130 million in the past year and had forecast growth of 25 percent for each of the upcoming four years.

Hansen manufactured material handling systems, mainly for customers in the automotive industry. Its principal product lines were assembly line equipment and press automation equipment. Assembly line products included units such as framers, in which a vehicle frame was fed onto a line and welded in specified areas. Press automation products were units that moved parts—such as vehicle frames, doors, and hoods—between large stamping machines as part of the customer's manufacturing process. Hansen's systems were built in Atlanta, tested, approved, disassembled into sections, shipped to the customer's facility, and then reassembled.

All Hansen systems were custom designed, based on the unique requirements of the customer, including manufacturing equipment and product characteristics. Kathy estimated that 98 percent of component orders were job specific. Each Hansen system was composed of steel, mechanical, electrical, and hydraulic parts. Wires and cables were important parts of these systems. With automotive design changes occurring regularly, Hansen was constantly reconditioning previous systems or bidding on new lines. Hansen prided itself on customer satisfaction. In the automotive industry, a key factor was on-time delivery of equipment and systems.

HANSEN'S PURCHASING DEPARTMENT

Scott Carpenter supervised a purchasing department that included six buyers, with responsibilities divided into the following commodity groups: electrical, mechanical, hydraulic/pneumatic, robots/weld guns, affiliate-produced parts/fabricated components, and steel/other metals. Kathy was hired recently to replace two retiring buyers.

Kathy held an undergraduate business degree and, upon graduation, worked for a year as an inventory analyst at a multinational manufacturing organization. She had applied to Hansen after visiting its display booth at a local manufacturing trade show. Kathy was eager to make an early contribution at Hansen and she believed that the WMP presented an excellent opportunity.

Purchasing Process

Last year, Hansen's total component purchases totaled $63 million. Hansen had a total supplier base of approximately 3,000 companies, of which less than 5 percent were regular suppliers. The first reason for having such a large number of suppliers was that newly hired buyers usually had previously established relationships with certain suppliers. The second reason was that Hansen's systems were custom designed, and most suppliers specialized in certain product areas.

When Hansen was awarded a job, its engineers used a computer-aided design (CAD) system to create plans for the product. Part of this process consisted of determining every subcomponent within the final system. These components were divided into hydraulic, mechanical, and electrical categories and were entered into Hansen's ERP system to create a bill of materials (BOM). Requisitions for specific parts were then created and sent

to the appropriate buyer, based on the type of commodity needed. Buyers then created purchase orders to satisfy the expected demand.

There was usually some variation between actual requirements and initial expectations. When components were over ordered, they needed to be returned to the supplier or held in inventory until a need arose in the future. Returning products to suppliers was time consuming, while keeping over-ordered material in inventory tied up company funds. The CFO estimated inventory carrying costs at 15 percent per annum. There were also circumstances where shortages were created because volumes exceed initial forecasts or materials were not included in the original BOM. Recently, many items were labeled as "rush," putting pressure on the buyers to expedite orders.

Assembly line and press automation systems were divided into "cells," which were stations within the system designed to perform a specific operation. Some jobs were comprised of more than 10 cells, and it was common to have different engineers working on cells within the same system. Engineers were responsible for entering material requirements for their designated cells. Although there were often common parts among the cells in the system, there could be numerous orders each day for the same components (e.g., 10-foot lengths of wire), creating unnecessary ordering costs, since each line in the purchase order had to be handled individually. This was often the cause of administrative problems and headaches, since a purchase order for electrical items could contain more than 100 items.

When materials were received, they were kept in an unlocked warehouse area until needed. There were some incidences of workers "borrowing" items required for jobs, which had not been ordered or which had not yet arrived. This created inventory shrinkage problems with no direct accountability. In some cases, the supervisor in the warehouse area might issue parts from another job to one with a more urgent requirement; however, approval had to be obtained from the project manager.

The bottom line was that material availability was important, since each project required that the cells be completed in sequence to ensure that the system operated properly. Missing components could significantly delay the completion of later cells.

WIRES AND CABLES

Wires and cables were considered commodity products within the electrical industry. Wires were fabricated from copper rods rolled into a desired thickness and then covered with a protective coating. Cables were made by combining two or more copper wires, separated by insulation, and using an outer covering or jacket. Wire differed from cable primarily in the number of conductors, jacketing, insulation, and resistance to external factors.

Occasionally, situations arose in which a product was specified by the end user. In these instances, Hansen engineers were forced to use the specified product, which might only be available through nonstandard suppliers. Specified products occurred more often with cables than with wires.

Scott Carpenter had recently initiated the WMP believing that Hansen could improve value for all of its wire and cable requirements from volume leverage. Rationalizing the supplier base would also save administrative time currently spent processing multiple supplier invoices. A stronger relationship could be fostered with the chosen supplier, which could help increase the priority of Hansen orders and open further opportunities for cost savings. Also, transportation costs could be reduced if all items were shipped from a single source. Finally, sourcing from a single supplier would allow the buyer to focus on issues involving higher dollar values.

Kathy felt that the WMP gave her an ideal opportunity to analyze what changes to Hansen's supply processes would be possible. She knew, however, that buy-in from key users would be required before implementing any significant changes. Scott had given her the impression that the WMP should be implemented before the end of October.

ELECTRICAL COMPONENT SUPPLIERS

Hansen's wire and cable requirements for any one job were typically purchased from three to six different electrical suppliers. The suppliers' product lines contained significant overlap, which led to the desire of reducing the base to a single source. The amount of wire and cable purchased last year was approximately $1.4 million. Wire and cable purchases were predicted to increase at the same rate as corporate sales.

Kathy asked some shop floor employees about Hansen's current six suppliers. The employees volunteered both positive and negative comments regarding the various suppliers. Kathy considered these comments as "unofficial" past performance reviews. However, she got the impression that the some employees seemed to prefer

certain suppliers because of friendships that had been developed. She was hesitant to consider all comments provided due to potential biases and was also skeptical about some of the comments of the other buyers for similar reasons.

Kathy discovered that the receiving manager, Wesley Wen, had been keeping records of supplier performance for the last 30 months because of Hansen's ISO 9001 certification requirements. His data included on-time delivery performance, product returns, and overall supplier service. Kathy also learned that there had been no significant quality problems with any of Hansen's current suppliers according to Wesley's information—it appeared that the suppliers provided relatively uniform quality. With these records, in conjunction with his conversations with Wesley, Kathy believed she could develop an objective assessment of the suppliers' past performance.

NEXT STEPS

Scott Carpenter had created the WMP to seek benefits from reducing the number of wire and cable suppliers. Kathy's initial thought was that a single supplier could provide the best prices for Hansen's annual requirements. However, she realized that there were arguments both in favor and against using this approach. She would have to analyze the capabilities and managerial abilities of each company in order to reach a decision.

Kathy began to think about possible methods to reduce the total number of wire and cable suppliers. Hansen had established strong relationships with some of the suppliers, and she therefore wanted to give all interested companies an opportunity to present their cases. Whatever she decided to do, Kathy would need to justify her recommendation to Scott and to Hansen's engineers and other employees.

Chapter **Two**

Supply Strategy

Chapter Outline

Key Questions for the Supply Decision Maker

Should we

- Become more concerned about the balance sheet?
- Develop a strategic plan for purchasing and supply management?
- Spend a major part of our time on strategic, rather than operational, issues?

How can we

- Anticipate the competitive changes we will face in the next 10 years?
- Ensure supply is included as part of the organization·s overall strategy?
- Generate the information needed to do strategic planning?

In strategic supply, the key question is: How can supply and the supply chain contribute *effectively* to organizational objectives and strategy? The accompanying question is: How can the organizational objectives and strategy properly reflect the contribution and opportunities offered in the supply chain?

A *strategy* is an *action plan* designed to achieve specific *long-term goals and objectives.* The strategy should concentrate on the *key factors necessary* for success and the *major actions* that should be taken now *to ensure the future.* It is the process of determining the relationship of the organization to its *environment,* establishing long-term *objectives,* and achieving the desired relationship(s) through efficient and effective *allocation of resources.*

LEVELS OF STRATEGIC PLANNING

To be successful, an organization must approach strategic planning on three levels:

1. *Corporate.* These are the decisions and plans that answer the questions of What business are we in? and How will we allocate our resources among these businesses? For example, is a railroad in the business of running trains? Or is its business the movement (creating time and space utility) of things and people?
2. *Business Unit.* These decisions mold the plans of a particular business unit, as necessary, to contribute to the corporate strategy.
3. *Function.* These plans concern the how of each functional area's contribution to the business strategy and involve the allocation of internal resources.

Several studies have reinforced the notion that linking supply strategy to corporate strategy is essential, but many firms do not yet have mechanisms in place to link the two.[1]

[1] A. Tchokoguéa, Jean Nollet, and Julien Robineau, "Supply·s Strategic Contribution: An Empirical Reality," *Journal of Purchasing and Supply Management* 23, no. 1 (2017), pp. 105–122. S. D. Hunt and D. Davis, "Grounding Supply Chain Management in Resource-Advantage Theory: In Defense of a Resource-Based View of the Firm," *Journal of Supply Chain Management* 48, no. 2 (2012), pp. 14–20.

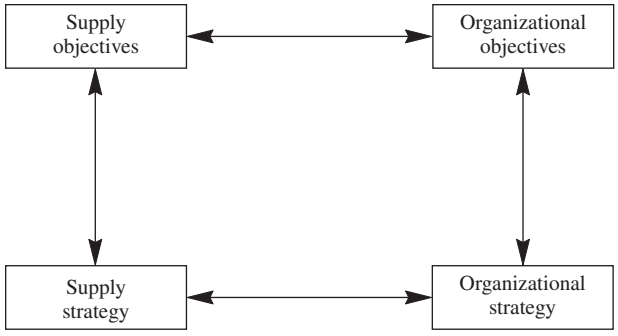

FIGURE 2–1
Supply Strategy Congruent with Organizational Strategy

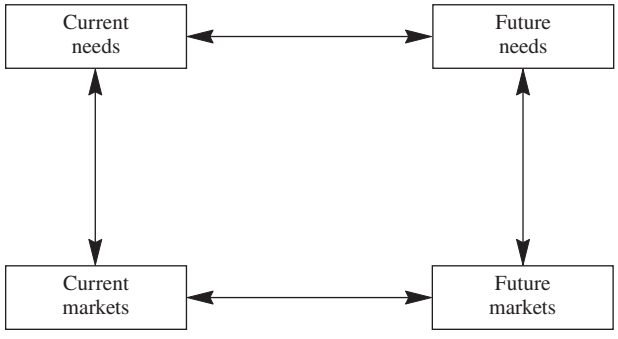

FIGURE 2–2
Supply Strategy Links Current and Future Markets to Current and Future Needs

Effective contribution connotes more than just a response to a directive from top management. It also implies inputs to the strategic planning process so that organizational objectives and strategies include supply opportunities and problems.

This is graphically shown in Figure 2–1 by the use of double arrows between supply objectives and strategy and organizational objectives and strategy.

A different look at supply strategy is given in Figure 2–2. This shows an effective supply strategy linking both current needs and current markets to future needs and future markets.

One of the significant obstacles to the development of an effective supply strategy lies in the difficulties inherent in translating organizational objectives into supply objectives. For example, Steve Kiefer, vice president of global purchasing and supply chain management at General Motors (GM), introduced the "One Cost Model" program, which dispenses with conventional bidding. Since taking on the role of chief purchasing officer at GM in 2014, Kiefer has been working to improve working relationships with suppliers. The benefits have translated into improved cost and quality performance.[2]

Normally, most organizational objectives can be summarized under four categories: survival, growth, financial, and sustainability. Survival is the most basic need of any organization. Growth can be expressed in a variety of ways. For example, growth could be in size of the organization in terms of number of employees or assets or number of operating units, or number of countries in which the organization operates, or in market share.

[2] "2017 Automotive News All Stars," *Automotive News* 92, no. 6805, November 27, 2017, p. 34.

Financial objectives could include total size of budget, surplus or profit, total revenue, return on investment, return on assets, share price, earnings per share, or increases in each of these or any combination. Sustainability objectives include both environmental and social considerations. Sustainability performance must not only comply with legal obligations but also meet the values and standards of the organization's stakeholders, including employees, shareholders, and customers. The notion of good citizenship is embodied in this fourth objective.

Unfortunately, typical supply objectives normally are expressed in a totally different language, such as quality and function, delivery, quantity, price, terms and conditions, service, and so on.

MAJOR CHALLENGES IN SETTING SUPPLY OBJECTIVES AND STRATEGIES

The first major challenge facing the supply manager is the effective interpretation of corporate objectives and supply objectives. For example, given the organization's desire to expand rapidly, is supply assurance more important than obtaining rock-bottom prices?

The second challenge deals with the choice of the appropriate action plan or strategy to achieve the desired objectives. For example, if supply assurance is vital, is it best accomplished by single or dual sourcing, or by making in-house?

The third challenge deals with the identification and feedback of supply issues to be integrated into organizational objectives and strategies. For example, because a new technology can be accessed early through supply efforts, how can this be exploited? The Spartan Heat Exchangers case at the end of this chapter provides an illustration of how supply should be integrated to corporate strategy. The changes in corporate strategy and objectives at Spartan necessitate changes in supply strategy.

The development of a supply strategy requires that the supply manager be in tune with the organization's key objectives and strategies and also be capable of recognizing and grasping opportunities. All three challenges require managerial and strategic skills of the highest order, and the difficulties in meeting these challenges should not be minimized.

STRATEGIC PLANNING IN SUPPLY MANAGEMENT

Today, firms face the challenge of prospering in the face of highly competitive world markets. The ability to relate effectively to outside environments—social, economic, political, legal, and technological—to anticipate changes, to adjust to changes, and to capitalize on opportunities by formulating and executing strategic plans is a major factor in generating future earnings and is critical to survival. Supply must be forward looking.

A supply strategy is a supply action plan designed to permit the achievement of selected goals and objectives. If well developed, the strategy will link the firm to the competitive environment as part of the long-term planning process. An overall supply strategy is made up of substrategies that can be grouped together into six major categories:

1. *Assurance-of-supply strategies.* Designed to ensure that future supply needs are met with emphasis on quality and quantity. Assurance-of-supply strategies must consider changes

in both demand and supply. (Much of the work in purchasing research [see Chapter 17] is focused on providing the relevant information.)

2. *Cost-reduction strategies.* Designed to reduce the laid-down cost of what is acquired or the total cost of acquisition and use—life-cycle cost. With changes in technology, alternatives may be available to reduce an organization's overall operating costs through changes in materials, sources, methods, and buyer–supplier relationships.
3. *Supply chain support strategies.* Designed to maximize the likelihood that the considerable knowledge and capabilities of supply chain members are available to the buying organization. For example, better communication systems are needed between buyers and sellers to facilitate the timely notification of changes and to ensure that supply inventories and production goals are consistent with the needs. Supply chain members also need better relations for the communication needed to ensure higher quality and better design.
4. *Environmental-change strategies.* Designed to anticipate and recognize shifts in the competitive environment (economic, organizational, people, legal, governmental regulations and controls, and technological) so that it can turn them to the long-term advantage of the buying organization.
5. *Competitive-edge strategies.* Designed to exploit market opportunities and organizational strengths to give the buying organization a significant competitive edge. In the public sector, the term *competitive edge* usually may be interpreted to mean strong performance in achieving program objectives.
6. *Risk-management strategies.* Whereas the various aspects of the previous five types of strategies have been covered earlier in this text, the issue of risk management has not yet been discussed. Therefore, risk management will be addressed in the following section, not to imply greater importance, but to assure adequate coverage.

RISK MANAGEMENT

Every business decision involves risk, and supply is no exception. In financial investments, a higher rate of return is supposed to compensate the investor or lender for the higher risk exposure. Risks in the supply chain can be classified into three main categories: (1) operational: the risk of interruption of the flow of goods or services, (2) financial: the risk that the price or cost of the goods or services acquired will change significantly, and (3) reputational risk.

All three risks affect the survival, competitiveness, and bottom line of the organization and may occur simultaneously.

Operational Risk

Every business continuity plan recognizes that supply interruptions and delays may occur. Catastrophic events such as earthquakes, tornadoes, hurricanes, war, floods, or fire may totally disable a vital supplier. Strikes may vary in length, and even short-term interruptions related to weather, accidents on key roads, or any other short-term factor affecting the supply and/or transport of requirements may affect a buying organization's capability to provide good customer service.

A distinction can be drawn between factors beyond the purchaser's or supplier's control, such as weather, and those that deal directly with the supplier's capability of selecting its own suppliers, *managing internally, and its distribution* so as to prevent the potential of physical supply interruption. Careful supplier evaluation before committing to purchase can mitigate against the latter type of supply interruption. In situations of ongoing supply relationships, communication with key suppliers is essential. Such is the situation in the Suman case at the end of the chapter. Mike Bradie is concerned about the potential shortage of a key raw material and must come to an agreement with his suppliers to avoid possible supply disruptions.

Unfortunately, supply interruptions increase costs. If last-minute substitutions need to be made, these are likely to be expensive. Idle labor and equipment, missed customer delivery promises, and scrambling—all have increased costs associated with them.

Financial Risk

Quite different from supply interruptions are those risks directly associated with changes in the price of the good or service purchased. A simple example comes from the commodity markets. Increases in the price of oil affect prices paid for fuel, energy, and those products or services that require oil as a key ingredient or raw material.

A purchaser who has committed to a fixed-price contract may find a competitor able to compete because commodity prices have dropped. Currency exchange rate changes and the threat of shortages or supply interruption also will affect prices, as will arbitrary supplier pricing decisions. Changes in taxation, tolls, fees, duties, and tariffs also will affect cost of ownership.

Given that both supply interruption and price/cost risks directly impact any organization's ability to meet its own goals and execute its strategies, supply chain risks—whether they are on the supply side, internal to the organization, or on the customer side—need to be managed properly.

Reputational Risk

Reputational risk may be even more serious than operational or financial risks, because the loss of reputation may be catastrophic for a company. Both legal and ethical supply issues may affect the company's reputation. "You are known by the company you keep" applies not only to one's personal life, but also to corporate life. Thus, the reputation of a company's supply chain members will affect its own image. The internal and external communications decisions and behavior of supply personnel can have both negative and positive impacts. Therefore, legal and ethics issues (Chapter 15) are highly relevant to reputational risk. Adverse publicity with respect to poor supplier social performance, bribery, kickbacks, poor product quality, improper environmental practices, and so on, can be extremely expensive and damage the company's brand image. Some companies invest considerable resources monitoring suppliers as a means to manage reputational risk. For example, Walmart conducts more than 20,000 audits each year to ensure compliance with its Responsible Sourcing Program, which sets standards for suppliers located in emerging economies in areas such as labor and employment practices, employee compensation, and health and safety.[3]

[3] Walmart, 2016 Global Responsibility Report, https://corporate.walmart.com/2016grr.

Managing Supply Risk

Managing supply risks require: (1) identification and classification of the risks, (2) impact assessment, and (3) a risk strategy.

The trend of globalization of supply chains has increased the complexity of purchasing responsibilities and made identification of risk more difficult. The preceding discussion identifying supply interruption and price/cost changes as two categories has been highly simplified. Technology, social, political, and environmental factors have not even been mentioned yet. Technology has the potential of interrupting supply through the failure of systems and through obsoleting existing equipment, products, or services, or drastically changing the existing cost/price realities. A purchaser committed to a long-term, fixed-price contract for a particular requirement may find a competitor can gain a significant advantage through a technology-driven, lower-cost substitute. Regulatory changes can drastically offset a supplier's capability to deliver at the expected price or to deliver at all as demonstrated in the Russel Wisselink case in Chapter 9.

Because the well-informed supply manager is probably in the best position to identify the various supply risks his or her organization faces, such risk identification should be a standard requirement of the job, including the estimation of the probability of event occurrence.

Impact assessment requires the ability to assess the consequences of supply interruption and/or price/cost exposure. Correct impact assessment is likely to require the input of others in the organization, such as operations, marketing, accounting, and finance, to name just a few. Assessed potential impact from identified risk may be low, medium, or high.

Combining potential impact assessment with the probability of event exposure creates a table of risks with low probability and low impact on one extreme and high probability with high impact on the other. Obviously, high-impact, high-probability risks need to be addressed or, better yet, avoided, if at all possible.

Managing supply risks should be started at the supply level, but may escalate to the overall corporate level. Relatively simple actions—such as avoiding high-risk suppliers or high-risk geographical locations, dual or triple sourcing, carrying safety stock, hedging, and using longer-term and/or fixed- or declining-price contracts and protective contract clauses—have been a standard part of the procurement arsenal for a long time. If most purchasers had their way, they would like to transfer all risk to their suppliers! However, the assumption of risk carries a price tag, and a supplier should be asked to shoulder the risk if it is advantageous to both the supplier and purchaser to do so.

The Corporate Context

Supply risk is only one of the various risks to which any organization is exposed. Traditionally, financial risks have been the responsibility of finance, property insurance part of real estate, and so on. The emergence of a corporate risk management group headed by a risk manager or chief risk officer (CRO) allows companies as a whole to assess their total risk exposure and seek the best ways of managing all risks.

A supply manager's decision not to source in a politically unstable country because of his or her fear of supply interruption may also miss an opportunity to source at a highly advantageous price. A corporate perspective might show that the trade-off between a higher price elsewhere and the risk of nonsupply favors the apparently riskier option. Mergers and acquisitions as well as insourcing and outsourcing represent phenomena full of opportunities and risks in which supply input is vital to effective corporate risk resolution. The decision about

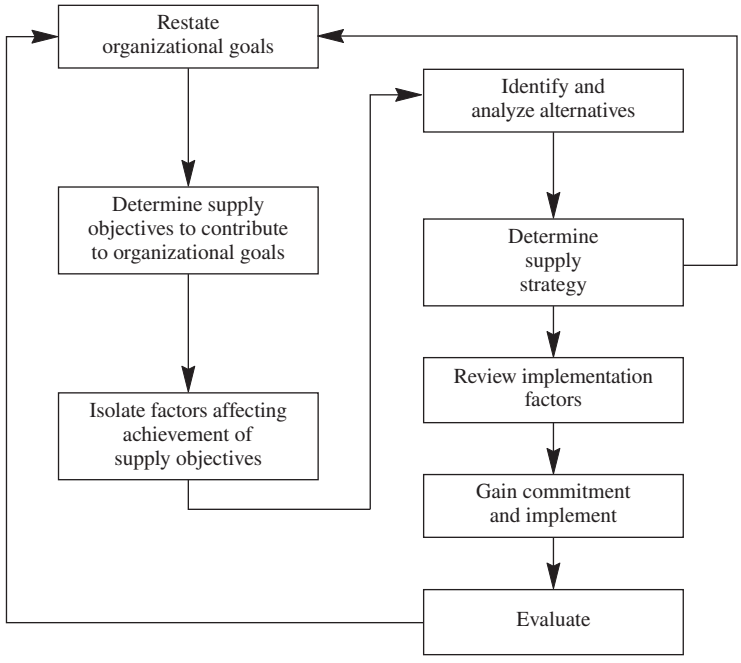

FIGURE 2–3
Strategic Supply Planning Process

how much risk any organization should be willing to bear and whether it should self-insure or seek third-party protection is well beyond the scope of this text. Nevertheless, it is clear that risk management is going to be an area of growing concern for supply managers.

Figure 2–3 is a conceptual flow diagram of the strategic supply planning process. It is important to recognize that the planning process normally focuses on *long-run opportunities* and not primarily on immediate problems.

STRATEGIC COMPONENTS

The number of specific strategic opportunities that might be addressed in formulating an overall supply strategy is limited only by the imagination of the supply manager. Any strategy chosen should include a determination of what, quality, how much, who, when, what price, where, how, and why. Each of these will be discussed further. (See Figure 2–4.)

What?

Probably the most fundamental question facing an organization under the "what" category is the issue of make or buy, insourcing, and outsourcing. Presumably, strong acquisition strengths would favor a buy strategy. (See Chapter 5: Make or Buy, Insourcing, and Outsourcing.)

Also included under the heading of what is to be acquired is the issue of whether the organization will acquire standard items and materials readily available in the market, as opposed to special, custom-specified requirements. Standard items may be readily acquired in the marketplace, but they may not afford the organization the competitive edge that special requirements might provide.

FIGURE 2–4
Supply Strategy Questions

1. What?
   - Make or buy
   - Standard versus special
2. Quality?
   - Quality versus cost
   - Supplier involvement
3. How Much?
   - Large versus small quantities (inventory)
4. Who?
   - Centralize or decentralize
   - Location of staff
   - Top management involvement
5. When?
   - Now versus later
   - Forward buy
6. What Price?
   - Premium
   - Standard
   - Lower
   - Cost-based
   - Market-based
   - Lease/make/buy
7. Where?
   - Local versus regional
   - Domestic versus international
   - Large versus small
   - Single versus multiple sourcing
   - High versus low supplier turnover
   - Supplier relations
   - Supplier certification
   - Supplier ownership
8. How?
   - Systems and procedures
   - E-commerce
   - Negotiations
   - Competitive bids
   - Fixed bids
   - Blanket orders/open orders
   - Systems contracting
   - Group buying
   - Materials requirements planning
   - Long-term contracts
   - Ethics
   - Aggressive or passive
   - Purchasing research
   - Value analysis
9. Why?
   - Objectives congruent
   - Market reasons
   - Internal reasons
     1. Outside supply
     2. Inside supply

Quality?

Part of the "what" question deals with the quality of the items or services to be acquired. Chapter 7 addresses the various trade-offs possible under quality. The intent is to achieve continuous process and product or service improvement.

Supplier Quality Assurance Programs

Many firms have concluded that a more consistent quality of end-product output is absolutely essential to the maintenance of, or growth in, market share. Suppliers must deliver consistent quality materials, parts, and components; this also will effect a marked reduction in production costs and in-house quality control administrative costs. Therefore, a strategy of developing suppliers' knowledge of quality requirements and assisting them in implementation of programs to achieve desired results may be needed. Three of the programs that might be used are:

1. *Zero defect (ZD) plans.* "Do it right the first time" is far more cost effective than making corrections after the fact.
2. *Process quality control programs.* These use statistical control charts to monitor various production processes to isolate developing problems and make needed adjustments