CHAPTER 1

Purchasing: The Foundation of the Supply Chain

*Purchasing* is one of the basic functions common to all organizations. It is the process of acquiring goods, services, and equipment from another organization in a legal and ethical manner. Professional purchasing addresses five rights: purchase of the right item or service, in the right quality, in the right quantity, at the right price, at the right time. Purchasing provides the foundation of supply management, which tends to have a wider scope of activities. The focus shifts from price to the total cost of ownership. Supply management also puts more emphasis on helping a firm increase its profitable sales.

The term “materials management” was a popular expanded definition which grouped purchasing, production and inventory control, and incoming transportation under one director. The current popular term “supply chain management” reflects the expanded purchasing management functions.

*Supply management* (also known as procurement at many firms and governmental agencies) is a five-stage process that begins with the identification of the item or service required to meet the needs of the organization. During this stage, the need is translated into a statement describing the item or service required to satisfy the need. It is estimated that some 85 percent of the cost of an item or service is determined during this stage. In advanced organizations, supply management professionals, and frequently, pre-qualified suppliers are involved in this stage. The second stage of supply management involves identifying the supplier who will best satisfy the need. The third phase involves the process of establishing a fair and reasonable price for the item or service to be purchased. The fourth phase results in an enforceable agreement for the purchase that meets the needs of both parties. The fifth phase requires managing the relationship to ensure timely delivery of the required item or service, in the quality specified at the agreed time. During this final stage, the supply management organization may work with the supplier in an effort to improve the supplier’s efficiency with the objective of improving quality or reducing costs, or both.
Several departments, including marketing, sales, and logistics, have begun to lay claim to the term “supply” or “supply chain management.” Although this can cause confusion, it emphasizes supply management professionals’ need to communicate with these groups so that supply chain management can be effective. As Johnson, Leenders, and Flynn write, “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.”\(^1\) Throughout this text, the term “supply management” will be limited to the definition contained in this chapter with a focus on procurement issues.

**Strategic sourcing** represents increasing responsibility for supply management. Strategic sourcing formalizes three activities: (1) periodic analysis of an organization’s spending (what is purchased and from whom); (2) analysis of the supply market (who offers what and what changes are taking place in the relevant component of the supply world); and (3) development of a sourcing strategy that supports the corporate strategy while minimizing risks and costs.

### Supply Management and the Bottom Line

Supply management has an overwhelming impact on the firm’s bottom line. It directly affects the two forces that drive the bottom line: sales and costs.

Historically, supply management has been considered important based on its impact on costs. At an increasing number of firms today, the procurement process is recognized as having a significant impact on sales and revenues. Supply management has an overwhelming impact on the firm’s bottom line. It directly affects the two forces that drive the bottom line: sales and costs. Therefore, it must be a core competency of the firm, an expertise that is highly valued by the organization. For a typical manufacturing firm, purchasing and supply management are responsible for spending over half of every dollar the firm receives as income from sales. More dollars are spent for purchases of materials and services than for all other expense items combined, including wages, depreciation, taxes, and dividends. It is important for management to note that the cost of materials is approximately 2½ times the value of all labor and payroll costs and nearly 1½ times the cost of labor plus all other expenses of running the business.

For the typical services firm, supply management plays an equally important, although subtler, role. Millions of dollars are spent on marketing and advertising, communications and information technology. Those services can enhance or degrade any firm’s efficiency and effectiveness. Management at both manufacturing and services firms ensures that supply management professionals are involved at all stages of the procurement of such services. Strategic supply chain management enables a company to maximize its bottom
line in an ethical manner. Figure 1.1 shows how supply management can drive sales up and costs down.

**Increased Sales**

Supply management has a significant impact on a firm’s sales; principally in the following eight areas.

**Faster to Market or Time-Based Competition** Thirty years of marketing research has demonstrated the importance of being early to market. In many cases, the first firm to introduce a successful new product or service will hold 40 to 60 percent of the market after competition enters the picture. This research also demonstrates that the profit margins enjoyed by the first firm to introduce a new product tend to be twice those of its competitor, as first reported in the Profit Impact of Market Strategy (PIMS) approach. Firms that have embraced strategic supply chain management have reduced their new product development cycles by an average of 30 percent as a direct result of taking a cross-functional...
approach to product development (this is also known as concurrent engineering). Supply management and carefully selected suppliers are key members of these cross-functional teams. This topic is addressed in greater detail in Chapter 5, New Product Development.

Time-based competition also includes a firm’s ability to meet unexpected surges in demand for its products. In many cases, a firm’s ability to ramp up production is constrained by its suppliers’ abilities to meet those surges in demand. The development and management of a competent, responsive supply base plays a critical role in the firm’s ability to meet unexpected demand.

**Improved Quality**  We are all sensitive to the quality of the products and services we purchase. An automobile with a reputation for transmission problems will drive potential customers to its competitors. Conversely, a firm whose products or lines of products have a reputation for quality gains market share over its competitors and frequently is able to command premium prices. Some 75 percent of many manufacturers’ quality problems can be traced back to defects in purchased materials. The percentage of quality problems that can be attributed to defective incoming materials for a service provider is usually less but still significant.

Thus, if a manufacturer or services provider is able to reduce defects in incoming materials, it can improve the quality of its products in the marketplace. Firms that embrace strategic supply chain management work with their suppliers to design quality into the suppliers’ products and maintain quality during production. The result is virtually defect-free incoming materials, improved quality in the marketplace, more sales, and improved profit margins.

**Pricing Flexibility**  Research conducted by the University of San Diego indicates that a strategic approach to supply management will reduce the total cost of ownership associated with purchasing and owning or leasing materials, equipment, and services an average of 25 percent. When the cost of producing an item or service is reduced, marketing receives the gift of pricing elasticity. Through the application of sound economic principles, marketing can estimate whether net income will increase more by (1) holding selling price and sales volume constant and increasing net profit per unit, (2) reducing the sales price and thus increasing sales volume, or (3) using a combination of increasing net profit while reducing sales price.

**Innovation**  The University of San Diego research study cited previously indicates that of 240 firms surveyed, approximately 35 percent of all successful new products were the result of technology gained from the supply base. This leveraging of supplier technology is a major source of income for these firms. Collaborative and alliance relationships with the firm’s supply base play a key role in ensuring and enhancing this technology flow. The development and management of supplier relationships is a key responsibility of supply management.
Enhanced Customer Satisfaction  
Strategic supply chain management helps achieve shorter fulfillment lead times, consistent on-time delivery, high fill rates, complete orders, quicker responses to customers’ requirements, and the ability to meet unique or special requests.

The Supplier of Choice  
By providing the best value (a combination of quality, service, and price), a firm becomes the supplier of choice to another channel member or to the end customer.

Customer Fulfillment Flexibility  
Strategic supply chain management provides the supply support that allows a firm to be responsive to customer desires for flexible lead-time and changes in product configurations.

Shorter Cycle and Lead Times  
These benefits result from improved supplier relationships and involvement in supplier product and process improvements.

Lower Total Cost of Ownership

All members of the supply management system must be on the lookout for non-value added activities at any and all stages of the system.

The total cost of ownership is the summation of the costs of acquiring and owning or converting an item of material, piece of equipment, or service, and post-ownership costs, including the disposal of hazardous and other manufacturing waste and the cost of lost sales because of a reputation for poor product quality caused by defective materials or purchased services that are incorporated in the end product or service.

Better Product Design  
We estimate 70 to 80 percent of the total cost of ownership is built into a requirement—whether for production materials, equipment, services, or maintenance repair and operation items—during the requirements development process. Early supply management and supplier involvement can reduce costs significantly during this critical stage.

Acquisition Cost  
The acquisition cost or price paid for an item or service is normally a major component of the total cost of ownership. As will be seen in the following chapters, numerous actions can be taken to reduce the acquisition cost. A few of those activities are specification of the most cost-effective material or item of equipment, use of the appropriate specification, standardization, good sourcing and pricing practices, and professional contract and supplier relationship management.

Processing Cost  
The cost of developing sourcing and pricing requirements and then ensuring they arrive on time in the quality specified can be reduced significantly by applying efficient supply management processes and techniques.

Quality Cost  
Costs are incurred in ensuring that the buying firm receives the optimal level of quality. These costs may be reduced by applying progressive quality techniques
such as the design of prototypes and statistical process control. Selecting suppliers capable of producing the desired level of quality and then certifying their design and manufacturing systems can improve incoming quality while reducing administrative quality costs.

**Downtime Cost**  Downtime frequently is the largest component of the total cost of ownership for many items of production and operating equipment. One minute of downtime in a production line may cost $26,000. At this rate, an hour of down time can cost $1,560,000. Thus, when purchasing equipment, the sourcing team must place as much—or more—emphasis on reliability and maintainability as on purchase price.

**Risk Cost**  Many firms needlessly spend millions of dollars to minimize the risk of supply disruptions. These firms maintain needlessly large inventories or dual or even triple sources of supply to ensure continuity of supply. Carefully developed and managed relationships with appropriate suppliers can eliminate the need for most inventory or dual sources.

**Cycle Time Cost**  While this is difficult to quantify, the shorter the cycle time for virtually all activities, the lower the cost. The shorter the cycle time to bring new products to market, develop a statement of work, or select a new source, the lower the total cost.

**Conversion Cost**  Machine time, labor, process yield loss, scrap, and rework are examples of conversion costs. These costs are every bit as real as the purchase price of an item entering the production process. A pound of brass may cost twice as much as a pound of steel, but the higher acquisition price for the brass may be more than offset by savings in machine and labor costs during conversion of the brass to a component or end product because the brass may require less work to make it a usable product.

**Non-Value Added Costs**  A careful analysis of all of the costs involved in bringing an item or service to market frequently reveals that 40 to 60 percent of the costs confer no added value to the finished good! Robert Handfield indicates that estimates of the amount of time spent on non-value added activities can be as high as 80 to 90 percent of the total time required to complete a cycle. James P. Womack and Daniel T. Jones, in their book *Lean Thinking*, added indicate, that “it takes an average of 11 months for the can of cola in a domestic refrigerator to actually get there…During that 11 months, the time that the material is actually being converted as opposed to simply waiting is a mere three hours!”

All members of the supply management system (e.g., design, manufacturing and quality engineering, manufacturing, and procurement) must be on the lookout for non-value added activities at any and all stages of the system.

**Supply Chain Cost**  The development and management of supply chains and supply networks require a significant investment, primarily in the form of human resources. The proper selection, training, and educating of the individuals involved in these activities, together with the application of software systems, can reduce the necessary investments.
Post-Ownership Cost  These costs frequently are overlooked but must be considered when addressing the total cost of ownership. They include the disposal of scrap and other waste, customer service, warranty costs, and the cost of lost sales resulting from customer dissatisfaction with the product.

Supply Management and Return on Investment (ROI)

…nearly a 50 percent increase in the firm’s return on its investment, something most CEO’s would die for!

Investors frequently evaluate top management’s performance by calculating the return on the total capital invested in the business. Inventory, equipment, and other materials purchased constitute corporate assets attained through the investment of capital. The fact that supply management frequently is responsible for spending over half of most companies’ total dollars highlights the profit-making possibilities of the purchasing and supply function. Every dollar saved in purchasing is equivalent to a new dollar of profit. Figure 1.2 illustrates this point by showing the relationships of basic elements that influence the return on investment (ROI). The figures in parentheses reflect a 5 percent reduction in the cost of materials for a manufacturing firm. Notice how, in this example, a 5 percent reduction in material cost increases ROI from 10 to 13 percent, a 30 percent increase!

As we have observed, supply management can have a significant impact on a firm’s sales volume. The underlined numbers indicate the impact of a 5 percent increase in sales, holding all other variable ratios (including original material costs) constant. We see that ROI increases from 10 percent to 11.42 percent from increasing sales alone.

Now, let’s look at the combined impact of a 5 percent increase in sales and a 5 percent reduction in the cost of all materials purchased for this volume of activity. The figures in parentheses and underlined in Figure 1.2 show the combined impact of these two forces. We can see that the combined impact of these two realistically obtainable achievements is to increase ROI to 14.52 percent. This is a nearly a 50 percent increase in the firm’s ROI, something most CEO’s would die for!

The Progression to Strategic Supply Chain Management

Supply Chains

Purchasing is the foundation of supply management, which in turn is the foundation of supply chain management. Through the process of acquiring goods, services, and equipment from other organizations, a chain of upstream suppliers is formed—a supply chain (see Figure 1.3).11
Figure 1.2  A graphic view of the relationships of basic elements that influence return on investment. The figures in parentheses reflect a 5% change in the number indicated. Changes in parentheses reflect a 5% decrease in material costs. Underlined figures show a 5% increase in sales. Numbers that are in parentheses and underlined reflect a 5% decrease in material costs and a 5% increase in sales. Note a nearly 50% increase in ROI resulting from these combined changes.
The firm’s supply system includes all internal functions (such as operations, engineering, production control and scheduling, inventory management, demand forecasting, and marketing) plus external suppliers involved in meeting the organization’s needs for materials, equipment, and services in an optimized fashion. This supply system and the firm’s supply chains play a key role in helping the firm fulfill its role in its value chains.

The value chain is a series of organizations that add value to goods and services flowing from Mother Earth to the end customer (see Figure 1.4). The value chain must be viewed as a whole, a single entity, rather than fragmented groups performing their own functions. Money enters the value chain only when the ultimate customer buys a product or service. Transactions within the value chain simply allocate the ultimate customer’s money among the members of the chain.
The supply chain is the upstream portion of the organization’s value chain and is responsible for feeding the production or conversion process. Marketing and distribution are the principle components of the downstream portion of the value chain. Marketing takes appropriate action to identify customers’ wants and needs and to facilitate sales to the end customer. Distribution manages the movement of finished goods from the original equipment manufacturers (OEMs) through the distribution channel to the end customer. Successful firms such as Toyota, Dell, Wal-Mart, and Procter & Gamble are aware that competition takes place between value chains. This awareness and resulting strategic and tactical activities result in leadership in their industries.

**The Supply and Value Networks: The Next Phase of Supply Chain Management**

Networks are flexible virtual systems that are linked by communication systems and alliances. Within the network, many things are happening simultaneously. Final consumers...
also provide input about wants and needs that are communicated throughout the network system. These systems optimize the flow of materials and services, information, and money. Supply and value networks focus on the ultimate customer. They are designed and managed so that one member does not benefit at the expense of another. World-class value networks are highly adaptive, focus on speed, are innovative, and are tightly integrated.

In comparison to integrated supply and value networks, the traditional approach to supply chain management is more linear in concept. This approach features independent decision making as a result of gaps between the entities that constitute the supply chain. Those gaps are caused by lack of communication and information sharing and can result in excess inventories, inflated lead-times, and increased costs throughout the value chain. Michigan State University (MSU) has long been regarded as one of the leaders in purchasing, supply management, and logistics research and education. Nick Little of MSU observed that the individual players in the chain are all seeking to deliver value for the end consumer. However, there are a number of elements in that value:

- Value creation—through the innovation, development, and launch of new products and services.
- Value delivery—through the order fulfillment process.
- Value maintenance—through processes to provide after sales service, support maintenance, and so forth.

“These three value processes need to span your company, your suppliers and your customers in order to successfully meet the needs of end consumers.” It is in seeking this value that simple linear supply chains evolve into more tightly knit supply and value networks.

**Implementing Strategic Supply Chain Management**

In order to gain the benefits of its supply chains, senior management must recognize the importance of supply chain management and support the required transformation to strategic status. One of the most visible ways of demonstrating its support of this transformation is to appoint a Chief Supply Officer at an organizational level equal to that of marketing, engineering, and operations. Then, senior management should realign the firm’s internal resources with the objective of enabling the success of the firm’s supply chains. The transformation must be carefully planned and executed. Getting top management’s commitment and everyone’s involvement are keys to success.

Successful firms must know where they are in relation to where they want to be. Benchmarking best-in-class practices and developing metrics or measurements enable firms to establish a baseline of where they are, develop an appropriate action plan and then track their progress toward strategic supply management. Appropriate action plans and metrics allow the firm to focus on its vision and continuously improve its contribution to the bottom line. Figure 1.5 provides a diagnostic that allows a firm to evaluate
Figure 1.5 The progression to world class supply management. (Adapted from *The American Keiretsu* by David N. Burt and Michael F. Doyle, Homewood, IL: Business One-Irwin, 1993, 21.)
where it is on the progression to strategic supply chain management and can also serve as a road map to guide the implementation of strategic supply chain management. The four columns show the progression from a reactive clerical to a strategic focus. In each of these four stages, we see the focus of the supply management change as it develops.

Experience has shown that using the step chart in Figure 1.5 to evaluate a department’s rating will initially result in a high rating. However, initial ratings will drop after attending purchasing seminars, credit classes, or simply reading solid books on proactive procurement and supply management. One reason is the tendency to know only “how we do it here,” and lacking deep knowledge of best practices, we assume “how we do it here” is the best way to do it. The major reason for certification programs is to force practitioners to continually update their knowledge of the latest and best practices. This new knowledge influences where an organization feels it is on the step chart. It also highlights the reason the step chart ratings must be prepared by internal users, suppliers, and the purchasing department. Multiple ratings will help convince the CEO of the true score. See if your rating of your purchasing department changes when you rework it at the start of the final chapter, implementing proactive purchasing in the supply chain.

The Roles of a Supply Management Professional

Dr. Joseph Cavinato of the Institute for Supply Management provides the following thoughts on the roles of today’s supply management professionals:

A supply management professional has four key roles:

One is a leadership role in seeking new opportunities in the (supply) marketplace and driving them for follow-through in the organization.

A second role is being an identifier of outsource opportunities, finding the right outsource, and leading the charge to an efficient and effective relationship and oversight system for the organization.

A third management role is also required on a higher level than before. This is the management of systems and relationships. Having the proper eyes, ears, and antennas in place with the proper interpretive mechanisms is an essential value-added need for the organization. It is an assertive contributing role with both outsiders and insiders.

A creator role is called for in the form of identifying new opportunities and making them available to the organization. This means creating strategies, systems, and supply options of entire “packages” of value attributes that span many departments and groups. This also includes seeking and implementing top line revenue opportunities for the organization.
Summary

Purchasing, one of the basic activities common to all organizations, is the process of acquiring goods, services, and equipment from another organization. Purchasing is the foundation of supply management, a process that has an overwhelming impact on the firm’s bottom line. Supply management directly affects the two factors that control the firm’s bottom line: sales and costs.

Supply chain management is the process of managing the flow of raw materials, from Mother Earth to the OEM. It is the upstream portion of the value chain. Marketing and distribution—the downstream side of the value chain—influence demand and sales and manage the movement of finished goods from the OEM through the distribution channel to the end customer. The value chain is a sequence of integrated activities that must be performed by various organizations to move goods from the sources of raw materials to ultimate consumers.

An organization’s success is driven by its ability to compete effectively as a member of its supply and value chain communities, not as an isolated enterprise. The ability to interact quickly with customers, suppliers, and other partners is critical to the survival and success of a firm and its chains.

Chapter 2 addresses the relation between the organizational status of the supply management function and its ability to have an impact on the firm’s success. Insight into this relationship is very useful to the professional who desires to be part of an organization in which his or her efforts will have a significant impact on the organization’s success.

Appendix: An Overview of the Mechanics of Supply Management

The Typical Purchasing Cycle: Materials

A supply management department buys many different types of materials and services. The procedures used in completing a total transaction normally vary among the different type of purchases. However, the general cycle of activities in purchasing most operating materials, supplies, and services is fairly standardized. The following steps constitute the typical purchasing cycle:

▲ Recognize, define, and describe the need.
▲ Transmit the need.
▲ Investigate and select the supplier.
▲ Prepare and issue the purchase order, contract, or agreement.
▲ Follow up the order (including expediting and de-expediting).
▲ Receive and inspect the material.
Audit the invoice.
▲ Close the order.

Figure 1.6 outlines these steps in operational form for a requirement for materials. (Chapters 8 and 9 address the process for the purchase of equipment and of services.) More important, Figure 1.6 details the minimum flow of communications required for a system to function smoothly and efficiently. These communications may be electronic messages or paper documents, depending on the type of system used. The precise form the electronic message or the documents take varies widely from one company to another. The important point to note, however, is that a properly controlled purchase requires extensive communication with numerous work groups. Procurement procedures constitute the framework within which this task is accomplished.

Recognition, Definition, Description, and Transmission of the Need

The need for a purchase typically originates in one of a firm’s operating departments or in its inventory control section. The supply management department is notified of the requirement by one of two methods: a purchase requisition or a material requirements planning (MRP) schedule. The purchase description that is transmitted to the supplier forms the heart of the procurement and is detailed on the requisition form.

Standard Purchase Requisition

The purchase requisition is an internal document, in contrast with the purchase order, which is basically an external document. Most companies use a standard, serial numbered purchase requisition form for requests originating in the operating departments. The requisition communicates the user’s needs. Essential information communicated includes a description of the service, material, quantity, and date required. Requisitions are often electronically transmitted through the approval system to the appropriate buyer. Firms that maintain their inventory records on a computer utilize a programmed inventory monitoring system that identifies the item whose inventory level has reached the reorder point. When the computer detects this condition, it automatically prints an inventory replenishment requisition that goes to purchasing for action—and the purchasing cycle is under way.

Material Requirements Planning Schedule

When a design engineer (or a design team) completes the design of a part or an assembly, he or she makes a list of all the materials (and quantity of each) required to manufacture
<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Using (or control) department issues P.R., MRPS, or B/M</td>
</tr>
<tr>
<td>1a</td>
<td>Check to see if material is in stock</td>
</tr>
<tr>
<td>2</td>
<td>Investigate and qualify potential sources; negotiate, determining price, terms, and conditions; then select supplier. Issue P.O. (This may involve a sourcing team.)</td>
</tr>
<tr>
<td>3</td>
<td>Supplier acknowledges order</td>
</tr>
<tr>
<td>4</td>
<td>Follow-up activity (as needed)</td>
</tr>
<tr>
<td>5</td>
<td>Supplier ships material</td>
</tr>
<tr>
<td>6</td>
<td>Receiving department checks material against packing slip and P.O. and issues R.R. (This step is omitted in some JIT and partnership purchases.)</td>
</tr>
<tr>
<td>7</td>
<td>In cases requiring technical inspection, inspection department inspects material and issues I.R.</td>
</tr>
<tr>
<td>8</td>
<td>Purchasing department closes order</td>
</tr>
<tr>
<td>9</td>
<td>Supplier issues invoice in multiple copies</td>
</tr>
<tr>
<td>10</td>
<td>Accounting department checks invoice against P.O., R.R., and I.R. and issues voucher and/or check</td>
</tr>
</tbody>
</table>

Figure 1.6 General procedure and document flow chart for a typical purchasing cycle.
the item. This list is called an *engineering bill of materials*. In firms using computerized production and inventory planning systems, such as an MRP (materials requirements planning) system, the engineering bill of materials is first reconfigured into a *structured multilevel* bill of materials. This structured bill of materials for each item being manufactured can then be used in determining specific material requirements for a given production schedule during a specific time period. The computer program utilizes the reconfigured “bills” along with the production schedules for all items as input—and calculates as output the precise time-phased requirements for each material that will be used in the manufacturing process. This schedule is then sent to purchasing for direct use in obtaining the required materials. It obviously eliminates the necessity of preparing numerous purchase requisitions—and it is ideally suited for use in a multiproduct intermittent manufacturing operation.

**Supplier Selection and Preparation of the Purchase Order**

As soon as a need has been established and precisely described, the procurement professional begins an investigation of the market to identify potential sources of supply. In the case of routine items for which supplier relationships have already been developed, little additional investigation may be required to select a good source. The purchase of a new or a high-value item, on the other hand, may require a lengthy investigation of potential suppliers.

After qualifying a preliminary group of potential sources, the procurement professional can employ the techniques of competitive bidding or negotiation, or both. When competitive bidding is used, the procurement professional initiates the procedure by requesting quotations from a reasonable number of firms with whom the buying group is willing to do business. Although “request for quotation” forms vary widely among firms, typically they contain the same basic information that will subsequently be included on the purchase order. These requests may even be sent electronically.

Once a supplier has been selected, the supply management department issues a serial numbered purchase order. In most cases the purchase order becomes a legal contract document. For this reason, the procurement professional should take great care in preparing and wording the order. Quality specifications must be described precisely. If engineering drawings, statements of work, or other related documents are to be considered an integral part of the order, they should be incorporated clearly by reference. Quantity requirements, price, and delivery and shipping requirements must be specified accurately. The order should include all data required to ensure a satisfactory contract, and either party should word it in a manner that leaves little room for misinterpretation.

In addition to those provisions that are unique to each contract, most firms also include as a part of every contract a series of terms and conditions that are standard for
all orders (typically called a “boilerplate”). These terms and conditions are designed to give legal protection to the buyer on such matters as contract acceptance, delivery performance, contract termination, shipment rejections, assignment and subcontracting of the order, patent rights and infringements, warranties, compliance with legal regulations, and invoicing and payment procedures. Each company develops its terms and conditions of purchase in accordance with its own unique needs. Consequently, much variation exists among firms. Chapter 17 describes some of the legal considerations that should be addressed when creating a contract.

After an order has been issued, changes in company requirements frequently require a change in the contract. In such cases, the supply professional issues a change order, following the same procedures as were followed for the original order. When accepted by the supplier, the change order either supplements or replaces the original order.

**Acknowledgment and Follow-Up of the Order**

In most cases, the original copy of the purchase order that is sent to the supplier constitutes a legal “offer” to buy. No purchase “contract” exists, however, until the seller “accepts” the buyer’s offer. The seller’s acceptance can take one of two forms: (1) performance of the contract or (2) formal notification that the offer is accepted.

The purpose of sending the supplier an acknowledgment form along with the purchase order is twofold. First, it is a form that can be completed conveniently and returned to the purchasing firm, acknowledging acceptance of the order. At the same time, the supplier can indicate whether it accepts the buying terms and is able to meet the desired delivery date. If a supplier ships the ordered item immediately from stock, it frequently disregards the acknowledgment form thereby accepting the buyer’s terms and conditions for the contract.

If shipment is not made immediately, an acceptance should be sent to the supply management department. Although the acknowledgment form usually serves this purpose, some sellers prefer to use their own forms, which state their terms and conditions of sale. In either event, the procurement professional should check the acceptance closely to see that the supplier has not taken exception to any provisions of the order. If the seller’s acceptance terms are different from those on the buyer’s order, the law holds that they will automatically be incorporated in the contract unless they materially alter the intent of the offer, or unless the buyer files a written objection to their inclusion. In cases where the seller’s and the buyer’s terms are in direct conflict, the law omits such terms from the contract, leaving settlement of the differences to private negotiation or legal adjudication. In view of the posture adopted by the courts on this matter, it is amply clear that a buyer must review suppliers’ order acceptances with great care.
The supply management department’s responsibility for an order does not terminate with the making of a satisfactory contract. Supply management bears full responsibility for an order until the material is received and accepted.

Even though a supplier intends to meet a required delivery date, many problems can arise to prevent it from doing so. When there is a reasonable chance that the supplier may not stay on schedule, important orders with critical delivery dates should receive active follow-up attention. At the time such orders are placed, the procurement professional should determine specific dates on which follow-up checks are to be made.

**Receipt and Inspection**

The next step on the traditional purchasing cycle is receipt and inspection of the order. When a supplier ships material, it includes in the shipping container a packing slip which itemizes and describes the contents of the shipment. The receiving clerk uses this packing slip in conjunction with his or her copy of the purchase order to verify that the correct material has been received. The received materials are often entered electronically into the buyer’s system by keyboard or scanning of a bar code.

**Services**

The procurement of services involves many of the same processes. Instead of a specification developed or adopted by engineering serving as the heart of the purchase order or contract, a statement of work serves this purpose. A team, including the user of the services and procurement professional, develops the statement of work. Frequently, one or more qualified potential suppliers are involved in this development effort. Receipt of services may require a technical inspection to verify services have been received in accordance with the contract. These inspections may be required at various points throughout the completion of the order or contract. Procurement of services can present challenges not experienced in materials buying. Chapter 9 addresses this challenging process.

**The Invoice Audit and Completion of the Order**

Occasionally, a supplier’s billing department makes an error in preparing an invoice, or its shipping department makes an incorrect or incomplete shipment. To ensure that the purchaser makes proper payment for the materials actually received, sound accounting practice dictates that some type of review procedure precedes payment to the supplier.

A typical procedure involves a simultaneous review of the purchase order, the receiving report, and the invoice. By checking the receiving report against the purchase order, the purchaser determines whether the quantity and type of material ordered was in fact
received. Then by comparing the invoice with the purchase order and receiving report, the 
firm verifies that the supplier’s bill is priced correctly and that it covers the proper quantity 
of acceptable material. Finally, by verifying the arithmetic accuracy of the invoice, the cor-
rectness of the total invoice figure is determined.

Auditing invoices is a repetitive, time-consuming task that should be handled as effi-
ciently as possible. It should also be conducted soon after receipt of the invoice to permit 
the accounting department to make prompt payment and obtain any applicable cash dis-
counts. Prompt payment also supports the firm’s efforts to establish and maintain good 
supplier relations. Because of the labor cost involved in auditing invoices, many compa-
nies do not verify the accuracy of low-dollar-value invoices.

Invoice auditing technically is an accounting function. When possible, it is prudent to 
separate the responsibility for authorizing payment for an order from the responsibility for 
placing the order. Theoretically, the purchasing department’s job is completed when the 
material covered by a purchase order has been received in the plant and is ready for use. 
In practice, however, some firms assign the invoice auditing responsibility to accounting, 
while others assign it to purchasing.

In the purchase of complex or technical materials or services, operationally it makes 
sense to assign the auditing task to the professional who handled the order. This indi-
vidual is familiar with the materials or services and their technical nomenclature, prices 
and contract provisions, and all ensuing negotiations. Invoices for such orders often are 
difficult to interpret and evaluate without a detailed knowledge of these things. Auditing 
invoices for the purchase of most standard materials, on the other hand, is a routine task 
that should be assigned to appropriate accounting personnel. A majority of most firms’ 
orders fall in this category.

Figure 1.6 indicates that the supply management department closes its purchase order 
file before the invoice is audited. This is usually the case if accounting audits the invoice. 
When supply management audits the invoice, its records are closed after the audit. Closing 
the order simply entails a consolidation of all documents and correspondence relevant to 
the order; the completed order is then filed in the closed-order file. In most firms, a com-
pleted order consists of the purchase requisition, the open-order file copy of the purchase 
order, the acknowledgment, the receiving report, the inspection report, and any notes or 
correspondence pertaining to the order. The completed order file thus constitutes a histori-
cal record of all activities encompassing the total purchasing cycle.

The Small-Order Problem

Small orders are a perennial problem in every organization—and a serious problem in 
some. An examination of a typical company’s purchase order files reveals that a sizable 
percentage (sometimes up to 80 percent) of its purchases involve an expenditure of less
than $250. In total, however, these purchases constitute a small percentage (seldom more than 10 percent) of the firm’s annual dollar expenditures.

For example, 75 percent of Conoco’s purchase orders are for expenditures of less than $500, and 50 percent are for less than $100. The Intel Corporation found that its purchasing department spent 66 percent of its time managing 1.7 percent of the firm’s expenditures. Kaiser Aluminum Chemical devised a system whereby blank checks were sent along with their orders. This allowed the supplier to fill the order and fill out the check for payment. This system reduced the number of invoices handled, and the amount of time and human capital required to process payments.

Clearly, no manager wants to devote more buying and clerical effort to the expenditure of less than 10 percent of his or her funds than to the expenditure of the other 90 percent. Yet, this frequently is what happens. The very nature of business requires the purchase of many low-value items. Nevertheless, small orders are costly to buyer and seller alike. It costs a seller only a few cents more to process a $1,000 order than it does to process a $10 order. The following sections discuss various methods a purchasing manager can use to minimize the small-order problem.

**Centralized Stores System**

A stores system is the first approach typically used to reduce the volume of small-order purchasing activity. When experience shows that the same supply items are ordered in small quantities time after time, the logical solution is to order these items in larger quantities and place them in a centralized inventory for withdrawal as needed. An analysis of repetitively used production materials leads to the same action for the multitude of low-value items. If usage of an item is reasonably stable, an optimum order quantity can be computed using a basic economic order quantity approach. This will be discussed in detail in Chapter 18. There is, of course, a limit to the number of items and the financial investment a firm can place in inventory.

**Blanket Order System**

A store’s system solves the small-order problem only for items that are used repetitively. A blanket order system helps solve the problem for the thousands of items a firm cannot carry in inventory, as well as some that it does carry.

Briefly, the general procedure used for this type of purchase is as follows. On the basis of an analysis of past purchases, the buyer determines which materials should be handled in this manner. After bidding or negotiating, the buyer selects a supplier for each item, or family of items, and issues a blanket order to each supplier. This order includes a description of each item, a unit price for each item when possible, and the other customary contract provisions. However, no specific order quantities are noted. The blanket order
typically indicates only an estimated usage during the period of coverage (usually one to three years). It also states that requirements are to be delivered upon receipt of a release from the procurement professional or other authorized person. On receiving a requisition for one of the materials, the procurement professional merely sends a brief release form to the supplier. On the release form are noted the blanket order number, the item number, and the quantity to be delivered. Receiving reports are filed with the original order, and at the end of the month are checked against the supplier’s monthly invoice. At the end of the period, the order may be renewed or placed with another firm, depending on the supplier’s performance record.

Many companies develop their own unique modifications of the basic procedure. For example, instead of advising suppliers of order releases by means of a written form, some companies simply issue releases to local suppliers by telephone, fax, or electronically. By noting such releases on the order, the procurement professional still retains adequate control.

In the event that material is needed immediately (and the supplier is nearby), some firms allow the using department to pick up the material without notifying the supply management department. The employee obtaining the material simply endorses and enters the proper accounting charge on the sales receipt, a copy of which is sent to the supply management department. In many firms today, user administration of the blanket order is common place as it frees up time to work on more important tasks.

Benefits of Blanket Orders

- Fewer purchase orders/reduced clerical, purchasing, accounting, and receiving time.
- Less time spent on tactical work allows for more value added activities.
- Offers leverage on volume pricing.
- Reduces lead times and inventory levels.
- Develops longer-term relationships with suppliers.
- Allows supplier to plan more effectively, thereby reducing buyer’s price.

To function effectively in the long run, however, any blanket order system must provide adequate internal control. Absence of the control element encourages petty fraud and poor supplier performance. The elements essential to effective control are:

1. A numbered purchase order, including proper internal accounting charge notations.
2. A record of authorized delivery releases.
3. Bona fide evidence of receipt of the material.

Despite the fact that blanket order systems offer both the buying and the supplying organizations a number of important benefits, organizations often fail to fully utilize this tool in dealing with the issues of small orders.
Systems Contracting

Frequently used as a basic purchasing strategy, as well as an approach for minimizing the small-order problem, systems contracting is an extension and more sophisticated development of the blanket order purchasing concept. Some firms call it “stockless” purchasing.

As its name implies, systems contracting involves the development of a corporate-wide agreement, often a one- to five-year requirements contract, with a supplier to purchase a large group or “family” of related materials. The items to be purchased are usually described in detail in a “catalog” that becomes part of the contract. Estimated usage usually is included, along with a fixed price for each item and an agreement by the supplier to carry a stock of each item adequate to meet the buyer’s needs. Various types of supplies and commonly used operating items, typically purchased from distributors, are the materials most often covered by these types of agreements.\(^{18}\)

In addition to the benefits of blanket order purchasing, a major objective of systems contracting is to minimize both the buyer’s and the supplier’s administrative costs associated with the purchases. The operating procedures of the two firms are integrated to the extent practical. For example, users in the buyer’s various operating locations usually send their purchase requisitions directly to the supplier holding the contract for the item. The requisition thus serves as the purchase order. The supplier then simply maintains a list of such shipments on a “tally sheet,” identifying each by the requisition number (or a supplier-assigned number), and periodically (monthly or semi-monthly) submits the tally sheet to the buyer for payment in lieu of an invoice.

These types of integrated procedures and shortcuts typically develop a closer relationship between the two firms and reduce paperwork and associated costs markedly. The buyer’s inventories and carrying costs obviously decline as well.

Electronic Ordering Systems

The evolution of the Internet has created opportunities to purchase products and services more efficiently. Computers talking to computers replenish inventory of repetitively used items thereby expediting the purchasing process, reducing paperwork, and simplifying internal accounting and control.

A platform developed to facilitate electronic buying, the Trading Process Network developed by General Electric can help buyers collaborate with suppliers via e-mail, post information to suppliers via their TPN Office Website, and share engineering information and other information securely. Capable of interfacing with all aspects of the supply chain, GE touts that its TPN Business Services link the enterprise with the trading community by providing an electronic channel for distributing information around the world.\(^{19}\)
Chapter One

Purchase Debit and Credit Cards

The use of corporate debit and credit cards by employees for MRO purchases and small-order buys has become commonplace. In addition to eliminating the need for most purchase orders, this buying technique reduces the purchasing cycle time, improves purchasing relations with operating departments, provides much faster payment to suppliers, and significantly reduces the workload in the accounts payable department.

The debit cards often offer the same protection to the buying firm without the interest that would be charged on credit transactions. Banks advertise the business debit card as being safer than cash, faster than writing a check, and easier to track. It can be used to pay recurring payments such as Internet service or insurance premiums. Both debit and credit cards offer detailed records of use to allow for control and protection against unauthorized use.

Internally, cards are issued to operating department personnel with preset spending limits, variable daily limits on purchases, or various tools to protect the account from fraud. Each card carries the appropriate departmental accounting charge number. The organization then receives a detailed monthly bank statement with the purchase and account number so that the account can be reconciled against expenses reported by the various users.

Many financial institutions today make it very inviting for companies to use debit and credit cards by offering perks such as purchase assurance and extended warranties, roadside assistance, travel services and assistance, and in some cases, insurance coverage.

Supplier Stores/Consignment System

If a purchaser buys a large enough volume of certain materials from a single supplier, the supplier sometimes can afford to staff a small “store” at the purchaser’s plant and operate it on a consignment basis. Some suppliers find that annual purchases of approximately $100,000 justify such a branch operation. Users then simply go to the store and sign for their purchases. At the end of the month, the company is billed for its purchases.

This system clearly is not a short-term arrangement. The purchaser, therefore, must take great care in selecting the supplier and in negotiating the terms of the agreement.

Supplier Delivery System

The supplier delivery system is somewhat similar to a supplier store system, but it is more feasible for firms with a smaller volume of purchases. Many suppliers who are not willing to set up a store at the buyer’s plant are willing to stock numerous miscellaneous materials and make daily or semiweekly deliveries. Purchase requisitions for such materials are accumulated. The supplier’s delivery person then picks them up on the specified day, and at the same time delivers the material ordered on the preceding batch of requisitions. This continuous shuttle service provides reasonably fast delivery and also reduces
the purchaser’s paperwork and inventory problems. Properly designed, the system can provide for adequate accounting control.

**Concluding Remarks**

The basic steps in the purchasing cycle are the same for any buy. The time and effort put into completing each step will vary depending on the importance of the need. With today’s technology, many of these steps may be automated. The end result of this process may vary depending on the skill of the procurement professional or sophistication of the organization’s buying process.

**Endnotes**

3. This research was reported at the 8th International Annual IPSERA Conference, London, UK, March 1998. Total cost of ownership is addressed in Chapter 15.
4. This research was reported at the 8th International Annual IPSERA Conference, London, UK, March 1998.
6. Reliability is the degree of confidence or probability that an item will perform a specified number of times under prescribed conditions. See David N Burt, *Proactive Procurement* (Englewood Cliffs, N J; Prentice Hall, 1984), 24.
7. Maintainability addresses how easily an item can be repaired or restored to operational status.
12. “Supply Chains and Supply Networks: How Do I Win?” This research was reported by Nick Little, MCIPS, Assistant Director Executive Development Programs, The Eli Broad Graduate School of Management MSU, at the 90th Annual International Supply Management Conference, Minneapolis, MN, May 2005, 3–4.


14. In practical purchasing terminology, these types of purchases are termed “rebuys” or “modified rebuys.”


Suggested Reading


Giannakis, Mihalis and Simon R. Croomm. “Toward the Development of a Supply Chain Management Paradigm: a Conceptual Framework.” The Journal of Supply Chain Management Spring (2004): 27. Giannakis and Croom describe an interesting supply chain problem domain called the “3s model.” This model describes: (1) the synthesis of the business and resources network, (2) the characteristics of synergy between the different actors in the network, and (3) the synchronization of all operational decisions involved in the production of goods and services.


