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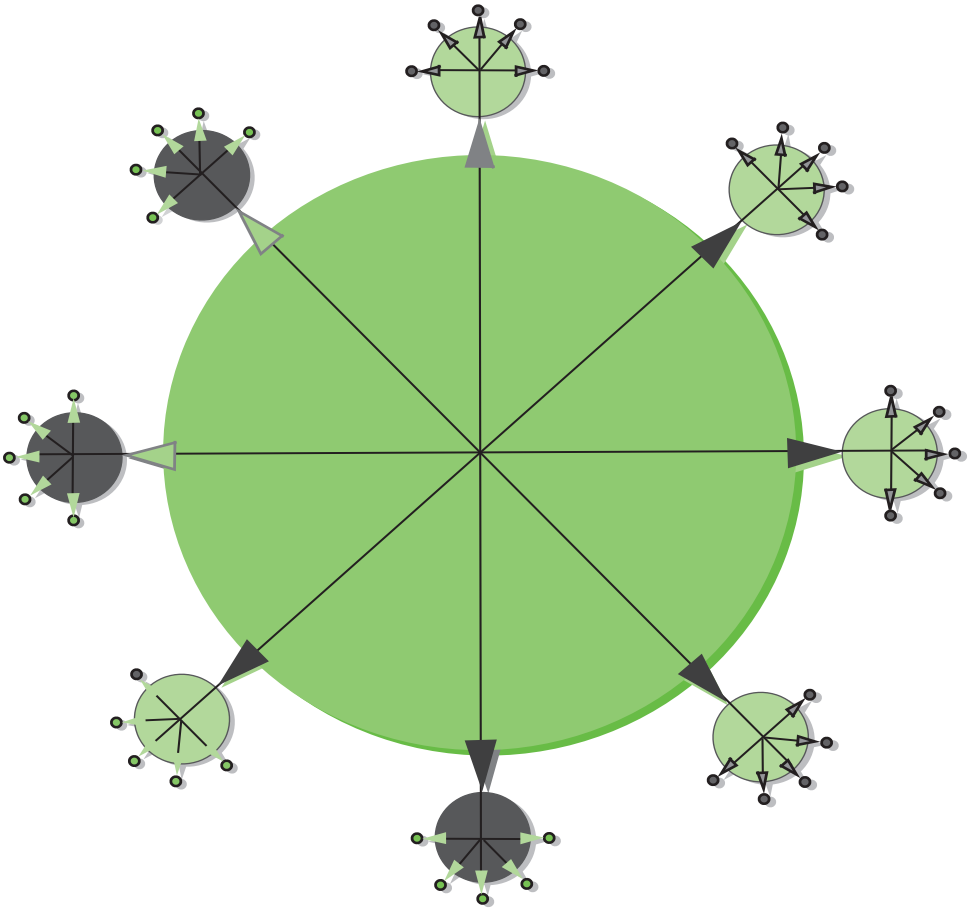
Purchasing *and* Supply Management



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Purchasing and Supply Management

Fifteenth Edition

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Anna E. Flynn 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. She also served as vice president and associate professor at the Institute for Supply Management (ISM), where she developed and taught two- to five-day seminars in the United States, Canada, Mexico, the Caribbean, Hong Kong, and Lisbon. She has worked as a research associate for CAPS Research, a global network of executives and academics focused on strategic supply management knowledge and practice. Anna is author of *Leadership of Supply Management* (2008); co-editor (with Cavinato and Kauffman) of *The Supply Management Handbook* and author of Chapter 7, "Knowledge-Based Supply Management" (McGraw-Hill, 2006); co-author (with Farney, 2000) of the *NAPM Supply Management Knowledge Series,* Volume IV: *The Supply Management Leadership Process;* and co-author (with Leenders, 1994) of *Value-Driven Purchasing: Managing the Key Steps in the Acquisition Process.* She earned a bachelor's degree in international studies from the University of Notre Dame, an MBA from Arizona State University, and a Ph.D from Arizona State University.

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 developing countries 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 way 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 80 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 14th edition was published. Continuing advances in MIS and technology provide new ways to improve supply efficiency and effectiveness. New security, environmental, 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 15th 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. The text has been updated accordingly, including a major revision to Chapter 4. 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. Lastly, nearly one-third of the cases have been replaced with new cases that cover topics such as negotiation, outsourcing, risk management, and sustainability. Thus, the examples in the text and more than 45 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. It is the third category with balance sheet and income statement considerations, all dimensions of risk, environmental, and social considerations that is growing in relevance, making sound supply decisions an even more complex challenge.

Since the sixth edition nearly 40 years ago, Michiel R. Leenders has been an author of this text. As Professor of Operations at the Ivey Business School, Mike has been one of the great leaders in the supply field for more than half a century. His accomplishments include authorship of three other procurement books, founding director of the Ivey Purchasing Managers Index, and a long list of articles and presentations at international conferences. In 2003, Mike received the International Federation of Purchasing and Materials Management's highest research honor in the form of the Hans Ovelgonne Award. Mike did not participate in this edition, although his 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 our academic colleagues our thanks for pushing out the theoretical boundaries of supply management. To many practitioners, we wish to extend our 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, Jorge Colazo, Jenni Denniston, Dominque Fortier, Manish Kumar, Glen Luinenberg, Eric Silverberg, Dave Vannette, and Marsha Watson.

Instructor and student supplements are available on this book's website at **www.mhhe.com/johnson15e.** Instructor ancillaries are password-protected for security.

The production side of any text is more complicated than most authors care to admit. At McGraw-Hill Education Christina Kouvelis, Kaylee Putbrese, Michelle Valenti, Jane Mohr, Dheeraj Chahal and many others contributed to turn our efforts into a presentable text.

The support of Dean Bob Kennedy and our colleagues at the Ivey Business School has been most welcome.

The assistance of the Institute for Supply Management in supporting the continuous improvement of supply education is also very much appreciated.

P. Fraser Johnson

Anna E. Flynn

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Chapter One

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 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 suppliers, its acquisition processes and policies, and its 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 support of its supplier base, operationally and strategically, short- and long-term.

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 80 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 question the wisdom of the traditional arm's-length dealings between purchaser and supplier. Negotiation is receiving increasing emphasis as opposed to competitive bidding, 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 a logical outcome of increased managerial concern with value and increasing procurement aggressiveness in developing suppliers to meet specific supply objectives of quality, quantity, delivery, price, service, 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, with the right quality, 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, varying prices, lead times, and availability, provides a continuing challenge to those organizations wishing to obtain a maximum contribution from this area. Furthermore, environmental, 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 21st 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 has 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 Sabor 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. For example, Renault-Nissan announced in 2014 that it would integrate supply chain management activities, including purchasing and logistics, with manufacturing and R&D. The company had targeted €4.3 billion in annual savings from this initiative.[2]

[1] Council of Supply Chain Management Professionals, http://cscmp.org/about-us/supply-chain-management-definitions, accessed February 15, 2014.

[2] M. Williams, "Renault-Nissan Could integrate SCM Functions," *Automotive Logistics*, February 5, 2014, www.automotivelogisticsmagazine.com/news/renault-nissan-could-integrate-scm-functions, accessed February 15, 2014.

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."[3]

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. More than 45 cases are provided to provide insight into a variety of situations and to 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 $29 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 decade 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 typically ranges from 25 to 35 percent of revenues. The Delphi Corporation case in Chapter 13 is a good illustration of the significance of spend in a manufacturing organization. Total purchases were $17 billion compared to revenues of $28 billion.

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

[3] Institute for Supply Management, "Glossary of Key Supply Management Terms," www.ism.ws.

Profit-Leverage Effect

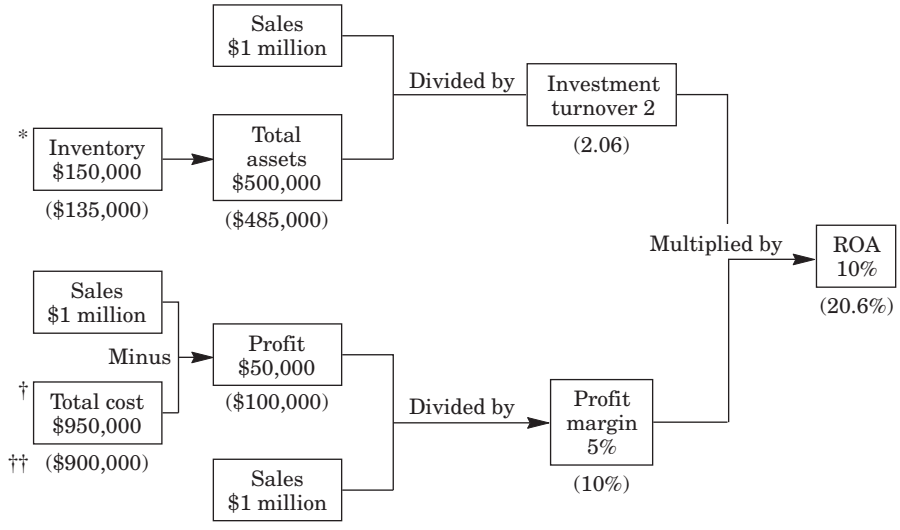
The profit-leverage effect of supply savings is measured by the increase in profit obtained by a decrease in purchase spend. For example, for an organization with revenue of $100 million, purchases of $60 million, and profit of $8 million before tax, a 10 percent reduction in purchase spend would result in an increase in profit of 75 percent. To achieve a $6,000,000 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 last 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."[4] 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.

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 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 delivery may make life miserable for the 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.

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

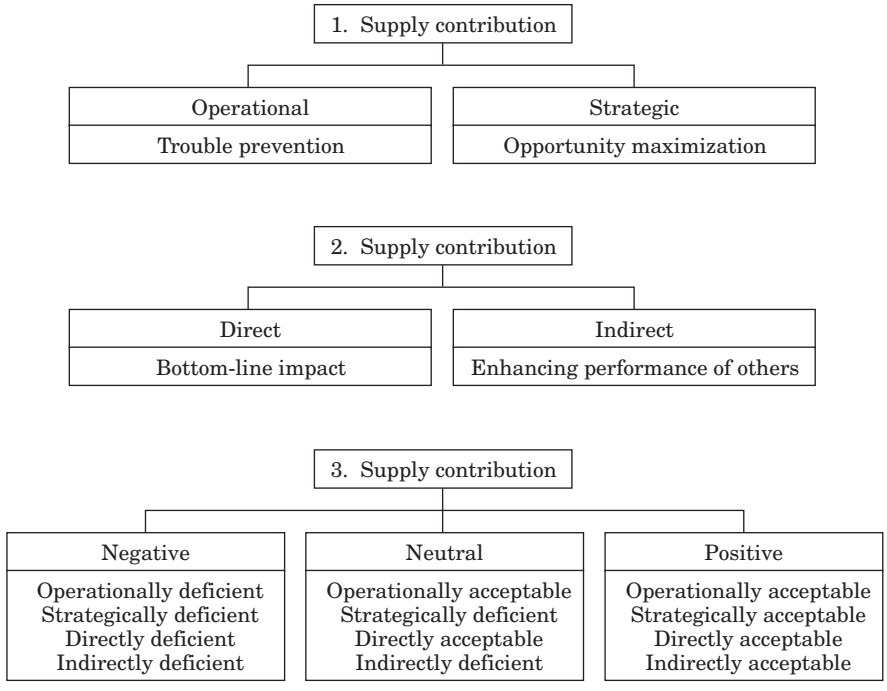


FIGURE 1–2
Purchasing's Operational and Strategic Contributions

Source: 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.

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.

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 an important part of this person's responsibilities.[5]

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